

**THE ROLE OF DEPARTMENTAL HEADS IN IMPROVING LEARNERS'
ACHIEVEMENT IN MATHEMATICS IN LIMPOPO PRIMARY SCHOOLS**

BY

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DECLARATION

I, Baloyi Dingani Graham, hereby affirm that the present thesis, titled “The role of Departmental heads in improving learners’ achievement in Mathematics in Limpopo primary schools,” is being submitted to the University of South Africa in partial fulfilment of the requirements for the Doctor of Philosophy degree in Education, with a specialisation in Education Management, within the College of Education. The researcher affirms that this thesis is entirely my own work and has not been previously submitted for any other academic degree or professional qualification, unless otherwise indicated through proper citation or acknowledgement.

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DEDICATION

This thesis is dedicated to the author's children, Ntlakuso, Twarisani and Junior, whose unwavering support was vital in the successful completion of this work. My acquaintances, Dr. Sambo S.I., I would like to express my gratitude to Hlungwani X.J., my co-workers, as well as my manager and circuit manager, Dr. Chauke T.M., for their invaluable support and encouragement throughout my research endeavour. Additionally, I am grateful for their permission to utilise the resources that were made accessible to me at the workplace. The accomplishment would not have been possible without their assistance.

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- I am capable of achieving any tasks and challenges with the support and empowerment provided by Christ.

ABSTRACT

The aim of the study was to investigate how the academic leadership of Departmental heads performativity functions improve quality learner performance in Mathematics in Limpopo, South Africa. Specifically, the study focused on the role of Mathematics Departmental heads. The current prevalence of managerialism in the education sector has resulted in a strong emphasis on the implementation of efficient management practices in schools, with the aim of enhancing learner accomplishment. This places a significant burden on Departmental heads and teachers to enhance their performance, particularly in the field of Mathematics. Furthermore, this phenomenon has resulted in the Department of Basic Education and School Management Teams placing increased emphasis on holding individuals responsible for enhancing learner achievements. As a result, there has been a proliferation of continuous monitoring practices, which encompass various methods like as inspections, audits and the establishment of achievement targets. Conversely, the increase in accountability has resulted in significant repercussions for instances of failure, which are seen in the closure of underperforming schools, the withdrawal of financial resources, the reassignment of principals and the requirement for teachers to justify their shortcomings.

The study is situated within a qualitative research approach, specifically employing a case study research design and adopting the constructivist (interpretivist) research paradigm. The data for this study was collected through in-depth semi-structured individual interviews and document analysis. Specifically, Mathematics Departmental heads, teachers, principals and curriculum advisors were purposively selected to participate in the research. The researcher used the method of inductive thematic analysis to analyse the collected data. The study was supported by two prominent theories, specifically the Deming quality management theory and the Joseph Juran quality management theory. These theories were used to guide the literature review and inform the data collection process.

The results of the study indicate that Departmental heads play a significant role in enhancing learners' performance in Mathematics through their curriculum leadership responsibilities. These responsibilities encompass offering assistance and guidance to teachers, ensuring the provision of high-quality curriculum

materials, conducting teacher evaluations, monitoring and overseeing the completion of teachers' and learners' workbooks, and providing mentorship and professional development opportunities for teachers. Furthermore, Departmental heads are assigned the responsibility of executing administrative tasks related to curriculum management. The discovery also brought attention to the difficulties that Departmental heads faced, which hindered their ability to fulfil their responsibilities as leaders in instruction. The aforementioned problems appear to have a detrimental impact on the efforts of Mathematics Departmental heads to enhance learners' academic achievements in educational institutions. In conclusion, the results of the study indicate that there is a need for targeted training in certain domains, such as curriculum management and leadership, in order to effectively assist teachers and learners in the field of Mathematics department. The results of this study can be utilised by researchers to aid in the creation of a standardised framework. This framework can then be employed to enhance the leadership training of Mathematics Departmental heads who aspire to improve their role in curriculum leadership. Consequently, this training would have an impact on teachers' classroom practices and teaching methods, as well as on the academic performance of learners.

Key words: instructional leadership, Departmental heads, learners' achievement, Mathematics.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACE-SL	Advanced Certificate in Education in School Leadership
CA	Curriculum Advisor
DBE	Department of Basic Education
DH	Departmental Head
EEA	Employment of Educators Act
IALA	International Assessment of Learner Achievement
IEA	International Association for the Evaluation of Educational Achievement
IMO	International Mathematics Olympiad
IQMS	Integrated Quality Management Systems
OECD	Organisation for Economic Cooperation and Development
PAM	Personnel Administrative Measures
RNCS	Revised National Curriculum Statement
SACE	South African Council of Educators
SASA	South African School Act
SMT	School Management Team
SSA	Statistics South Africa
TIMMS	The Trend on International Mathematics and Science Study
TQM	Total Quality Management
UK	United Kingdom
USA	United State of America

CHAPTER 1: OVERVIEW OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

In recent years, there has been a shift by several nations around the world in the education sector from the traditional professional management approach to a more severe performance-based oriented approach on management in education (Gond, Cabantous, Harding, & Learmonth, 2015). The change focused on monitoring and ensuring that schools accomplish and yield excellent results in learner attainment. This extreme emphasis on performance and production of decent results by educational authorities is what Garud and Gehman (2019) refers to as “performativity”. According to Bush (2019), there is an intensification in performativity culture as a global phenomenon, which has had an influence on all who work in education. The author highlights that globally, the education systems in various countries, including the United States of America (USA), United Kingdom (UK), and Australia, are exerting pressure on schools to demonstrate performance by emphasising efficient management and oversight through on-site evaluations and monitoring of individuals and groups. Brady (2019) asserts that performativity is a major shift in the way education systems view and exercise management in schools and has shifted focus to the quality assertion of every sphere of work performed by the schools.

Crooks (2019) posits that performativity represents a novel approach to state regulation, enabling the implementation of advanced liberal management strategies. In the same breath, Ernest (2019) describes performativity as a principle of governance, which creates strictly functional relations between an institution and its inside and outside environment. Essentially, this mechanism functions as a method by which authorities can ensure that educational institutions maintain a state of alertness and actively participate in self-governance in order to attain exceptional results that align with internationally recognised standards. Appel (2020) also supports that performativity is a great focus on performance, which authorities implement by focusing on gauging performance of learners through testing, national examinations, cohort assessments and comparing performance between schools, districts and countries worldwide as a means of measuring learners’ standard of performance. The author further points out that authorities pressurise schools to perform through the use of mechanisms such as inspections, audits, setting targets of achievement that

schools are expected to meet and developing education policies which spell out the consequences of failure such as closure of underperforming schools, withdrawal of funding, redeployment of principals and teachers being summoned to account directly for failure to produce acceptable outcomes.

Performativity culture is aimed at generating quality in schools in terms of how they perform. According to Macfarlane (2019), quality is conformance to requirements. Within the educational context, it can be inferred that administrators assess the level of excellence by means of observing adherence to regulations and benchmarks. Macfarlane (2019) supports this assumption by stating that managers have to talk to employees about all the actions necessary to run an organisation in order to perform effectively and produce excellence results. In turn, employees are expected to work towards provision of quality by conforming to policy expectations and producing quality results visible through improved learner performance.

The South African education system has also incorporated the culture of performativity. The South African education system demonstrates a shift towards a culture of performativity, as evidenced by the Revised National Curriculum Statement (RNCS) of 2003. The RNCS (2003) for Mathematics in Grades 10 to 12 outlines the learning outcomes and assessment criteria that must be adhered to by Mathematics teachers. Any variation from this policy was deemed unacceptable by the Department of Education (DoE). The Employment of Educators Act (1998), henceforth denoted as the EEA (1998), also serves as an indication of a significant transition within the South African education system towards emphasising performativity. According to the EEA, teachers working in South Africa are bound to follow lawful instructions, verbal or written. This indicates that teachers have to follow education policies without deviance. More evidence of a shift towards performativity and new managerialism is evident in the high focus on Grade 12 examinations and results; Annual National Assessments (ANA) for Grade 3, 6 and 9; involvement in Trends in International Mathematics and Science Study (TIMSS) and International Mathematics Olympiad (IMO) assessments (OECD, 2019). According to Bertram and Mxenge (2022), performativity can be understood as a techniques and a regulatory mechanism that use assessments, comparisons and demonstrations to incentivise, regulate, diminish and transform unacceptable behaviour. It is clear that performativity emphasises efficacy, high levels of performance, competition and quality through the use of highly dependable

instruments of monitoring, reviews, assessments, annual reviews, peer reviews and publicising of results. However, a prevailing issue persists in educational institutions worldwide, wherein learners consistently exhibit inadequate performance in the subject of Mathematics.

According to a study published by the Organisation for Economic Cooperation and Development (OECD) in 2019, there has been a worldwide decrease in Mathematics achievement. Based on the 2019 OECD research, a significant decline in Mathematics proficiency was observed inside the USA. The assessment findings indicated a decrease of 10 percent in comparison to the preceding review. According to the research, the average performance of learners in the USA in the field of Mathematics showed a decline from 577 in 2012 to 567 in 2014. The International Assessment of Learner Achievement (2015), specifically focusing on TIMSS, provides additional evidence indicating subpar performance in Mathematics. It assesses learners in Mathematics, science and language in Grades 4 and 8. The TIMSS report for 2015 on Mathematics showed a decline in the performance of learners in the USA, UK, Canada, France, Holland and Germany. The USA results according to the TIMSS report shows a decline by 20 percent from an average of 513 in 2011 to an average of 493 in 2015. In England, performance in Mathematics dropped by 11 percent from an average of 518 in 2011 to an average of 507 in 2015. The painful findings from statistics of assessment reports internationally show a steady drop in learner performance in Mathematics. According to Dr. Hastedt, Executive Director of IEA, the trend of decreasing performance in Mathematics globally might be caused by factors such as school safety, teacher education and lack of resources in Mathematics (IEA, 2015). According to the findings of Venkat and Spaul (2015) as well as Marishane et al. (2015), it may be argued that inadequate teacher content understanding and a lack of professional development opportunities for educators contribute to subpar performance in Mathematics.

In the specific regional setting, it is apparent that South Africa is encountering difficulties with regard to the scholastic achievement of pupils in the domain of Mathematics. According to Milthorpe's (2015) study, the TIMSS showed that South Africa demonstrated the least amount of proficiency in Mathematics in 2015. According to the author, South Africa ranked last out of the 45 participating countries in the Grade 8 Mathematics assessment. In addition to its lacklustre performance, South Africa also

exemplifies the prevailing global patterns of diminishing learner achievement in the field of Mathematics. The decline in performance among Grade 8 pupils was clearly demonstrated in the TIMSS report for Mathematics assessment, spanning the period from 1995 to 2002. According to the International Association for the Evaluation of Educational Achievement (IEA, 2015), the study indicates that the average percentage for the years 1995, 1999, and 2002 were recorded as 276, 275 and 264, respectively. The aforementioned phenomenon is similarly observed in the performance of learners participating in the IMO for the year 2014, as documented in the OECD report of 2019. According to the research, South Africa achieved a ranking of 64 out of the 101 countries that participated. According to the 2014 IMO report, there was a consistent decrease in student performance in Mathematics from 1994 to 2014. The presence of a significant educational crisis in numerous countries, including South Africa, is apparent in the realm of Mathematics achievement.

Within the context of the South African education system, it is the duty of DHs to assume the role of giving guidance and administration in many academic disciplines, such as Mathematics (Darling-Hammond et al., 2019). According to Darling-Hammond et al. (2019), the Departmental head (DH) is an experienced teacher who is assigned specific responsibilities within a certain department of a school. Alsharif and Alamri (2020) argue that it is imperative to recognise the substantial impact of DHs within the realm of curriculum and education. According to the study conducted by Myende and Bhengu (2015), the principal objective of educational institutions is to ease the pedagogical process of imparting knowledge and fostering learning. In other words, they are the people responsible with ensuring that there is performance in subjects they are managing such as Mathematics. Since it is clear that DHs have entrusted powers to manage subjects (Department of Basic Education [DBE], 2016), and statistics provided by many reports such as the IMO (2014); OECD (2019) and IEA (2015) have shown repeatedly that learners are not doing well in Mathematics, it seems clear that DHs in Mathematics are not performing their managerial duties as expected. The question is: How do the academic leadership functions of Departmental heads in primary schools improve learner performance in Mathematics?

In view of the above background and argument, the researcher aims to undertake a study that investigate how DHs' academic leadership performativity functions improve quality learner performance in Mathematics. The research centres on the scholarly

performance functions of Mathematics DHs in enhancing the standard of instruction and educational outcomes in elementary schools. The study was carried out in the Klein Letaba circuit. The circuit is situated inside the Mopani East region of the Limpopo province, located in the Republic of South Africa. The study includes a comprehensive selection of 18 typical primary schools, from which the sample was derived.

1.2 STATEMENT OF THE PROBLEM

There is a global and, more particularly, a South African concern with the substandard academic achievement of learners in the field of Mathematics, as evidenced in the works of Milthorpe (2015), Banerjee (2016), Jojo (2019), and Makofone and Maile (2019). This poor performance in Mathematics points a finger at DHs who have entrusted powers to manage the Mathematics department to produce decent results (Darling-Hammond et al., 2019). DHs seem to be lacking in the performance of their delegated duty if the problem of poor performance in Mathematics carries on unchanged.

Most studies focused on factors causing poor performance (Garcia & Serra, 2019; Milthorpe, 2015; Namkung et al., 2019) and not many studies have dealt with the management and leadership role of DHs in improving performance in Mathematics in primary schools. In their study, Harris, Jones, Ismail, and Nguyen (2019) examined the leadership responsibilities of DHs in primary schools. However, their research did not address the specific aspects of DHs' management and leadership roles in enhancing Mathematics performance, including their duties and their perceptions of factors that contribute to improved performance in Mathematics. The objective of this study is to examine the impact of managerial and leadership skills possessed by Departmental heads (DHs) on the improvement of performance in the field of Mathematics focusing on their duties, qualities required to manage effectively, challenges they face in managing Mathematics, leadership styles perceived by DHs as effective in managing the Mathematics department, and what DHs perceive as factors that can improve performance in Mathematics. The study aims to enhance knowledge, particularly within the Department of Basic Education, about intervention tactics and training programmes that can support teachers in effectively instructing Mathematics. The objective of this study is to examine the impact of managerial and

leadership skills possessed by Departmental heads (DHs) on the improvement of performance in the field of Mathematics focusing on their duties, qualities required to manage effectively, challenges they face in managing Mathematics, leadership styles perceived by DHs as effective in managing the Mathematics department, and what DHs perceive as factors that can improve performance in Mathematics. The study aims to enhance knowledge, particularly within the Department of Basic Education (DBE) about intervention tactics and training programmes that can support teachers in effectively instructing Mathematics. The primary objective of this study is to expand the existing knowledge base, namely within the DBE, regarding intervention strategies and training initiatives that can assist teachers in delivering Mathematics instructions more successfully. The aim of this study is to optimise the performance levels of teachers finally resulting in enhanced outcomes in the field of Mathematics instruction. The aim of this study is to investigate the influence of academic leadership performance exhibited by Departmental heads on the level of learner performance in Mathematics at primary school level. The study is guided by the following research questions:

1.3 RESEARCH QUESTIONS

Main Research Question for the study

- How do the academic leadership functions of Departmental heads in primary schools improve learner performance in Mathematics?

In order to address the primary research question, it is important to consider the following subsidiary inquiries:

- What management duties do DHs perform in improving performance in Mathematics?
- How do DHs perform their duties towards improving learner achievement in Mathematics?
- What are the challenges that DHs face when performing their duties in improving performance in Mathematics?
- What intervention strategies do you implement to mitigate challenges you encountered while performing your function of improving learner performance?

- What do DHs perceive as strategies that can assist to improve performance in Mathematics?

1.4 RATIONALE FOR THE STUDY

This study utilises the author's first-hand experience as a Mathematics teacher and member of the SMT. Before assuming the role of principal at a primary school, the researcher had eight years' professional experience serving as a Departmental head (DH). Based on my own experience as a DH, it has become evident that a significant number of individuals in the DH field lack a comprehensive understanding of their responsibilities pertaining to leadership and management within their respective departments. As stated by Dayson (2016), the responsibilities of DHs encompass several aspects such as assuming leadership of a specific subject or phase, assigning subjects and overseeing teaching and learning activities. Nevertheless, DHs encounter challenges while attempting to execute these tasks.

The poor performance in Mathematics suggests that DHs are not performing their duties effectively. This issue highlights a deficiency in the knowledge and abilities of DHs in effectively managing the curriculum delivery of Mathematics in education institutions (Milthorpe, 2015). According to Jojo's (2019) research, an identified factor contributing to subpar academic achievement in Mathematics is inadequate school management. Specifically, this issue implicates DHs who hold direct responsibility for overseeing Mathematics management.

Numerous scholarly investigations, including Milthorpe (2015), Jameel and Ali (2016), and Ngema and Lekheto (2019), have mostly concentrated on examining the underlying causes of substandard performance in the field of Mathematics, as well as the obstacles encountered by both students and educators in this subject area. These studies failed to offer comprehensive understanding of the managerial and leadership responsibilities of DHs in enhancing academic performance in the field of Mathematics within educational institutions. This study aims to address the existing vacuum in the academic literature by presenting empirical evidence on the managerial and leadership responsibilities of DHs in enhancing academic performance in the field of Mathematics within educational institutions. The research centred on the responsibilities of DHs in the management of Mathematics, the essential qualities

(knowledge and skills) necessary for effective management, and the challenges encountered by DHs in the management of Mathematics. Additionally, the study examined the factors (strategies) perceived by DHs as potential enhancers of performance in Mathematics, as well as the leadership styles deemed effective by DHs in the management of Mathematics within educational institutions. This study is based on the premise that different DHs may exhibit varying leadership qualities and management abilities necessary for overseeing Mathematics, and that these skills may be enhanced through interventions and training. The study aimed to examine the impact of academic leadership performance by DHs on the quality of learner performance in Mathematics within elementary schools.

1.5 THE PURPOSE STATEMENT

The main aim of this study is to **investigate how the academic leadership functions of Departmental heads in primary schools improve learner performance in Mathematics**. The study is directed by the following accompanying aims.

1.6 THE AIMS OF THE STUDY

The aims of this study arising from the research questions are as follows:

- To determine the academic leadership of DHs in improving performance in Mathematics in primary schools.
- To explore how DHs perform their duties towards improving learner performance in Mathematics.
- To understand the challenges that DHs face when performing their duties in improving performance in Mathematics.
- To investigate strategies that DHs perceive can assist to improve performance in Mathematics.

1.7 LITERATURE REVIEW OF THE STUDY

The research focused on examining the academic leadership responsibilities undertaken by DHs with the aim of enhancing the level of learner accomplishment in the field of Mathematics. The literature review of this study focuses on the managerial function and leadership qualities exhibited by DHs. The role of principals at educational institutions includes the responsibility of supervising curriculum

implementation and ensuring effective learner attainment. However, it is worth noting that the DHs have a crucial role in influencing the quality of teaching and learning on a daily basis (Shaked & Schechter, 2017). The authors also assert that DHs have a pivotal function in the execution and administration of educational programmes within educational institutions. The research centred on examining the academic leadership responsibilities undertaken by DHs with the aim of enhancing the level of learner accomplishment in the field of Mathematics. The researcher conducted an investigation of the many roles and duties undertaken by DHs in their efforts to enhance the quality of teaching and learning inside educational institutions. The literature also examines the leadership and management strategies employed by DHs in order to improve student progress in the Mathematics curriculum.

Furthermore, the study examined the various leadership styles utilised by DHs when assuming leadership roles within Mathematics departments at educational institutions. Regarding the study, DHs employ diverse leadership styles when addressing routine circumstances. According to Igbal and Haider (2015), it is argued that no single leadership style can be deemed better than any other. The discourse on leadership styles is extensively examined in Chapter 2.

In addition, the research also examined the obstacles encountered by DHs that impede their ability to fulfil their duties and obligations inside educational institutions (Tapala et al., 2020). The obstacles present themselves in diverse forms and at various times during the DHs' endeavours. Several scholarly investigations have identified the difficulties encountered by DHs in educational institutions, with a particular emphasis on the field of Mathematics (Banerjee, 2018; Onasanya, 2020; Tapala et al., 2020; Zide, 2020). These challenges encompass the various obstacles faced by DHs in fulfilling their responsibilities as managers of Mathematics departments within schools. The aforementioned problems are thoroughly examined in the subsequent chapter.

Additionally, scholarly research has also examined the training and preparation that DHs undergo before assuming their professional responsibilities. The training and preparation mentioned are considered a type of professional development that DHs experience as part of their educational responsibilities in management. The supervisors and the DBE implemented these professional development efforts through

Curriculum advisors (CAs). It is crucial to consider the unique South African setting in relation to DHs, which diverges from that of industrialised nations. Notably, South Africa does not mandate a formal qualification as a prerequisite for individuals to serve as DHs (Tapala et al., 2020). Chapter 2 of the study extensively examines the literature, focusing on a comparative analysis of the South African context of DHs with other developed nations such as the UK, the USA, Canada, Australia and developing nations such as Kenya.

1.8. THEORETICAL AND CONCEPTUAL FRAMEWORK

The study used two theories as the theoretical framework. The quality management theory proposed by Deming was implemented concurrently with Joseph Juran's idea. These two theories exhibit a high degree of correspondence and demonstrate a strong relevance to the study, as they specifically address the topic of quality management in organisational contexts, including educational institutions such as schools. Furthermore, the incorporation of these two theories provided a valuable contribution to the existing body of knowledge on quality management, while also enhancing the understanding of data collection and analysis in the present study. Chapter 3 engages in a deliberation of the theories.

1.9 METHODOLOGY

Leedy and Ormrod (2015) claim that research methodology encompasses a comprehensive strategy used by the researcher in carrying out a research endeavour, hence influencing the selection of specific instruments utilised in the study.

1.9.1 Research Approach

The study used a qualitative research methodology. Leedy and Ormrod (2015) define the term "qualitative research approach" as an approach that centres on the concept that humans develop their own comprehension of reality via their interactions and experiences with the tangible world. Creswell and Poth (2016) described the qualitative research approach as occurring within a natural context. This approach allows the researcher to achieve a thorough knowledge by actively engaging with the real occurrences.

1.9.2 Research Paradigm

The research study was based on the social constructivist research paradigm, which is alternatively known as interpretivism, according to Canellia and Lincoln (2015). According to Maxfield (2015), an interpretive approach is characterised as a qualitative method of investigation that seeks to attain a more profound understanding of human processes within the specific context of the research. Thanh and Thanh (2015) assert that the social constructivism paradigm offers a theoretical framework that allows researchers to explore the world by considering the viewpoints and lived experiences of individuals involved.

1.9.3 Research Design

The study used a case study methodology. According to Ghauri et al. (2020), the use of a case study enables the researcher to obtain a thorough, organised and profound understanding of each individual instance being examined. Chidziva (2017) asserts that a case study has the capacity to generate primary data and presents distinctive opportunities for conducting a thorough investigation of a specific incident. The case study was conducted with the objective of acquiring comprehensive and insightful information regarding the managerial responsibilities of DHs in enhancing learner performance in Mathematics within public schools.

1.9.4 Research Site and Sampling

The participants who were selected for this research study were principals, a Curriculum advisor (CA), teachers and DHs who were involved in the teaching and learning of Mathematics in primary schools in the Klein Letaba circuit, Mopani district in Limpopo province. The primary schools in the Klein Letaba circuit are served by a total of eighteen (18) DHs who are responsible for Mathematics. The sample that was carefully chosen for this study was consisted of six (06) Mathematics teachers, six (06) DHs who are responsible for Mathematics in primary schools, six (06) principals and CA. The rationale for selecting nineteen (19) participants was to allow information saturation during data collection. The issue of gender was considered in the selection process of participants.

1.10 DATA COLLECTION OF THE STUDY

The research used interviews and document analysis as data collection method to acquire information. The incorporation of different methodologies for data collection enhances the inclusiveness of data while reducing overreliance on a single method of data gathering. In addition, the incorporation of both data gathering procedures served to augment the credibility and dependability of the research (Leedy & Ormrod, 2015).

1.10.1 Interviews used in the study

The data-gathering methodology used in this study entailed the administration of interviews to the participants. According to Brace (2018), the interview approach is used with the aim of extracting the experiences, perspectives and feelings of the participants. Brace (2018) asserts that interviews are conducted with the purpose of extracting people's thoughts and perceptions. The author additionally posits that the use of interviews as a research methodology allows participants to express their thoughts, feelings and opinions, hence promoting the development of a full comprehension of the event or phenomenon being examined.

1.10.1.1 Semi-structured in-depth interviews

The researcher conducted in-depth, semi-structured interviews. According to Scrober (2017), a prevalent approach among researchers using case study as a research design is the use of semi-structured in-depth interviews. According to Brace (2018), interviews serve as the primary method for data collecting in case study research. Ruben and Babbie (2016) posit that a semi-structured interview is characterised by the inclusion of both standardised and additional questions that are specifically suited to the individual being interviewed. These tailored questions serve the purpose of seeking clarification or delving further into the interviewee's thought processes. Semi-structured interviews involve posing a standardised set of questions to each participant, while allowing the researcher the flexibility to ask follow-up questions for the purpose of seeking clarification (Scrober, 2017). The decision to implement semi-structured interviews in this study was considered appropriate because they enabled the researcher to use probes or follow-up questions, thus facilitating the retrieval of undisclosed information from the participants (Ruben & Babbie, 2016).

1.10.1.2 Procedure for data collection using semi-structured, in-depth interviews

The interviews conducted in this study were guided by a structured interview schedule, which included semi-structured questions designed for each participant to respond to. The interview questions were asked in English for all the participants. This was because teachers, DHs, principals and CA were deemed literate in English and the assumption was that the majority were highly qualified since they were occupying promotional posts. The interviews were done in a face-to-face format, taking into account the imperative of maintaining social distancing measures in light of the ongoing Covid-19 outbreak.

The interviews begin by asking fundamental questions on biographical information, with the purpose of fostering a sense of comfort and relaxation among them. Leedy and Ormrod (2015) assert that it is imperative for an interviewer to cultivate rapport with participants through engaging in casual conversation, which serves to alleviate tension and generate a comfortable atmosphere. The subsequent interviews involved the formulation of semi-structured questions, which required participants to share their experiences, emotions, perceptions and viewpoints pertaining to the research subject. During the course of the interviews, the researcher employed an audio recorder to document the participants' responses (Ruben & Babbie, 2016), having obtained their explicit consent to do so. According to Creswell (2015), there are advantages to recording interviews, as it relieves the researcher from the task of note-taking, thereby conserving their energy and enabling them to focus on actively engaging with the participants, picking up on non-verbal cues, and asking probing follow-up questions. Creswell (2015) further recommends that interviews should be transcribed promptly, while the researcher's recollection of the interview remains vivid. This method was used as a means of ensuring the trustworthiness of the gathered data.

1.10.2 Document Analysis used in the study

In addition to interviews, the researcher used document analysis as a supplementary method for data collecting. The use of document analysis served the objective of augmenting the comprehensiveness of the gathered data and bolstering the findings obtained from the interviews. According to Creswell (2015), the use of documents plays a crucial role in the presentation of data, since it enhances the visibility of the

phenomena being examined. According to Silverman (2016), document analysis can aid researchers in gaining access to individuals who are otherwise difficult to contact. There is a wide array of official documents within educational institutions, including but not limited to memoranda, meeting minutes, working papers and draft proposals. These documents serve as informal records that offer an internal viewpoint of an organisation (Aksan & Baki, 2017).

The researcher considered that the use of document analysis was appropriate for this study due to its ability to furnish supplementary information pertaining to the academic leadership responsibilities of DHs in enhancing the quality of Mathematics education in primary schools. By asking DHs to provide documents, the researcher successfully revealed the importance of DH in enhancing the standard of Mathematics education in elementary schools. The records included supplementary information originating from the overall administration of the Mathematics department in educational institutions. The data that was analysed through the scrutiny of papers was used to validate the information gained through interviews. According to McMillan and Schumacher (2015), it is imperative to validate the inferred significance of artefacts by cross-referencing them with observational data and interview-based insights.

1.11 DATA ANALYSIS OF THE STUDY

In the context of qualitative research, it is important to note that data analysis is an iterative process that occurs not just during the analysis stage, but also during the data collection process (Franklin et al., 2017). The data was analysed using the method of inductive data analysis, as described by Leedy and Ormrod (2015). The justification for using inductive analysis lies in the fact that the data gathered for this study consists of narratives, which inherently generate textual data. The data analysis process followed the recommendations proposed by Akinyode and Khan (2018). These guidelines consist of the following steps: organising relevant data into groups, transcribing, coding and generating themes.

In addition to inductive data analysis, the researcher also analysed the materials used by Mathematics DHs for the overall administration of the subject. The documents were analysed in order to identify any potential connections between their content and the everyday management of DHs, as well as their impact on enhancing performance in the subject matter. The data and their interpretations underwent rigorous examination

in order to identify any underlying themes and patterns. Subsequently, the researcher amalgamated the gathered data to formulate a comprehensive depiction of the investigation, and to formulate conclusions.

1.12 TRUSTWORTHINESS OF THE STUDY

Initially, as an individual, the researcher acknowledge my own limitations in terms of my level of involvement as a member of the SMT. In light of this circumstance, it is possible that the researcher may exhibit a certain degree of bias towards the participants, given my prior professional experience as the DH of Mathematics. In order to mitigate bias in the study, bracketing was employed. According to Dibete (2015), bracketing is a methodological technique used in case study research that involves the deliberate suspension of one's personal beliefs regarding the topic being investigated. The method of reflexivity, as outlined by Van der Wal (2015), was used in this study. This approach requires the researcher to continually reflect upon and critically examine the subject of the research. This technique necessitates the researcher's acknowledgement of the need for an impartial assessment of their own values and interests that could conceivably impact the study process. In order to bolster the study's credibility, methodological strategies such as member-checking and extended periods of field involvement were implemented for data collecting. According to Dibete (2015), member-checking is a methodical process that involves obtaining feedback from the study participants evaluating many aspects of the research, including data, analytic categories, interpretation and findings. The study's credibility was maintained by using information-seeking probes and integrating follow-up questions during the interview phase. The participants were provided with the transcriptions of the interviews in order to enable them to validate the accuracy of the material before initiating the data analysis phase. The inclusion of thorough and specific portrayals of individuals and environments, via a nuanced and immersive methodology, facilitated the reader's capacity to evaluate the applicability of the results to similar situations (Dibete, 2015).

1.13 ETHICAL ISSUES OF THE STUDY

After getting approval for the research plan from the supervisor, the researcher proceeded to formally request ethical clearance by submitting a written application to

the Ethics Committee at the University of South Africa (Appendix A). Furthermore, the researcher requested permission from the DBE in the Limpopo province to carry out the study within educational institutions (Appendix B). After receiving a consent letter from the DBE, the researcher promptly informed the district manager of Mopani district, as well as the circuit managers responsible for the circuits within Mopani district, about my intention to involve the DHs overseeing Mathematics, teachers, principals and CAs in the respective circuits as participants in the research study (Appendix C). The researcher provided consent forms (Appendix E, F and G) to all participants, which included information about the study's goals and ethical issues, such as voluntary participation, the option to decline involvement, and the assurance of anonymity and confidentiality. The objective of this communication was to clarify the contents of the form and provide sufficient time for participants to thoroughly review and sign it, so indicating their agreement to participate in the activity. Furthermore, the researcher facilitated communication with each participant and organised suitable schedules and venues for the interviews to be conducted. The interviews were done in person at a location selected by the participant. In accordance with the recommendations of Ruben and Babbie (2016), the researcher included questionnaires (Appendix I) together with a covering note to serve as a reminder and introduction to the substance of the questionnaire.

1.14 CHAPTER SUMMARY

This chapter encompassed an examination of the research background, research problem, research purpose, rationale, research questions, preliminary literature evaluation and theoretical and conceptual framework. Furthermore, the chapter provided a concise overview of the research methodology, placing particular attention on the research design, procedures for collecting research data, criteria for sampling, the study's trustworthiness and ethical aspects. The next chapter is Chapter 2, which focuses on the literature review of the study.

CHAPTER 2: REVIEW OF RELEVANT LITERATURE

2.1 INTRODUCTION

The literature review focuses on the academic leadership roles of Departmental heads (DHs) in improving quality of learner performance in Mathematics. In the beginning, it looked at the position of DHs. In addition, it focused on the duties, qualities, challenges faced by DHs in managing the Mathematics department and leadership styles employed by DHs to manage their department. Furthermore, the literature also focused on discussing how DHs lead and manage Mathematics to improve performance. The discussion also focuses on international, African and local aspects.

2.2 THE POSITION AND ROLE OF DEPARTMENTAL HEADS AS CUSTODIANS OF THE DBE'S PERFORMATIVITY EFFORTS IN SCHOOLS

Departmental heads are accountable for the DBE's efforts to execute performativity activities in schools. Their responsibility entails monitoring and overseeing teachers' work and curriculum implementation in accordance with the DBE's specifications. The next paragraphs emphasise the efforts of DHs in achieving performativity in schools.

2.2.1 The Position of Departmental head

The DH is a senior teacher who is assigned certain responsibilities within a school department. Stabback (2016) and Motala (2020) state that DHs is appointed in South Africa via an advertisement in the government gazette, application by prospective candidates, shortlisting and interviewing by a selection panel. This process concludes with the district senior manager or provincial head of the education department appointing the candidate (Motala, 2020). According to the EEA (1998), the primary objective of the role of DHs is to enhance the levels of learner achievement and performance within the curriculum; in the current study this relates to Mathematics. This entails overseeing and providing support for learner progress, ensuring that teachers take responsibility for learner progress and development in the subject area, enhancing teaching practices among teachers, and holding teachers accountable for their leadership, management and development of the Mathematics subject area. Adler (2017) argues that the DH serves as a link between teachers teaching subjects in the department and the school's top administration. Motala (2020) highlights that

the DH's area of competence is in the management of a certain subject or group of subjects. Additionally, Adler (2017) asserts that DHs contribute significantly to the implementation of the curriculum and instruction. According to Shaked and Schechter (2017), DH in South Africa is a highly experienced teacher who is selected as an associate member of the SMT through a formal recruitment and interview process. The DH must possess subject-matter expertise in order to effectively lead their department. Ogina (2017) recommends that DH should also have teaching experience, as well as mastery of the subject's material and instructional skills.

DHs, sometimes known as subject heads, have a key role in overseeing curriculum implementation and serving as intermediaries between teachers and the school's higher-level administration. The individuals in question bear direct responsibility to the deputy principal, who in turn is answerable to the principal. DHs occupy a position within the educational hierarchy that is commonly referred to as middle management. This categorisation holds significance within the body of research pertaining to teacher leadership, as evidenced by the works of Marishane (2016), DBE (2016), Ogina (2017), Saul (2019), and Mashiane-Nkabinde (2020). Mashiane-Nkabinde (2020) declares that DHs oversee the teaching of specific subjects, as well as the coordination and supervision of all educational programmes in compliance with established norms and standards.

According to my knowledge, DHs are critical to the operation of departments in schools. Mokoena (2017) defines DHs as curriculum managers who inspire departmental commitment. The author emphasises their commitment to augmenting the quality of work in their department in schools. According to Saavedra (2017), it is recognised that successful departmental leaders responsible for overseeing the management of Mathematics as an academic subject should possess a comprehensive understanding of pedagogical topics. This expertise is crucial for enhancing the quality of teaching and learning experiences, as well as for fostering the trust and commitment of teachers working in these progressive efforts.

2.2.2 Duties of Departmental Heads

Multiple authors have provided information regarding the DHs' responsibilities (Motala, 2020; Myende & Bhengu, 2015; Suleman, 2015). Suleman (2015) found that DHs perform four fundamental management functions, which are planning, organisation,

leadership and control. Glewwe and Muralidharan (2016) believe that managers may get disoriented without the management duties of planning, organising, leading and controlling. The following paragraphs discuss these four roles of DHs.

2.2.2.1 The planning role of DHs in schools

According to my understanding of DH's work, it entails a great deal of planning. The researcher posits that the DH's slogan should be that it is preferable to fail on one's plans than to fail to plan. Planning, in my opinion, should be a golden guideline of management. The researcher am a firm believer that this stage determines the success or failure of DHs. Mokoena (2017) defines planning as the process of developing and designing regulated activities with an eye toward future demands. Additionally, Stabback (2016) suggests that DHs participate in planning activities such as strategy planning, school year planning, curriculum planning, forecasting, programming, scheduling, budgeting, policy development and process organisation. Mokoena (2017) concurs that it is the role of DHs to collaborate with their teams to build year programmes for their departments. My assumption is that DHs involve the entire team throughout the planning stage by counselling them on what they anticipate of them. To my mind, DHs must have a vision for their teams in order to plan successfully. This is reinforced by Adler (2017), who concurs that planning for a school requires visionary leaders who will ensure that all team members submit their plans prior to developing a master plan. The author emphasises the importance of the following factors in preparing for the school's successful operation: assessment plan, topic meeting dates, teacher supervision, IQMS management plan, management duties and performance improvement plan. Additionally, the author asserts that this planning should be directed by the school's Mathematics policy governing teaching and learning of Mathematics (Adler, 2017). To my mind, all areas of planning should be connected to and consistent with the Mathematics department's plans. DHs should examine the issue of teacher workload while designing their departments' strategies.

2.2.2.2 The organising role of DHs in schools

DBE (2018) points out that organising is the act of establishing an organisation for the Mathematics department that enables all SMT staff to collaborate efficiently in order to accomplish the department's goals. My assumption is that the DHs are in charge of the logistical aspects of management. Stabback (2016) supports this by stating that

DHs assist in organising class visit schedules, topic committee formation, IQMS schedules, curricular needs, subject policies and learner and teacher support materials. Organising, in my opinion, is about establishing procedures and allocating resources to accomplish intended objectives. In addition, the researcher believes that DHs should be responsible for the methodological coordination of a Mathematics department's numerous tasks, including task organisation, delegation of functions and responsibilities and goal attainment. Further, the DHs should address issues raised by teachers in their Mathematics departments. Stabback (2016) contends that DHs are actively involved in organising activities such as delegating assignments or allocating resources and forming committees.

2.2.2.3 The leading role of DHs in schools

DHs are critical in guiding schools and their departments toward reaching specified goals and outcomes. Stabback (2016) highlights that DHs are responsible for making decisions, communicating, motivating, organising, workshop and in-service training. In this context, I argue that while leading, DHs must coordinate the work activities of the department's teachers in order to ensure that they work together to attain specified results. They assist their team members in coordinating activities by providing direction. Motala (2020) maintains that throughout the leadership stage, DHs gain exposure to all aspects of their departments and learn how to lead effectively in order to accomplish established goals. The author emphasises that DHs should convene subject staff meetings to keep subject employees informed on the progress of their Mathematics department. Furthermore, they have the opportunity to organise seminars, motivating speakers and curricular expectations in order to enhance what has been organised. Moreover, they promote collaboration among teachers and ensure their cooperation in order for them to work in harmony (Myende & Bhengu, 2015). While DHs are fulfilling their leadership position, they are also inadvertently fulfilling roles of the DBE in relation to ensuring quality in school work and ensuring that all the teachers perform as required.

2.2.2.4 The monitoring and controlling role of DHs in schools.

Another function of DHs is to monitor and control. This component of the DH's responsibility, fits nicely with the DBE's goal of adopting performativity activities in the workplace. This is because DHs conduct monitoring and controlling activities that aid

the DBE in its ongoing efforts to ensure that schools, particularly teachers, are carrying out their given obligations properly. Ogina (2017) asserts that in managing, DHs are responsible for assessing and monitoring progress toward achieving the Mathematics department's goals. The author further claims that DHs are involved in quality assurance, measuring work quality, evaluating work quality, corrective actions and problem solutions. Moreover, Ogina (2017) contends that DHs must establish systems for monitoring how their departments operate. At this stage, DHs delegate only authority, not accountability. They ensure that their Mathematics department's purpose and vision are met, which also assists the DBE in fulfilling its aim of providing high-quality education and enhancing learner performance.

Similarly, Motala (2020) states that DHs should be conversant with formal means of control, such as preparation, presentation and evaluation, as well as formal meetings. DHs are responsible for encouraging teachers to write their lessons down so that they may assess their learners' grasp of the subject (Mathematics). The researcher argues that DHs should conduct class visits to monitor teachers' success in presenting lessons to learners with the goal of fostering professional development and offering assistance. Likewise, teachers must submit assessment tasks to DHs, such as question papers, memorandums, and answer sheets for moderation (DBE, 2016). Finally, subject meetings must be scheduled to discuss the department's accomplishments (Saul, 2019). These sessions function as a platform for the exchange of information, evaluation of teachers' proficiency and expertise in the subject matter, ultimately resulting in an enhancement of the quality of teaching and learning.

In addition to exercising control, DHs bear the task of conducting monitoring activities within the scope of their respective areas. The monitoring system will inform DHs whether activities are continuing as planned; if something unexpected occurs that could affect plans; and, if the situation changes significantly, whether or not they will need to develop a new plan.

To summarise, for DHs to effectively manage their department, they must possess the ability to plan, organise, coordinate and control. DBE (2016) highlights that the DH's responsibilities are classified into five categories, namely: core responsibilities, extracurricular and co-curricular responsibilities, staff, administration and

communication. DHs are supposed to fulfil the following duties in a straightforward manner: academic; administrative; management; and leadership all of the functions vested in DHs contribute to the accomplishment of the DBE's stated mission, which includes ensuring that schools and teachers are carrying out their responsibilities properly.

2.2.2.5 Curriculum delivery as a duty of DHs in relation to Mathematics

As to the Employment of Educators Act, 76 of 1998, with further amendments in 2016, (EEA 2016), the primary responsibility of DHs is the facilitation of curriculum delivery and instruction. Within this core role, DHs are expected to engage in classroom teaching, act as class manager when necessary, manage assessment and record learner accomplishment. The DHs must be knowledgeable about the subject being taught and managed by the delegated department and in this case Mathematics. Further, the EEA (2016) demands that DHs should be a subject specialist in the department they manage. According to Marishane (2016), it is imperative for DHs to possess a thorough understanding of and adhere to the curriculum policies set forth by the DBE. According to the EEA (2016), it is mandated that DHs have the responsibility for providing assistance to instructors within their respective departments in the event of any challenges that may arise.

Coupled with curriculum delivery, Saul (2019) states that DHs must also provide professional development opportunities for teachers in their department. Professional development should be connected to subject teaching, and DHs should collaborate with teachers and organise intervention techniques for learners in the subject they supervise. Moreover, the EEA (2016) further contends that it is the obligation of DHs to provide guidance to teachers regarding classroom teaching approaches and procedures. According to Saul (2019), DHs are tasked with the responsibility of overseeing and cultivating the professional growth of teachers within their respective departments, in alignment with the school's overarching vision and objectives. This is because DHs are considered experts in their fields and are thus expected to aid in the development of teachers within the department.

The DBE focuses on the work of DHs because they serve as a vital link between school performance and the DBE's ambitions of managing and monitoring performance. As a result, DHs at school level are considered as an essential cog in

the school system that the DBE desires to nurture. They serve as the eyes and ears of the DBE through identifying low performance and devising a strategy to remedy the discrepancy with what is required. In order to achieve this, DHs must ensure that these programmes are implemented and evaluated. Mashapa (2019) states that DHs must also provide direction to teachers in order for them accomplish the school's objectives, as well as stimulate teachers with words of praise and awards when teachers perform well in their disciplines. This entails putting all available resources to the best use possible in order to give the highest possible standard of education to all learners.

2.2.2.6 Mentoring Mathematics teachers as a role of DHs in schools

Zide (2020) states that mentoring is a technique of teaching and learning that promotes human performance and acknowledges improvement. To this end, the researcher believes that DHs serve as operational leaders who assist teachers in a variety of ways as well as teaching and learning in schools, including planning and arranging instruction and learning. Ogina (2017), who asserts that DHs are knowledge architects, constantly pursuing improvement, fostering collaborative learning environments, promoting reflection and evaluating the logical development of teachers and learners in the subject they manage, specifically Mathematics, also supports this.

More importantly, DHs are expected to mentor Mathematics teachers using various strategies. These strategies can include mentoring teachers during school-based workshops on areas identifies through IQMS, recently referred to as Quality Management Systems (QMS). Govender (2018) is of the view that using teacher assessments to pinpoint areas of weaknesses that require development is one of the exceptional means of developing employees. According to Leithwood (2016), a further strategy that DHs can employ to provide mentorship to teachers in the Mathematics subject is through the use of staff and group meetings. In terms of Perloff (2020), mentoring plays an essential role in developing teachers to enhance their performance, especially in areas that are challenging during routine implementation.

2.2.2.7 Supporting staff through assessment and evaluation as role of DHs in schools

Marishane (2016) states that another responsibility of DHs in the Mathematics department is to oversee teaching and learning. The author argues that monitoring

should be an ongoing process in which DHs ensure that teaching and learning occur satisfactorily throughout the academic year. Ogina (2017) highlights that DHs have the responsibility to assess and evaluate the value of instruction and knowledge within their institutions. DHs support their teachers by analysing teachers' portfolios, workbooks, and learners' work to determine whether teachers' objectives for learner achievement are producing the intended and expected results (Marishane, 2016). The monitoring function of DHs is a critical component of their employment and supports their performativity duty of holding teachers accountable for their work.

Along with monitoring, DHs do assessments and evaluations of teachers. This is also one of the foundational responsibilities of DHs' job, since it assists in ensuring teachers' accountability. DHs use evaluation to see whether teachers are meeting expectations. Evaluation is the process of assessing education's central mission, which is to teach and learn in schools (Ampofo et al., 2019). Furthermore, Ampofo et al. (2019) point out that DHs evaluate teachers' and learners' work by analysing learners' assignments, test scores and examination outcomes. DHs can accomplish this by engaging in talks about the findings with the teachers involved, with the goal of developing a common approach to improving the outcomes. Moreover, DHs are responsible for addressing issues with individual Mathematics teachers and convening phase teachers meetings to examine the outcomes holistically.

2.2.2.8 Motivating Mathematics teachers to improve performance as a role of DHs in schools

Fancy and Razzaq (2017) identify motivating as another managerial job of DHs. The authors suggest that motivating teachers is done with the aim of increasing their work rate and performance. Mathematics DHs have a responsibility to ensure that colleagues in their departments are inspired to accomplish their everyday jobs effectively. Additionally, DHs serve as a source of motivation for teachers, encouraging them to ensure the efficacy of instructional practices and the achievement of educational objectives within the classroom setting. Importantly, DHs use their abilities to encourage, stimulate and support their teachers. The DBE (2018) argues that Mathematics DHs should assist teachers in attaining subject knowledge necessary to demonstrate proficiency in exhibiting abilities that assist learners in the Mathematics classroom. Saul (2019) acknowledges that policy mandates DHs to support teachers

in effectively addressing specific, quantifiable and focused learning objectives that ultimately enhance the quality of instruction and learning outcomes inside educational institutions. Mathematics DHs achieve their subject goals by ensuring the adoption of appropriate learning strategies in class, and through conducting class visits for lesson observation with the goal of offering assistance to both teachers and learners.

2.2.3 Qualities of Effective Departmental Heads in the Mathematics Department

DHs as leaders and managers of curriculum in schools are expected to possess certain qualities in line with their inherent responsibilities. This is because DHs are the ones who bear the brunt of ensuring that schools achieve good results in terms of academic achievement. The forthcoming paragraphs provide various qualities that are associated with the work and personalities of high performing DHs.

2.2.3.1 Displaying exemplary behaviour and a role model for teachers within the Mathematics department

Myende and Bhengu (2015) found that one of the qualities of DHs in the Mathematics department is the ability to display exemplary behaviour and being a role model for teachers. According to these researchers, DHs have a responsibility to act in an exemplary fashion towards teachers and learners. DHs have a responsibility to set an example for the most effective teachers, to be time-conscious and innovative by demonstrating their willingness to experiment with new teaching approaches. Suleman (2015) states that DHs must also deal with learner management issues effectively, such as punishment, learners failing to complete assigned work, absenteeism and school attendance. Their effectiveness in dealing with these issues will be noticed and copied by teachers to the point that they also will conduct themselves in an appropriate and exemplary manner. This is what Suleman (2015) refers to as role modelling.

The DBE (2018) identifies role modelling as a critical characteristic of effective DHs. According to the DBE (2018), it is imperative for DHs to consistently demonstrate behaviour that exemplifies the highest standards associated with the teaching profession. Furthermore, DHs must work within the parameters of their policy influence in all facets of education. They must be on time for classes, be prepared for classes, dress appropriately for the teaching profession, and demonstrate a commitment to

hard work. Adler (2017) concurs that those DHs, as leaders, must be punctual with their attendance at school. In other words, DHs must exhibit positive behaviour during their daily routines. They must be seen to be hard-working and positive about their work. Glewwe and Muralidharan (2016) discuss that DHs should exhibit hard work in assigning duties to teachers, tracking learner-teacher materials, monitoring leave forms and permits, and monitoring written work and grade sheets. The assumption is that this positive behaviour will rub off on teachers, leading to a general improvement in performance.

2.2.3.2 Qualifications related to Mathematics

Literature reveals that qualifications contribute to the work of DHs leading the Mathematics department. According to Jekayinfa et al. (2021), the majority of DHs in American schools who are managing the Mathematics department have acquired a Master's degree as a minimum requirement. This is an indication that DHs aspiring to achieve success in their departments must have a good and solid qualification in order to get respect from teachers within the department. Studies by van Putten et al. (2022) and Dalgleish (2009) indicate that qualifications have a positive impact on the way that subordinates perceive their seniors. A well-qualified senior receives more respect and command than a low-qualified person does. This situation might account for the majority of DHs struggling to get a firm hold of their departments, which consequently lead to a general poor performance in both teachers and learners. This has led to education employers in America using qualifications as a criterion in the appointment of DHs. Teachers who aspire to become DHs in American educational institutions purposefully undertake measures to acquire a comprehensive understanding of the DHs role (Bush & Oduro, 2006). Individuals engage in meticulous endeavours to pursue and obtain a Master's degree credential prior to seeking employment as DHs professional. According to Mestry and Singh (2007), in the United States, a teacher only becomes eligible for the position of DHs after successfully obtaining a Master of Educational Administration degree.

In the context of South Africa, the selection committees take into account the qualifications of candidates during the process of selecting individuals for DHs posts. According to the ELRC (2003), educational qualifications are considered to be one of the minimum prerequisites for those seeking work in a DHs profession. According to

the legislation, anyone aspiring to be appointed as DHs must possess a recognised three-year qualification (REQV 13). However, it appears that selection committees adhere to an informal guideline regarding the necessary credentials for the DHs job. According to Dehaloo (2008), in addition to the explicit criteria outlined in policies like the EEA (1998), selection committees also impose their own criteria when it comes to the educational qualifications for employment in the DHs job, with the current unofficial requirement being a BEd (Honours) degree. Nevertheless, it is undeniable that a competent DHs responsible for overseeing the Mathematics department's achievements must possess a strong educational background in Mathematics.

2.2.3.3 Leadership qualities in relation to leading the Mathematics department

Numerous authors including Suleman (2015); Myende and Bhengu (2015) and Glewwe and Muralidharan (2016) have found that effective DHs share specific leadership characteristics, which should serve as qualities of effectiveness. These leadership characteristics also contribute to the Mathematics department performance improvement. Myende and Bhengu (2015) highlight that DHs should possess leadership qualities that include their ability to communicate, being visionaries within their department and decision-making prowess. Suleman (2015) and Myende and Bhengu (2015) propose that DHs responsible for managing a specific department should be visionaries and able to link this vision with the overall school vision. When doing this, DHs will be advertising and selling the vision to staff members to gain their buy-in. Adler (2017) remarks that a leader is always engaged in actions aimed at influencing, inspiring, leading, and enabling individuals in order to accomplish the department's and school's vision.

Furthermore, Adler (2017) proposes that DHs should possess strong communication skills, which are necessary for the development of relationships that can help learners to perform better in school. Perloff (2020) defines communication as the exchange of ideas and messages. Hompashe (2018) elaborates that DHs' communication skills include listening and their ability to pay attention to detail. In support, Adler (2017) is of the view that an effective DHs should have the ability to extract valuable facts when listening and should use the facts to construct meaning regarding the ideas being presented. Moreover, Perloff (2020) suggests that this ability of DHs of scrutinising facts can provide DHs with an edge over teachers whom they manage. The ability to

listen would be an aid to DHs in sharing critical information throughout the department, as well as aiding to the resolution of internal disagreements. Adler (2017) argues that a good leader should demonstrate empathy, respect, warmth, sincerity and clarity in all forms of communication with employees.

Moreover, Myende and Bhengu (2015) assert that a good DHs should be a person who communicates using a variety of tactics in order to improve information delivery, which may result in increased departmental effectiveness. These communication strategies include direct or face-to-face communication; indirect communication via non-verbal strategies such as written communiqués; two-way communication in which the sender of the message anticipates feedback from the receiver; one-sided communication in which the DHs merely pass on information; and public communication via general announcements to all staff members. The DBE (2016) concurs that competent DHs should also be familiar with many modes of communication because the DH connects with the education department via the circuit office, subject advisors and stakeholders with an interest in education such as parents, local churches, traditional authority and non-governmental organisations. The premise is that these frameworks will contribute to the development of successful education in schools, and that DHs will play a critical part in this process. As stated by the DBE (2018), it is imperative for DHs to engage in collaboration and coordination with teachers to ensure the successful implementation of a rigorous curriculum and the effective organisation of extracurricular activities. Additionally, DHs are expected to engage in regular meetings with parents to discuss and evaluate the academic progress of learners. Furthermore, it is imperative for individuals to fulfil their obligation of serving on professional committees, seeking guidance from subject education professionals in relation to content-related issues, and providing regular updates to the manager and deputies (DBE, 2018).

2.3 CHALLENGES FACED BY DEPARTMENTAL HEADS IN MANAGING THE MATHEMATICS DEPARTMENT

Leading people in any institution is not stress-free. While carrying out their duties, DHs face obstacles that impede their productivity. The hurdles manifest themselves in different ways and at a variety of stages throughout the DHs' activity. A myriad of studies have identified hurdles faced by DHs in primary and secondary schools,

particularly in Mathematics (Banerjee, 2018; Onasanya, 2020; Tapala et al., 2020; Zide, 2020), which include those encountered while performing their duties as Mathematics department managers in schools. The following paragraphs discuss some of these challenges.

2.3.1 Lack of Discipline as challenge faced by DHs in managing the Mathematics department

Suleman (2015) and Banerjee (2018) found that DHs have difficulties because of a lack of discipline by both teachers and learners in schools. The authors assert that teachers demonstrate poor discipline by arriving late, failing to attend or skipping classes, delivering poorly prepared lessons and failing to prepare necessary teaching and learning materials to supplement lesson delivery. On top of these, Mashapa (2019) adds that DHs also face challenges that include teachers failing to complete tasks assigned to them by their supervisors. The authors imply that DHs encounter a variety of administrative obstacles in their instructional control duties. These include learner performance, teacher absenteeism and insufficient teaching and learning resources.

Similarly, Govender (2018) concurs that the most frequently reported causes of difficulties that DHs face in maintaining high levels of discipline in their schools are high pupil enrolment, drug usage and excessive exposure to unsuitable videos. The author reports that DHs face significant obstacles when attempting to implement strategic management plans focused on producing educational success and maintaining high levels of discipline in their schools. More importantly, Govender (2018) found that DHs face parental threats. These threats include abuse by parents who feel that their children are not receiving education as expected, and when learners report teachers' perceived misconduct against them to their parents. This bullying behaviour by parents often has a destructive effect on the teacher-parent relationship. Govender (2018) and Mashapa (2019) complain that parents in rural and urban regions alike do not communicate effectively with schools, but instead use aggressive behaviour when they believe their expectations are not being considered. The situation of parents bullying school managers, especially DHs occurs when learners score poorly in Mathematics, and parents visit schools in droves to lodge concerns. In addition, Govender (2018) and Mashapa (2019) argue that parents make threatening

remarks such as escorting underperforming teachers out of the school and threatening others with beatings. Banerjee (2018) contends that this behaviour serves merely to demotivate DHs and may be a cause of their low Mathematics performance.

2.3.2 Non-payment of School Fees as challenge faced by DHs in managing the Mathematics department

Nkambule and Amsterdam (2018) note that DHs are confronted with issues related to non-payment of school fees by parents, which frequently results in the Mathematics department operating on a shoestring budget. This could refer to schools designated as Quintile 4 or Quintile 5. As per the South African Schools Act (SASA) of 1996, quintiles refer to the categorisations of schools determined by the DBE based on their physical infrastructure and socioeconomic disadvantage within their respective communities. The prohibition by the DBE of paying school fees by parents in low quintile schools that are classified as no-fee schools (Quintiles 1 to 3) has resulted in these schools experiencing shortages in terms of funds.

The schools classified as low quintile schools rely on funds supplied by the DBE through its norms and standards for funding public schools (SASA, 1996). Ogonnaya and Awuah (2019) argue that in most instances, the over-reliance of public schools on DBE funding has resulted in schools not finding means of supplementing their funds, which leads to poor infrastructure, lack of equipment and other important resources required for effective functioning of schools. Furthermore, these shortages can effectively lead to poor performance in critical areas including Mathematics. The underperformance in Mathematics may be attributed to a dearth of instructional and learning resources that are essential for teachers and learners throughout their regular instructional and evaluative activities.

2.3.3 High Workload and Too Little Time as challenge faced by DHs in managing the Mathematics department

Zide (2020) notes that workload and too little time appear to be additional issues for DHs when operating their department in schools. Tapala et al. (2020) postulate that DHs perceive their workload as unmanageable, resulting in an unbalanced lifestyle. In many cases, DHs end up suffering from burnout and exhaustion due to overwork. The study demonstrated that DHs' workload included a significant amount of administration

related to both management and evaluation. Supporting the assertions above, Saul (2019) posits that the workload of DHs has increased in recent years because of increased tasks and responsibilities. Basset (2016) notes that the DHs' workload has increased to the point that they are unable to do other jobs and obligations. This, in my opinion, may result in ineffectiveness in the way DHs perform their functions.

Govender (2018) maintains that the largest challenge for DHs is a shortage of time, which has become a significant obstacle in completing their jobs. A shortage of time will disproportionately increase their workload as DHs perform their duties, leading to a loss of energy and attention. In support, Onasanya (2020) complain that lack of time and a tremendous quantity of work were also mentioned as obstacles preventing DHs from carrying out their jobs and obligations to the acceptable standards. Zide (2020) asserts that for DHs to be effective in their teaching and leadership positions, they must be allowed appropriate time. Onasanya (2020) acknowledges that there are several tasks in the workplace that need DHs' attention. These include performance activities such as class visits and monitoring teacher and learner performance in their departments, which need additional time. If DHs lack sufficient time to perform administrative chores, they may experience a reduction in their performance.

2.3.4 Teacher Trade Unionism and Its Influence on the Work of Departmental heads as challenge faced by DHs in managing the Mathematics department

DHs are in a managerial position and are expected to exercise strong leadership within their immediate department and throughout their schools. Ogina (2017) debates that this potential is grossly underutilised in a variety of schools as a result of influence by teacher unions. Teachers in the majority of schools are members of various unions, and these unions have a major effect on DHs' ability to operate their departments effectively. Numerous authors such as Banerjee (2018), Govender (2018), Onasanya (2020) and Tapala et al. (2020), indicate that teacher unions have a major impact on the role of DHs and that differences in union procedures account for significant variations in the level to which DHs can exercise noteworthy leadership. They further note that teacher unions have frequently opposed the function of DHs due to their constant demand for accountability and improving performance from teachers. For instance, in the Canadian province of Ontario, teacher unions have been vocal in their opposition to expanded managerial roles for DHs that focus exclusively on increasing

teaching and learning in schools (Ogina, 2017). This pervasive influence on school instruction and on the position of DHs as SMT members, may have a detrimental effect on how they fulfil their administrative responsibilities. Consequently, this has led to increased polarisation characterised by contentious arguments and discussions. When teacher unions have conflicting views on education, their members (DHs) may be obliged to adhere to contradictory work ethics in order to comply with their teacher union's vision. As a consequence, the aforementioned circumstances may give rise to disagreements and a dearth of mutual comprehension, potentially resulting in subpar achievement in the work of DHs. This poor attainment can obviously translate to reduced learner performance.

2.3.5 Teacher Resistance and Insubordination towards Departmental heads as challenge faced by DHs in managing the Mathematics department

Ogina (2017) indicates that a sizeable majority of teachers oppose the DHs' participation in their departments, particularly during class observation linked to monitoring and evaluating teaching and learning, as well as teacher performance. Onasanya (2020) argues that the many teachers get into conflicts with DHs due to their commitment to assign duties and monitor teachers work. Moreover, the author further highlights that teachers are also disgruntled against DHs because of their role of selecting new department members, supervising classroom instruction and directing for educational purposes exclusively.

Govender (2018) concurs that additional functions of DHs that contribute to teacher resistance include test recording, resource acquisition and distribution and establishing classroom timetabling. The author further contends that teachers dislike the DH's powerful role in subject distribution and schedule development, lamenting that DHs become biased and unethical in their dealings with the issue. This, the author asserts, is the primary source of teacher resistance. The presence of resistance amongst teachers towards their DHs also have an undesirable effect on both teachers and DHs work rate. The animosity that exists between the two stakeholders often continues for long periods to the extent that learners begin to suffer, resulting in lower performance.

2.3.6 Inadequate Support from School Leadership as challenge faced by DHs in managing the Mathematics department

Teachers, school leadership and district officials must all support DHs when carrying out their roles and responsibilities in their departments. According to Leithwood (2016), the DH's performance may be harmed by absence of support from teachers, school leadership and district officials. According to Ogina (2017), DHs who lack leadership support are unlikely to be innovative. To my knowledge, in order for DHs to be productive in carrying out their departmental roles and responsibilities, leadership must provide assistance to them in the form of an intervention that may assist them in performing in their department. My conviction is that when DHs have adequate support from school stakeholders, they may develop the motivation and autonomy necessary to make sound judgements and carry out their responsibilities fearlessly and confidently. My premise is that when DHs observe the assistance, they will develop a more mature approach to decision-making, which will eventually result in an improvement in how they do their tasks.

2.4 PROFESSIONAL DEVELOPMENT FOR DEPARTMENTAL HEADS

Marsha and Naftaly (2018) observe that the lack of in-service training has been the driving power behind numerous deviations in the field of teaching and learning for countless years. This phenomenon has frequently resulted in the teachers' performance being problematic, particularly in essential disciplines such as Mathematics. The main cause of this reduction in teachers' performance, especially the DHs, is due to the lack of further development within the area. As with any other career, it is critical for the DHs to stay current on the most cutting-edge ideas, to be thoughtful and to conduct research in their field. Wood and Hedges (2016) argue that in-service training can assist DHs in their ongoing professional development as head teachers, as professionals and as individuals accountable for the education of the next generation. DHs contribute significantly to the way teachers and learners perform. Hence, it is expected that they engage in continuous professional development to keep on top of their game. The National Development Plan (NDP) 2030 in its vision emphasises that DHs must attend training and development in order to learn more strategies to be used in the classroom to improving learner performance in Mathematics (Awuah, 2019). Munje (2016) declares that the only systematic approach

for DHs to acquire new information, skills and attitudes is through continuous professional development such as constant in-service training.

Marsha and Naftaly (2018) are of the view that one critical component of enhancing education's superiority is through in-service training for the DHs. In support, Wood and Hedges (2016) argue that, if people are to perform well at their jobs, they require high-quality training. The assumption is that when DHs participate in training and continuing professional development, they might improve their performance due to increased knowledge and skills related to their subjects. Du Plessis and Eberlein (2018) share that training and continuous professional growth help to maintain DH's performance in respective departments. Seobi and Wood (2016) point out that the DHs who have undergone prior leadership training will perform better than DHs who have not received leadership training at all. The understanding here is that DHs should obtain training and professional development in the areas of work over which they are responsible, since this will enable them to carry out their jobs and obligations effectively.

Furthermore, according to Bassesar (2017), in-service training plays a crucial role in facilitating the success of DHs within their respective departments. In-service training is a valuable tool for the professional development of DHs. It plays a crucial role in updating their skills and knowledge, hence enhancing their abilities in teaching and learning. Consequently, this can lead to increased job performance within their respective departments (Kirori & Dickinson, 2020). According to Malinga (2016), the provision of in-service training plays a crucial role in equipping DHs with the necessary skills and knowledge to effectively address emerging educational issues and advancements. The importance of providing effective in-service training cannot be overstated, as it enables DHs to effectively share the knowledge they have acquired with their respective departments.

Abreh (2018) notes that in-service training is one of the most promising avenues for instructional improvement. According to Ogina (2017), in-service training encompasses all educational and personal understandings that contribute to an individual, such as DH, being more capable and fulfilled in their assigned professional role. In my opinion, the major goal of in-service training is to equip DHs with new

reflective and instructional capacities. Additionally, it focuses on creating learning environments that enable DHs to improve their effectiveness within their department.

Literature is replete with examples of professional progress from all around the world. Bassessar (2017) points out that training and development opportunities are available to DHs interested in management jobs in Trinidad and Tobago. The author further notes that in-service training opportunities are offered through workshops, curriculum assistance and training programmes. The government of Trinidad and Tobago has recognised the importance of professional development by implementing a strategic planning approach. This approach prioritises the training of newly appointed DHs through the use of induction workshops (Bassessar, 2017).

There is also evidence of DHs' professional development in Africa. In Kenya, for example, DHs get in-service training and development following their appointment to the DHs job. In Kenya, DHs undergo training in teaching methods, supervision, curriculum implementation and evaluation of learners' work. Aprova and Arbaugh (2018) indicate that teachers are promoted to the DHs position in Kenya based on their experience and qualifications. When the DHs achieve promotion, they get training and professional development to equip them in executing their leadership positions (Aprova & Arbaugh, 2018). However, South Africa appears to be short on professional development opportunities for DHs.

Malinga (2016) asserts that South Africa lacks institutional training programmes dedicated to DHs curricular leadership development. Promoted or aspirant DHs must have a thorough understanding of the subject they wish to supervise (Malinga, 2016). In the context of South Africa, it is observed that there is a lack of training provided to DHs on the facilitation and coordination of professional development initiatives, as well as the execution of effective practice reviews aimed at enhancing teaching, learning and overall management. Abreh (2018) maintains that the majority of DHs rely heavily on their personal expertise when performing their duties. Furthermore, Albashiry et al. (2016) believe that the training and development infrastructure for DHs in schools has been woefully inadequate. Numerous DHs enrol in universities to increase their knowledge of their subject such as Mathematics in order to administer their departments more effectively. In South Africa, the majority of DHs do not even attend induction training when they are promoted. Malinga (2016) substantiates this by

stating that DHs have not been taught how to administer their departments apart from being trained as competent teachers. Bush and Glover (2016) concur that DHs require training, particularly in areas such as departmental leadership development. My observation is that DHs are expected to attend department-sponsored general workshops on curriculum delivery, which are often conducted in the afternoons when people are already tired. Afternoon workshops lasting less than two hours are often not seen as beneficial save as a means of disseminating knowledge. What exacerbates the situation is the dearth of in-school professional development opportunities for DHs. According to Mogashoa (2021), there is a concern regarding the predominant focus of subject specialist visits to schools, which mostly revolves around bureaucratic monitoring and control, while neglecting the observation and evaluation of classroom activities.

According to SACE (2018), the South African Council for Educators' Continuing Professional Teacher Development (CPTD) provides assistance to the majority of Departmental heads (DHs) in South Africa. The CPTD framework facilitates the professional growth of teachers, akin to the development processes observed in the legal and expert professions (SACE, 2018). There is no institutional framework in place for this type of teacher development, however. Individual teachers and DHs are responsible for maintaining records of training and workshops attended by various stakeholders, including the DBE. This lack of adequate programming and evaluation by SACE, as well as delegating professional development to unqualified people, has rendered the programme unproductive, as the majority of teachers and DHs have neglected to update their information in the system. My impression, however, is that everything is not lost when it comes to South Africa's teacher development status. Due to a dearth of curriculum-specific training programmes, the bulk of DHs engage in online learning through universities. According to Munje (2016), it is common for individuals in the field of DHs to participate in distance education programmes, such as the Advanced Certificate in Education in School Leadership (ACE-SL).

As Mashiane-Nkabinde (2020) argues, DHs' lack of professional growth and training in curriculum leadership has been noted as a challenge when it comes to leading their departments. Insufficient provision of workshops focused on curriculum leadership has been found to have a negative impact on the successful implementation of curriculum changes. This was observed in South Africa following the curriculum changes that took

place after 1994, wherein teachers, including DHs, faced challenges when attempting to implement the new curriculum (du Plessis & Eberlein, 2018). Workshops and training opportunities should be made available to Mathematics teachers since they can assist more directly and effectively in the improvement of teaching quality. Additionally, this training may provide teachers with clear direction regarding which professional development activities will benefit their professional progress.

2.5 LEADERSHIP STYLES EMPLOYED BY DEPARTMENTAL HEADS IN MANAGING THEIR DEPARTMENTS

Gandolfi and Stone (2017) describe leadership style as the process through which a leader demonstrates a certain way of leading a group of subordinates inside an organisation. In support, Zuze and Juan (2020) declare that leadership style is the strategy and tactics used to pave the path of success, carry out plans and inspire a group of individuals, thereby establishing the institution's concept and motivating co-workers. A leadership style is a set of procedures that leaders employ to operate in agreed-upon settings and conditions, as well as how they interact with their subordinates.

The EEA (1998) states that the primary responsibility of DHs is to lead the department to which they are assigned. O'Reilly and Chatman (2020), further describe a leader as someone who delegates or influences others to act in order to accomplish specific goals. DHs serve as departmental leaders. O'Reilly and Chatman (2020) view leadership as having a substantial influence on the performance of employees in organisations. They further indicate that leadership has an effect on employee performance and productivity is contingent upon a number of factors, including the ability to develop a clear vision, motivate members to work toward the vision and improve performance, deal with and cope with change, persuasion, explanation and the ability to identify, affirm and renew a group's values. These leadership abilities would ensure that DHs succeed as managers of their departments.

Apart from possessing leadership abilities, DHs should be familiar with the various leadership styles that can be used when dealing with departmental situations. Numerous researchers have identified various leadership styles, but Igbal and Haider (2015) maintain that no one leadership style is superior to another. They further contest that appropriate use of a leadership style is situation-dependent. According to

Khan et al. (2015), different styles of leadership are essential in different contexts, and it would be erroneous to embrace a single style across all settings. According to Gandolfi and Stone (2017), there is a wide range of leadership styles that individuals can use within the context of the workplace. However, as a result of limitations in available space, the researcher chose to concentrate on the following leadership types: authoritarian, democratic, laissez-faire, coaching, transformational, transactional leadership and curricular leadership.

2.5.1 Autocratic or Authoritarian Leadership Style employed by Departmental heads in managing their departments

Khan et al. (2015) view authoritarian leadership (AL), which is also recognised as authoritative leadership, as a leadership style that occurs when a leader communicates clearly what needs to be done, when it should be done, and how it should be done without allowing staff to participate in decision-making processes. Cherry (2017) argues that an autocratic leader is an individual who has complete control over all decisions, allowing members little or no involvement. Furthermore, the author asserts that the supervisor dictates all work Method and processes without regard for input from others. O'Reilly and Chatman (2020) agree that the autocratic leadership style could be used effectively to enhance achievement and management in departments with ineffective performance. This is achievable because autocratic leadership empowers the leader to monitor performance through the issuance of specific directives and instructions that must be followed without fail (Hulman, 2015).

Choi (2007) contends that autocratic leadership discourages group participation by ignoring the followers' contributions to decision-making. Hickman (2017) notes that the autocratic leadership is the most frequently used style in the majority of educational institutions such as schools, and it is a reality for many teachers. This leadership style is tough to eradicate, since the leader frequently demonstrates the principle where decisions are achieved either through their way or nothing at all. This mentality has, in most cases, led to leaders not providing opportunities for employees to express their concerns (Hickman, 2017). In terms of DHs' professional responsibilities, the researcher feel that the use of autocratic leadership to guide the Mathematics department toward progress should be encouraged. This is because there are times within a school and Mathematics department in everyday routine when the DHs must

take the initiative and enforce choices. This, the researcher feel, is especially true when DHs are supposed to implement departmental policies, such as departmental circulars, class attendance and strong work ethics, as mandated by the DBE.

2.5.2 Democratic or Participative Leadership Style employed by Departmental heads in managing their departments

According to Cherry (2017), the concept of democratic leadership (DL) can be characterised as a leadership style wherein the leader actively engages and involves followers in the decision-making process. Khan et al. (2015) argue that during decision-making, the democratic leader interacts with the group. In terms of the authors, the democratic leader also encourages members to participate despite their seeming reluctance and makes every effort to keep them informed about everything. However, while incorporating participants in decision-making, the leader maintains accountability (Cherry 2017).

Ma and Marion (2019) perceive DL as guided by their employees' will. Democratic characteristics must be implemented because they have been demonstrated to significantly benefit education, particularly constitution and procedure of the public school system (Sant, 2019). To ensure that democracy prevails in the classroom, DHs must develop positive relationships with faculty members. DHs should keep in mind that democracy is about managing power when it comes to subject management in schools (Ma & Marion, 2019). DHs should refrain from compromising their fundamental values by uncritically embracing the ideas put forth by professors, especially in cases when these ideas lack logical reasoning and fail to align with established best practices. While opposition to their ideas may result in a stalemate, Hickman (2017) says that DHs must be tenacious in preserving a culture of negotiation, reciprocal engagement and compromise. Although DL has the potential to boost employee morale (Darnons & Wood, 2020), it is not an appropriate style to use when enforcing departmental policies. However, in my opinion, it can be used effectively when dealing with decisions that are made in accordance with a school's routine that does not require compliance with departmental policies and legislation. These may include democratically electing school groups, such as Mathematics subject committees, as well as decision-making on internal Mathematics subject matters.

2.5.3 Laissez-faire Leadership Style employed by Departmental heads in managing their departments

Khan et al. (2015) believe that a laissez-faire leader maintains a hands-off approach when it comes decision-making by members. In substantiating this view, they contest that the leader empowers members by allowing them to make their own choices while abstaining from providing counsel or direction regarding the choices they are expected to make. Igbal and Haider (2015) claim that this type of leadership is only effective in organisations with highly competent employees who are self-sufficient. Flowing from these debates, it can be argued that DHs may employ this leadership style in instances where members of the Mathematics subject committee seek to develop study programmes aimed at improving learner performance. However, accountability concerns remain with the DH, as committee members would be asked to submit a thorough report of the meetings' events.

2.5.4 Bureaucratic Leadership Style employed by Departmental heads in managing their departments

According to scholars such as Igbal and Haider (2015) and Kirori and Dickinson (2020), a bureaucratic leader is someone who follows the rules. They assert that a bureaucratic leader manages employees through the application of regulations and procedures established by educational authorities. They further state that the role of the leader is to follow the rules as written and not to make decisions based on circumstances. Mathematics DHs may use bureaucratic leadership style in their departments because it promotes the achievement of good results. In order to achieve better results in the Mathematics department, DHs should follow the Mathematics policy to keep the team headed in the right direction.

DHs should also motivate teachers to be dedicated to working towards desired goals to produce better results in the Mathematics subject. Where there is a need, DHs should also delegate duties within the Mathematics department amongst teachers, and by doing this, they will be empowering the teachers. DHs should also encourage positive cooperation among teachers in their Mathematics department while working with as teams in the Mathematics department. Moreover, DHs should help teachers and support them by solving work-related problems. If DHs were able to achieve all this, they would have mastered the essence of bureaucratic leadership.

2.5.5 Transformational Leadership Style employed by Departmental heads in managing their departments

Caniëls et al. (2018) define transformational leadership as the manager's impetus on groups to set goals. They indicate that in transformational leadership, managers focus on providing an explanation of anticipated outcomes, which is followed by the manager's support and inspiration of followers. The use of the transformational leadership style affords leaders the potential to encourage followers to assume responsibility for their work and incite transformative change within their respective organisations. Hetland et al. (2018) highlight that the use of transformational leadership has the advantage of stimulating intellectual growth, instilling work ethics, encouraging subordinate autonomy, self-management and innovation in subordinates.

According to Gandolfi and Stone (2017), transformational leadership is primarily concerned with the development of followers, their labour and personal desires. Caniëls et al. (2018) point out that regarding this leadership style, the leader views followers as critical assets who will assist in attaining the organisation's objectives, and the leader also motivates them to achieve their own personal and organisational objectives. According to Gandolfi and Stone (2017), the implementation of transformational leadership has been found to motivate followers to exert greater effort. This is mostly attributed to its ability to effectively organise individuals towards achieving a common goal. Furthermore, transformational leadership fosters a sense of selflessness among employees, encouraging them to prioritise the collective success of the team over personal gains. Lastly, this leadership style stimulates employees to direct their attention towards fulfilling higher-level objectives. According to Gandolfi and Stone (2017), the primary responsibility of a manager is to exert influence and foster motivation among team members and the company, guiding them towards a specific course of action and preferred Method of achieving goals. This is achieved through the use of various leadership behaviours, including idealised influence, inspirational motivation, intellectual stimulation and individualised concern. The leader can assist and motivate groups to contribute to the solution to challenges they encounter. To succeed in administering their departments in the school, DHs must collaborate closely with the teachers. Moreover, DHs should be able to collaborate with teachers to determine what to do, how to do it and when to do it. To achieve this, DHs must set a vision that will drive personnel to achieve in their

Mathematics department. They must have the ability to transfer a clear vision and sense of direction with their Mathematics teachers. On top of that, Mathematics DHs should be able to create a shared vision and strategic plan for their department with their teachers. They should also be able to encourage and motivate teachers to work hard to improve learner performance. From my perspective, it is incumbent upon DHs to enhance the quality of instruction and educational outcomes within their Mathematics departments. The strong and clear vision as well as set of values held by the transformational DHs will influence their actions and those of other teachers, which will consequently lead to a sense of path and purpose for the school.

2.5.6 Transactional Leadership Style employed by Departmental heads in managing their departments

Gandolfi and Stone (2017) explain that a transactional leadership style is one in which the leader is prepared to acknowledge a follower and offers something in exchange for their loyalty. The leader acknowledges every task performed by followers that is linked to their job description. Yahaya and Ebrahim (2016) concur that the transactional leader is concerned with advancing the aims of followers through collaboration with groups, with an eye toward the result or desired outcome. In this study, transactional leaders are DHs, while the followers are Mathematics department teachers. Gandolfi and Stone (2017) point out that collaboration between DHs and teachers can benefit the Mathematics department, as well as the school as a whole. As a result, DHs should plan while employing this leadership style and avoid making empty promises they are unable to keep or fulfil. More importantly, DHs must avoid promising rewards to teachers for meeting targets if they lack motivation for such awards. They should motivate teachers to work harder for the prizes in an appropriate manner, as well as coach, train and prepare their teachers on how to plan for and accomplish established goals.

2.5.7 Coaching Leadership Style employed by Departmental heads in managing their departments

Teachers should be supported and encouraged to do their job effectively in schools by their supervisors. DHs in the Mathematics department should stimulate and encourage their teachers to accomplish personal and institutional goals. Gandolfi and Stone (2017) assert that teachers need directions while being heavily supported by

the DH, such as through constant communication. In support, Northouse and Lee (2016) indicate that DHs communicate in two ways in this leadership style. This includes soliciting contributions from teachers while also inspiring them. Furthermore, the authors suggest that in coaching leadership style, this is the point at which the DHs determine what is proficient and how it should be performed.

In using the coaching leadership style, DHs are tasked with the responsibility of developing teachers by encouraging them to experiment with new Method of doing tasks and determining the most effective way to accomplish those tasks. The coaching leadership style's strengths are that it develops teachers' abilities and is geared at making them productive in their work. Gandolfi and Stone (2017) declare that coaching leadership styles may sometimes have drawbacks, such as when team members are not prepared to acquire new thoughts and occasionally disobey, resulting in time wasting and resource mismanagement. In a school setting, DHs have the potential to collaborate with teachers to implement new techniques in an ever-changing world of education and curriculum by using their expertise to advice teachers on these new ways.

2.5.8 Curriculum Leadership employed by Departmental heads in managing their departments

DHs as the heads of their departments are curriculum directors in schools. Their primary function is to manage the curriculum. Curriculum management entails the administration and control of subjects (Mathematics) and everything else that contributes to learners proceeding to the next grade each year. Curriculum leadership, in terms of Jankowska and Martynoga (2017), is a simplifying technique in which the DHs collaborates with teachers to establish a shared purpose, build cooperative groups, organise a manner of operating, and organise multiple varied activities. To ensure that all learners perform well in an educational institution, DHs must certify that teaching and learning occur, teachers arrive in the class prepared to offer lessons, and learners are prepared to receive instructional activities. In support, Ogina (2017) concurs that curriculum leadership entails the DHs directing teachers and the activities they engage in to ensure that teaching and learning occur optimally by displaying, encouraging and establishing frequent opportunities for mutual interaction.

Mathematics DHs should lead the curriculum through providing supervision in the department to ensure that teachers offer excellence teaching and learning to learners in the classrooms. They must also make sure that all teachers are in possession of the necessary Mathematics resources including subject policies that guide them in terms of what to teach and how to assess learners. DHs must also give support to teachers in their Mathematics department through constant planning, monitoring and evaluation of teachers' work. They can achieve this through checking teachers planning and assessment and through engaging them in class visits.

2.5.9 Strategic leadership employed by Departmental heads in managing their departments

Samimi, Cortes, Anderson and Herrmann (2022) define strategic leadership as a leadership practice in which a leader makes use of strategic planning coupled with the involvement of stakeholders to arrive at important decision regarding the effective functioning of the organisation. The authors profess that a strategic leader takes time in planning in order to determine the vision, mission and goals or objectives of the organisation as a way of turning it towards a desired direction. In support, Hadrawi (2018) concurs that a strategic leader has the ability to convert planned goals into achievable actions. The author adds that strategic leaders are also able to allocate and use available resources to ensure that set goal are achieved for the success of the organisation. In terms of the DBE (2016), a strategic leader is deemed as a leader who has the ability to conduct strategic planning, where the vision and mission of the school is highlighted taking into considerations the founding vision and mission of the DBE (DBE, 2016). The DBE provides that school stakeholders as strategic leaders have to ensure that the vision of the DBE is realised by developing and maintaining a vision and mission that will capture the imagination of the community and developing plans that support the academic achievement of learners (DBE, 2016). In addition, the DBE (2016) posits that principals and DHs as strategic leaders also need to work in collaboration with other stakeholders such SGB's and community structures to put plans in place that support improved academic achievement. The view is that school stakeholders can only achieve this when they participate in strategic planning activities and working in partnership or collaborating with relevant stakeholders that can assist to provide a direction for the school.

2.10 Distributive leadership employed by Departmental heads in managing their departments

Harris, Jones and Ismail (2022) define distributive leadership as a unique management structure that can apply to any organization including schools. The authors further point that distributive leadership emphasizes the importance of interconnectivity and teamwork rather than a top-down leadership framework in schools. In terms of Aldaihani (2019), the goal of distributive leadership is to develop leaders (DHs) who use their expertise to contribute to the mission of the school. DHs as distributive leaders make decisions based on mutual trust and responsibility. They act as central guides in their departments to cultivate an environment of shared accountability. Distributed leadership plays a pivotal role in fostering an innovative environment in various organizational settings, particularly in education. This leadership approach, which emphasizes shared responsibility and collaborative decision-making, creates a fertile ground for innovation to flourish (Coban & Atasoy, 2020).

The point of view is that DHs should use distributed leadership in their Mathematics department because it provides capacity building to sustain improvement efforts and manage changes in schools. Harris, Jones and Ismail (2022) assert that the practice of distributive leadership by DHs also creates opportunities for school stakeholders in both formal and informal leadership roles to work together in collaborative and supportive ways. The authors insist that when DHs and teachers work together on emerging issues, problems, or challenges that really matter to them in Mathematics department, the potential for mutual learning can be quite dramatic. Furthermore, it is argued that distributive leadership brings about better decision making when more people with different backgrounds, experiences, skills, and expertise get involved in the process. As advocated by Harris, Jones and Ismail (2022), there are two patterns that contribute to the success of distributive leadership, namely consultative contribution pattern and decisional distribution pattern, which may lead to better decisions. Coban and Atasoy (2020) argue that the consultative contribution pattern involves significant participation from key staff in providing input and advice on school-wide decisions. Nonetheless, final decisions are still made by those in formal leadership positions (SMTs including DHs). On the other hand, the decisional distribution pattern gives full responsibility and autonomy to those working on the

ground, for example, teachers and teacher leaders, to make decisions within their appointed areas of responsibility.

2.6 PERFORMATIVITY ACTIVITIES IMPLEMENTED BY THE DBE IN RECENT YEARS

The government's efforts to monitor and control all elements of schoolwork are obvious in the DBE's recent use of various sorts of testing. The TIMSS, ANA, and the Mathematics Olympiad are just a few of these performativity activities. These activities are administered to assess schools' performance in comparison to national and international peers. The following paragraphs focus on discussing the DBE's assessments as one of its performativity activities.

2.6.1 The Trends in International Mathematics and Science Study

The TIMSS is a worldwide evaluation that focuses on the academic performance of learners in fourth and eighth grades. Its primary objective is to measure the knowledge and skills of learners in the areas of Mathematics and Science (Statistics South Africa, 2020). The TIMSS evaluation was established by the International Association for the Evaluation of Educational Achievement (IEA) with the aim of facilitating cross-national comparisons of educational achievement across member countries. TIMSS is conducted globally to give a sequence of trend measures that enable participants to monitor and assess the strength of their educational systems on a timely basis (Statistics South Africa, 2020). Foy et al. (2020) have shown that the TIMSS is a well-documented global evaluation study designed to determine the effectiveness of a state's education system in Mathematics and Science. The authors assert that the TIMSS is an international comparative evaluation of learner performance in the subjects of Science and Mathematics worldwide.

In terms of the IEA, the TIMSS assessment is undertaken every four years and involves the examination of learners from various nations in Mathematics and Science (Von Davier, 2020). In South Africa, TIMSS was first established in 1995 and has been administered every four years since then, with the most recent assessment being in 2019 (Statistics South Africa, 2020). Von Davier (2020) reported that the TIMSS 2019 was the seventh series of the IEA's important assessments. The TIMSS 2019 was administered to fourth and eighth grade learners in 64 countries using eight different

benchmarking systems. The focus was on assessing learner knowledge in Mathematics and Science, as well as contextualising data in relation to learners' learning (Foy & LaRoche, 2020). As a participating country, South Africa participates in TIMSS every four years. Foy and LaRoche (2020) highlight that the TIMSS 2019 reports focused on a variety of topics. These include home education resources, an early start in learning, school resources, academic success, learners' sense of belonging, school discipline and safety, a safe and orderly school, learner bullying, teacher professional development participation needs, learners' attitude toward Mathematics, and learner confidence in Mathematics (Foy & LaRoche, 2020).

LaRoche, Joncas, and Foy (2020) report that South African schools that participated in TIMSS 2019 were ranked in the bottom quintile for Mathematics and Science attainment. The ranking principle used in was guided by the poverty level of societies where the schools are situated. According to Foy and LaRoche (2020), South Africa's public schools are categorised into five quintiles in relation to the TIMSS 2019 evaluation. In South Africa, participation in the TIMSS enables the DBE to classify schools according to their performance against quintiles determined by assessing the school's community background.

The majority of the schools classified in Quintiles 1 to 3 often have inadequate resources due to the smaller amounts of money they receive according to the DBE norms and standards. The sad fact about these schools is that the DBE prohibits them from charging school fees. This has resulted in these schools performing poorly in TIMSS (Ogbonnaya & Awuah, 2019). The majority of learners who attend school are in Quintiles 1 to 3 (Ogbonnaya & Awuah, 2019), indicating that they come from low-income households. Schools classified in Quintiles 4 and 5 are located in affluent areas, and their learners come from more affluent families and pay tuition fees. Von Davier (2020) emphasises, however, that learners at independent schools pay tuition fees regardless of whether the schools are classified. The majority (almost 70%) of Grade 5 students attend schools in the Quintile 1 to 3 range, while 30% attend schools in the Quintile 4 and 5 range (Von Davier, 2020). According to Statistics South Africa (2020), the majority of schools in Quintiles 4 and 5 are private schools. TIMSS 2019 reported that learners attending schools in Quintiles 1 to 3 do worse in Mathematics than learners attending schools in Quintiles 4 and 5. This is corroborated by Fo et al. (2020), who found that learners in Quintile 4 schools attain meaningfully higher levels

of accomplishment than learners in Quintile 3 schools and significantly lower levels of achievement than learners in Quintile 5 schools.

The use of the TIMMS to assess learners' achievement and to compare their performance to national and international peers also serves to increase the monitoring and supporting role of DHs. This is because, in preparation for participating in national and international examinations, DHs must ensure that their teachers and learners perform optimally in order to compete well with other participating schools. As a result, DHs must ensure that they are continually monitoring learners and teachers' work in order to achieve a level of efficacy and quality that can compete in the worldwide sphere.

2.7 CONTEXTUALISING MATHEMATICS MANAGEMENT: COMPARISON OF HOW DEPARTMENTAL HEADS CARRY OUT THEIR ROLE IN DIFFERENT COUNTRIES

2.7.1 The South African Context on how Departmental heads carry out their role

In the South African setting, DH refers to a senior teacher who holds a position within the SMT and is formally appointed to this role (Shaked & Schechter, 2017). The appointment of a DHs involves a rigorous process of recruiting and interviews. In order to be appointed as a DHs in South Africa, it is necessary for the teacher to possess expertise in a specific area (Motala, 2020). In accordance with the educational standards set out by South Africa in 1998, it is imperative that the individual selected for the position of DHs possesses a minimum qualification of a Matriculation National Senior Certificate, along with a three-year teacher certificate (M+3) that holds a Relevant Education Qualification Value (REQV 13). Nevertheless, it is customary for recruitment committees to adhere to an unspoken guideline that mandates aspiring DHs to hold a management certificate (Nkuna, 2015). According to this implicit norm, those holding the position of DHs are expected to have an Honours degree in Education Management. Moreover, it is expected that the DHs teacher has a minimum of three years' practical teaching experience in the relevant subject or subject area, along with appropriate qualifications (DBE, 2016). This entails having a comprehensive understanding of the subject matter, as well as possessing the necessary abilities and attitudes that align with those of other teachers in the same field. It is imperative for the teacher to have a comprehensive understanding of the

contextual factors and circumstances pertaining to the particular educational institution (DBE, 2016). To effectively address the evolving requirements of DHs curriculum leadership, it is imperative to develop a comprehensive training programme that enhances the intelligibility and proficiency of DHs.

Furthermore, the significance of instructional experience is highlighted in the literature (Stabback, 2016), as it is expected that DHs have both subject matter expertise and effective pedagogical skills. According to Mashiane-Nkabinde (2020), for DHs, the perceived teaching and leadership capability of teachers, along with their mastery of subject matter, are considered more important than their experience in the occupation. Additional desirable attributes encompass effective managerial abilities and proficient interpersonal capabilities (Saavedra, 2017). One of the key objectives of this research is to investigate the role of curriculum leadership among DHs in elementary schools, as well as identify the necessary training opportunities required to adequately prepare them for this responsibility. According to Mokoena (2017), the author specifically mentioned the importance of academic preparedness for DHs, highlighting that while graduate study is not as crucial, it is essential for DHs to have strong teaching, leadership and management skills. The available evidence suggests that the training and development opportunities provided for DHs in educational institutions have been somewhat restricted (Albashiry et al., 2016). Existing study studies indicate that a significant number of newly appointed DHs exhibit a lack of training for their function. Furthermore, there is a scarcity of training programmes accessible to individuals aspiring to become DHs or those who have recently assumed the position. However, it is worth noting that some recent advancements have been made in this area (Shaked & Schechter, 2017). DHs play a crucial role in overseeing the curriculum work of their respective departments, necessitating enhanced preparation in order to properly fulfil their tasks and obligations.

2.7.2 UK Context on how Departmental heads carry out their role

In the context of the UK, the term “department head (DH)” is used to refer to the position of Head of Department (HoD). According to Shaked and Schechter (2017), the DH is an integral component of the school’s central leadership or management assembly. According to Shaked and Schechter (2017), it is argued by the authors that individuals who assume the role of a DH in the UK should have strong leadership

qualities and be responsible for leading various teams within the educational setting. These teams may include key stage leaders, curriculum area leaders, pastoral services leaders, subject leaders, as well as special educational and needs coordinators. In the UK, there is a diverse range of titles assigned to individuals occupying intermediate leadership positions within educational institutions. These titles include curriculum leaders, topic leaders, subject coordinators, year heads, project leaders, assessment coordinators, and instruction coordinators (Lárusdóttir & O'Connor, 2017).

In the UK, it is customary for all DHs to receive training prior to being appointed to the managerial position of DH. The training does not conclude at that point. Following their employment, DHs also participate in orientation programmes for the National Professional Qualification for Middle Leadership. These programmes are given by certified service providers recognised by the Department for Education in the UK (De Nobile, 2017). The purpose of these training and introduction programmes is to provide aspiring and newly appointed DHs with the necessary skills and knowledge to effectively fulfil their administrative and leadership responsibilities. It can be posited that DHs are subject to these preparatory measures due to the recognition of their significance as stewards of the curriculum and their distinct responsibility to enhance learner achievement. This assertion is corroborated by the findings of Shaked and Schechter (2017), who emphasise that DHs are anticipated to serve as a vital resource for providing support to classroom teachers and facilitating learning within educational settings. This is due to their inherent responsibility for fostering the advancement of teaching and learning within schools. According to Lárusdóttir and O'Connor (2017), it is widely agreed upon that due to the significance of their role, DHs must undertake appropriate training and preparation prior to entering their positions. The authors argue that the preparation of DHs encompasses familiarity with the policies and practices that control the selection, training, functioning and evaluation of teachers. The training provided to DHs equips them with the necessary skills and knowledge to effectively manage their Mathematics departments.

Seobi and Wood (2016) observed that DHs have the responsibility to provide strategic direction and development in relations to management of Mathematics or the subject that they manage. Lárusdóttir and O'Connor (2017) assert that a DH oversees that teaching and learning happen in the Mathematics department. Adding to this, De

Nobile (2017) highlights that the DHs make sure that they deploy teachers and resources efficiently and effectively in their Mathematics department, which is one of the roles that they need to excel in. This is because DHs are expected to delegate duties to their Mathematics department personnel, taking into consideration the qualifications, experience and previous performance of teachers.

Furthermore, DHs also have a crucial role of monitoring teachers' work and conducting classroom observations with the aim of providing support to them (Thorpe & Bennet-Powell, 2014). Additionally, Shaked and Schechter (2017) propose that DHs assume the responsibility of overseeing their teachers and fulfilling deliberate functions in terms of expressing a vision for the Mathematics discipline in order to enhance student achievement. Accordingly, DHs plan, organise and collaborate on team accomplishments with other colleagues, which assists them to achieve better outcomes in the Mathematics department, and they emphasise overseeing the learners' work and enhancing curriculum delivery in Mathematics.

2.7.3 Kenya Context on how Departmental heads carry out their role

According to Katana (2019), under the Kenyan education system, the role of the DHs is an officially designated post that is incorporated into the school's administration and leadership structure. The author highlights that the individual responsible for the initial educational and administrative leadership position inside the school is the one who holds the employment letter from the Teachers Service Commission (TSC) as the DH, which includes department chairs, sector heads, and unit heads (Maingi, 2015). According to Maingi (2015), the issue of the digital divide in Kenyan schools was first acknowledged in 1998. The author additionally acknowledges that prior to 1998, there was no remuneration incentive for the position of DH. The teachers in this position were fulfilling their duties without receiving any form of remuneration from the government.

In the Kenya context of education, DHs as leaders in public schools are a vital ingredient in creating conditions that lead to primary academic performance. Moreover, Langat (2018) mentions that DHs have the accountability to set the tone for a learning school and to establish good teaching practice in the Mathematics department. Nyambegera (2020) emphasises that DHs provide satisfactory curriculum supervision in the Mathematics department and check learners' class work and

teachers' professional records regularly with the aim of increasing performance in the school. The author further declares that DHs have the responsibility to provide instructional materials for teaching in Mathematics. According to Ngonjo (2013), it is agreed that DHs also bear the obligation of offering inspiration and advice to both learners and teachers within their Mathematics department.

On top of that, DHs are accountable for ensuring that the subject is effectively delivered and that staff and resources are well-managed. It is important that DHs recognise their accountability to keep up to date with progresses in their subject and in other areas of education related to their role. This will assist them to be on top of their game regarding the management and leadership of their departments. In Kenya, DHs provide strong leadership, guidance and advice to other members of staff within the department and also act as a models of good practice. DHs also ensure that teaching within the department is of an outstanding standard and should pursue improvement of the efficiency of instruction within the department. For DHs to manage their departments effectively, they should provide support to the members of the department in dealing with any behavioural and homework issues. DHs also ensure that there is good communication with and between members of the Mathematics department. DHs also provide support through the professional development to the members of the department, including the induction of new members of the Mathematics department. Ngonjo (2013) asserts that for teaching and learning to happen, DHs ensure that learners are able to learn successfully and they monitor the learners' progress and performance in the Mathematics subject.

2.7.4 Similarities and Differences between UK, Kenya and South African Contexts of Departmental heads

There are similarities in the position of DHs in the South African, Kenyan and UK contexts. The DHs position is situated at the central of management in the ladder of the school. The location of the position of DHs lies between the SMT and teachers in schools. DHs are responsible to lead a team in a particular subject such as Mathematics. In UK, Kenya and South African context, teachers aspiring to be DHs must submit applications accompanied by proof of their qualifications and go through interview processes and be employed after meeting requirements. DHs must be knowledgeable about the subject (Mathematics). The DHs who want to become the

DHs must first attend a training for National Professional Qualification for middle leadership in UK while in Kenya and South Africa, there is no formal training that teachers aspiring to be DHs must attend. DHs may only attend induction workshops lasting for two hours. Some DHs register with distance learning institutions to further their studies.

DHs in South Africa, Kenya and UK have similar roles and responsibilities, as they are curriculum managers in schools. They have roles and responsibilities to manage all instructional activities in the schools. They also certify that teaching and learning happen in the schools. They have the role and responsibility to give strategic direction to the development of the subject (Mathematics) that they lead. They also work with teachers and learners in their Mathematics departments. They perform their roles and responsibilities of providing support and guidance to the team. DHs, being central managers in schools, play a significant role in improving teaching and learning through supervision and control that they do on a daily basis. They use proper time-management to execute their duties effectively. DHs oversee teaching and learning, ensuring that class activities are undertaken, marking is done and feedback is given on time. They also organise departmental meetings and evaluate teachers and learner attainment. Having meetings with teachers helps in equipping them as they share information and increase their communication skills and improve their knowledge. DHs also inspire teachers to attend workshops and offer productive feedback in their subject committee meetings. Above all they promote quality learner performance in their Mathematics departments.

2.8 CHAPTER SUMMARY

The literature review concentrated on elucidating the principles fundamental to the investigation. Performativity, performance management and managerialism are all examples of these principles. Additionally, the focus was on the performativity of DHs, including their managerial and leadership roles, as well as the difficulties they encountered when carrying out their jobs. Additionally, the study examined the leadership styles used by DHs in schools. Additionally, the study focused on the professional development of DHs and concluded with a look at the DBE's performance initiatives conducted in schools to assess learner performance. The following chapter examines the conceptual framework linked with high-quality learner performance in

mathematics and the important performativity functions of primary school DHs. In conclusion, the study uses the constructs defined in the theory to guide data collection and analysis, particularly when it comes to leadership styles, elements that can help enhance DHs' success in managing the Mathematics department, and DHs' responsibilities. The next chapter discusses the theoretical framework that was employed in this study.

CHAPTER 3: CONCEPTUAL ANALYSIS AND THE THEORETICAL FRAMEWORKS UNDERPINNING THE STUDY

3.1 INTRODUCTION

This chapter deals with the theoretical framework and analysis of concepts that are important to the research study. The theoretical framework is grounded on the theories that support the study, hence their in-depth analysis and discussion is deemed necessary to the success of the study.

3.2 CONCEPTUAL ANALYSIS

The literature is mostly concerned with elucidating the concepts of performativity and managerialism. The focus is in providing a clear and understandable definition of performativity and that of managerialism. The next paragraphs discuss these principles in greater depth.

3.2.1 Defining performativity concept in the study

The term “performativity” derives from the phrase “performative,” which refers to the capacity to perform (Gond et al., 2015). Gond et al. (2015) expand on the notion of performativity by defining it as the promotion of actions that lead to the development of the greatest output with the least input. Garud and Gehman (2019) define it as a new Method of state regulation (hereinafter referred to as the education department) that enables enhanced liberal management. The definition of performativity appears to advocate for a transfer of managerial responsibility away from departments of education (globally) and toward schools. Additionally, it appears to imply that education departments are becoming increasingly involved in policy formulation and the provision of instructions for school-related activities.

According to Beunza and Ferraro (2019), the involvement of the state in performativity activities encompasses various aspects, including policy formulation and the assurance of performance quality through routine inspections, whole school evaluations and topic inspections. In line with this reasoning, Hennesy and McNamara (2015) concur that states, particularly education departments, are increasingly focusing their efforts on devolving responsibilities to schools. The authors suggest that the state is redistributing responsibilities in order to make schools more accountable

for all activities and outcomes. As a result, schools are expected to answer for learner outcomes or performance.

Garud and Gehman (2019) emphasise that the change toward performativity culture has cast doubt on education departments' assessment of school success. The DBE is concerned that schools are not performing up to standards, and as a result, has increased its vigilance and is continually monitoring and controlling to ensure policy implementation and excellent school performance. On the DBE side, performativity functions as a disciplinary system of judgements, classifications and the establishment of targets that schools must strive to accomplish and against which they are evaluated (Sergeeva & Green, 2019). Additionally, the authors argue that the DBE maintains this vigilantism by routine checks, assessments and audits of learner's work conducted by CAs and circuit inspectors. Wilkinson (2019) also advocates for the existence of this vigilantism on the part of the DBE, which employs regulations that compel compliance with norms and standards. The enforcement of this compliance is commonly achieved through regular cohort assessments, incentivising schools to strive for higher learner achievement, promoting schools to enhance learner performance, quantifying performance in terms of percentages, disseminating results publicly and benchmarking against global standards. Education authorities that apply performance-based policies use strategies such as monitoring systems, annual performance evaluations, report writing, results announcements and site inspections to keep schools on their toes in order to enhance performance (Crooks, 2019). Schools are expected to operate in accordance with departmental policies that promote improved performance in the performativity culture. Gond et al. (2015) state that school administrators are directed to promote an attitude and culture of accountability and commitment among their employees. On the other hand, Garud and Gehman (2019) agree that schools are required to adhere to policy expectations. Additionally, the authors indicate that schools can meet departmental expectations for high performance by encouraging competition among their staff, taking initiatives to reform in order to excel against others and enhance their performance, and taking personal responsibility to differentiate themselves from others to improve their performance. Garud and Gehman (2019) point out that school administrators serve as technicians of transformation and reform by delegating managerial responsibilities, valuing initiative and problem-solving, and focusing on developing compliant and capable

employees to improve the school's overall performance as required by departmental authorities. Simultaneously, school administrators expect teachers to conform in order to boost the organisation's overall performance. Brady (2019) asserts that teachers must constantly examine their link to job security and their contribution to the success of the learners they produce. This is because teachers are the architects of performance, and their efforts are what enable schools to improve. According to Appel (2020), teachers are driven by their superiors (DHs and principals) to raise their output, aim for perfection and live a calculative existence centred on percentage improvement.

The obvious benefit of performativity culture, as advocated by De Vaujany et al. (2019), is an increase in school performance. However, this can only be achieved if schools implement and adhere to educational policies and routines and have a sense of the level of the school's performance in comparison to local and international standards. Brady (2019) and Appel (2020) revealed a slew of downsides in their respective studies, including higher teacher burden. The increased burden is a result of non-negotiable involvement in government audits, inspection systems and compelled compliance, as well as a depleted teacher knowledge base, low staff morale and diminished job security. Additionally, the authors assert that performativity may result in decreased professionalism, decreased job development, increased competition for resources, increased competition for recognition among individual teachers and departments within the school, teachers becoming secretive about sharing knowledge, an increase in school politics and an increase in stress.

As a supposition drawn from the various perspectives presented in the literature, performativity culture is beneficial for improving school performance, but only if the state maintains its guard over monitoring and controlling; however, this benefit should be weighed against the obvious disadvantages confronting teachers in schools. The notion is that a teacher who is poor, handicapped and overworked is doomed to failure.

3.2.2 Defining performance management in the study

According to Liebenberg and Van der Merwe (2004), performance management may be described as the systematic procedure in which the team leader, also known as the Departmental head (DH), engages in activities such as planning, organising, leading and controlling the performance of team members within their respective department. Performance management is a continuous cycle that requires teachers and DHs to

continually plan, monitor, and evaluate (Haynes et al., 2003). The DH meets with the teachers face-to-face to discuss teaching goals and devise a strategy for achieving them.

In many nations, performance management is viewed as an accountability mechanism. Armstrong (2015) highlights that accountability mechanisms are ingrained in the educational systems of a number of states, including the USA, UK, and Australia (Fitz, 2003; Ladd, 2001; Linn, 2003). Additionally, the study indicates that an accountability system enables governments to regulate whether teachers are meeting necessary criteria. Payambarpour and Hooi (2016) and Thursfield and Grayley (2016) assert that holding schools and teachers accountable will motivate them to improve their performance, thereby assuring quality education. In the majority of accountability systems, performance is accompanied by awards and sanctions (Smith & Bititci, 2017). To achieve public and governmental targets for learner academic performance and to avoid endorsements, schools teachers' performance is expected to be of higher quality. This quality check, the researcher believe, is maintained through performance management.

Performance management is a component of answerability systems in which teachers are assisted by their DHs in meeting the criteria set for them. In South Africa, the Integrated Quality Management System (IQMS) was executed as an accountability system following talks between the government and teacher unions (DBE, 2018). Recognising the defects of the inspectorate system previously used in South Africa, the parties to the discussions added a formative, developmental component to the IQMS in addition to the summative, accountability evaluation component. The IQMS is made up of three connected systems: a Developmental Appraisal System (DAS), a Whole School Evaluation (WSE), and a Performance Measurement System (PMS). These rating systems demonstrate the DBE's commitment to performance management in the workplace, including schools and offices.

3.2.3 Defining managerialism concept in the study

According to Alsharif and Alamri (2020), management encompasses the range of activities undertaken by managers to achieve objectives by efficiently using both human and material resources. Additionally, they define management as the act of planning, organising, leading, and regulating an organisation's operations in order to

accomplish goals. According to the definitions, management is a task performed by managers. Additionally, it implies that managers, in exercising their inherent authority to manage, make use of people, teams and other resources to accomplish established goals. Damore and Rieckhoff (2021) confirms that management is concerned with the effective management of human and capital resources. Additionally, Damore and Rieckhoff (2021) suggests that a new wave of managerialism is emerging in response to the emergence of performativity culture. As a result, the two events appear to be inextricably linked, and one cannot discuss one without discussing the other.

As argued by Damore and Rieckhoff (2021), new managerialism focuses on institutions that aim to improve management efficiency and effectiveness to achieve better results. Lumadi (2017) emphasises the importance of managers focusing on school performance improvement through compliance, implementation of departmental policies, competition and completion of the syllabus, all of which are geared toward writing final examinations, achieving good results and improving performance. Managers, on the other hand, must ensure that teachers adhere to departmental policies, attend classes, and supervise curriculum preparation in order to boost performance (Mestry, 2017). Darling-Hammond et al. (2019) stress that managers are accountable for all aspects of teachers' work, including curriculum and infrastructure. Additionally, Glewwe and Muralidharan (2016) assert that managers perform better when they carry out their managerial responsibilities such as planning, organising, leading and controlling.

As with the performativity culture, new managerialism has several drawbacks. Adler (2017) is of the view that excessive alignment with the new managerialism movement, in which a heavy emphasis is placed on policy execution and outcomes generation, may have detrimental effects on schools and teachers. According to Adler (2017), teachers develop stress, a low work morale and a loss of spontaneity and innovation. These bad behaviours may be a result of job uncertainty, a loss of professionalism or work overload. Hompashe (2018) argues that schools and teachers are uneasy with the new managerialism's emphasis on controlling and monitoring, which has led to teachers considering abandoning the teaching profession out of concern for their health. As with performativity, the researcher believes that the DBE should exercise caution while introducing a high-performance focus management in schools, as this

could result in teacher turnover due to stress and dissatisfaction, which could result in poor performance.

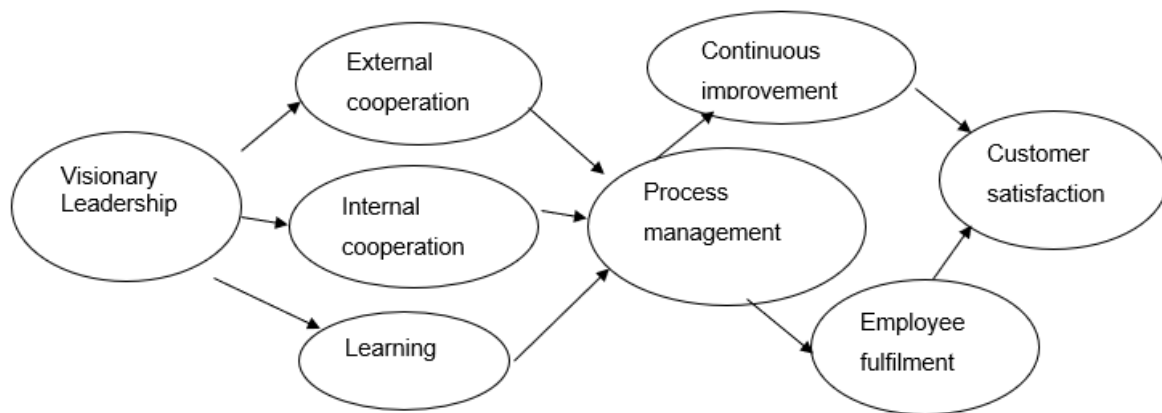
3.3 THEORETICAL FRAMEWORKS

As stated in the first chapter, the research used two theoretical frameworks. The initial theory under consideration is Deming's quality management theory, which finds support in Joseph Juran's theory. These two theories exhibit a complementary nature and establish a strong connection with the study, since they both address the topic of quality management inside organisations. Furthermore, the incorporation of these two theories not only contributed to the existing body of knowledge on quality management, but also provided valuable insights for the research on data gathering and analysis.

3.3.1 Deming Quality Management Theory (1986)

The Deming quality management theory aligns with the notion of Total Quality Management (TQM), a global approach that advocates for quality across several industries, including the field of education (Gartner & Naughton, 1988). Deming, a prominent advocate of quality management, formulated the Deming Quality management theory, comprising 14 principles, with the aim of providing organisations with a framework for enhancing and reforming their management practices (Khan, 2010). According to Deming (1986), the principles are based on an underlying assumption regarding the manner in which work is carried out and the criteria by which work outcomes are assessed. The 14 principles of the Deming Quality management theory prioritise cooperation, learning and the promotion of process quality management theory. These principles aim to facilitate the ongoing enhancement of processes, goods, services and employee contentment. Anderson et al. (1994) created a theoretical framework comprising a set of eight constructs known as the "Theory of quality management underpinning the Deming quality management theory," which draws upon Deming's 14 principles. These constructs encompass visionary leadership, internal and external cooperation, learning, process management, continuous improvement, employee fulfilment, and customer satisfaction (Anderson et al., 1994). The diagram provided depicts the theoretical framework of quality management that serves as the foundation for the Deming quality management theory, as outlined by Anderson et al. (1994).

Figure 3.1: Structure of the theory of quality management underpinning Deming's quality management theory



Source: (Anderson et al., 1994)

The theoretical framework demonstrates an interrelationship between the constructs, with visionary leadership, learning, external cooperation and internal cooperation all having an effect on process management, which has an effect on continuous improvement, customer satisfaction and employee fulfilment.

3.3.1.1 Visionary leadership as an element of Deming's quality management theory

Visionary leadership can be described as the primary role of senior management in establishing the vision, mission and goals of an organisation, with the aim of achieving growth and advancement (Anderson et al., 1994; Deming, 1993; Khan, 2010). The emphasis on managers as leaders arises from the critical role of organisational leadership in the achievement of quality management (Anderson et al, 1994). The authors highlight that quality management leaders are responsible for developing and communicating a vision that will guide the organisation toward continuous improvement, and they can accomplish this by providing formal and informal support for continuous performance improvement. In relation to the study, DHs as section and subject leaders also have the responsibility of expressing their vision for improving teacher and learner performance. DHs can accomplish this by publicising their vision and the techniques that they believe will assist them in accomplishing their objective. DHs must have excellent communication procedures in place to ensure that information, including their proposed vision and strategies, is communicated

effectively to all staff members. As visionary leaders, DHs must be innovative in leading their departments. In other words, DHs must formulate, convey, establish and implement their visions among teachers in their departments at schools. This will assist learners do better in school.

In order to manage their departments, DHs must be skilled communicators. DHs are answerable for guiding teachers in their section toward the achievement of the school's objectives and its vision. Robinson et al. (2020) endorse the above statement by stating that DHs must demonstrate visionary leadership by communicating high expectations for their schools in order to enhance learners' success. DHs, as visionary leaders, must constantly think strategically and plan what they want to accomplish in their departments and school as a whole. They must plan and develop strategies for enhancing departmental outcomes. According to Ogina (2017), DHs as visionary leaders must have the capacity, capability and exceptional abilities necessary to ensure the success of their departments. DHs do not work alone in schools: they collaborate with teachers, and teamwork must be fostered in order for their departments to run effectively. As visionary leaders, DHs must build a team around them; a team that will collaborate on tactics to assist them achieve a new vision and increase results of learners in schools. Ehlers and Lazenby (2010) assert that team members' collaboration in enhancing school results strengthens the team's vision. As a result, the teachers' involvement will assist the DHs in their role as visionary leaders in remaining resilient and producing positive outcomes.

DHs must place a premium on the quality of developing their Mathematics departments and addressing school-level quality issues. DHs must have a vision for their institution that includes quality management. To increase the quality of educational outcomes, the vision must be apparent to all school stakeholders. To strive towards quality, DHs must ensure that all barriers to learning in schools are identified and addressed as soon as possible. Internal communication between team members must be promoted at all times.

Elhuni and Ahmad (2014) argue that it is the responsibility of top management in an organisation to develop leading plans and policies, manage quality planning and innovate in management as a means of providing quality leadership and enhancing quality management. Barfield et al. (2005) argue that top managers' quality

management responsibilities are critical in reforming and driving the organisation toward successful output, which may be accomplished through open communication and a collaborative approach to change. According to Barfield et al. (2005), top managers accomplish this by providing employees with autonomy, recognition, coaching, development and support, while Gartner and Naughton (1988) add that top managers should continuously motivate employees to improve in order to instil staff beliefs in their ability and effectiveness to work for change and performance improvement.

3.3.1.2 Internal cooperation as an element of Deming's quality management theory

Internal cooperation, as defined by Anderson et al. (1994), refers to an organisation's capacity to engage in activities that foster collaboration, teamwork and group understanding in order to keep everyone focused on agreed-upon objectives. According to Barfield et al. (2005), managers of organisations should be able to establish engagements that generate non-competition, cooperation and interdependence among members, resulting in collective activity performed without individual rivalry. Anderson et al. (1994) argue that individuals and teams can accomplish more through collaboration than they can through competition at the expense of others. The notion is that teamwork and a common goal orientation can help improve work quality.

Khan (2010) further demonstrates that internal cooperation may result in enhanced individual and organisational performance. In accordance with the internal cooperation component, DHs must promote the formation of teams within the work environment. These may include subject teams whose purpose is to discuss difficulties encountered during teaching and learning as well as accomplishments made during their work. Additionally, the teams would function as a springboard for the exchange of ideas and strategies for performance improvement. This, the researcher believe, could result in increased performance for both teachers and learners in Mathematics. DHs must motivate everyone to work toward achieving continual school reform. Ogina (2017) points out that collaboration and teamwork among teachers in schools have become critical for culture change to occur. Additionally, he indicates that teams are crucial in

schools because teaching needs to be collaborative. As a result, DHs must ensure the effectiveness of their teams in order to increase learner achievement in schools.

Additionally, Elhuni and Ahmad (2014) add that working as a team has special benefits. These benefits include the fact that sharing knowledge from various fields can be effectively used to avoid problems and job satisfaction. The morale of teachers can be increased when a collaborative attitude is fostered in administration, and problems from various functions and parts can be shared and resolved quickly and effectively. In addition, Ogina (2017) argues that working as a team also assists in making recommendations made that can be implemented more easily than recommendations are made individually.

Moreover, Ogina (2017) underscores the significance of collaboration in facilitating the exchange of knowledge among DHs and teachers inside educational institutions, hence mitigating challenges. Moreover, the enhancement of job satisfaction and confidence among instructors can be achieved through the cultivation of a collaborative attitude by the administration, as well as the sharing of challenges associated with different tasks and components in order to address them promptly and efficiently. This would result in suggestions that are formulated collaboratively, thus facilitating their implementation compared to recommendations produced in isolation.

3.3.1.3 External cooperation as an element of Deming's quality management theory

External cooperation is defined as an organisation's collaboration with its partners (Khan, 2010). Elhuni and Ahmad (2014) indicate that suppliers become strategic partners in TQM, with the role of assisting the organisation in enhancing performance. Anderson et al. (1995) assert that collaboration between organisations and their investors can assure their continued existence. They suggest that survival may be a result of resource sharing for the mutual benefit of both partners, which may occur because of the level of trust created. In the school setting, such collaborations would include shareholders with an interest in education, such as parents, the community, the education department and support services that assist schools. DHs and teachers can benefit from the assistance of a variety of stakeholders, including subject specialists who can train DHs on the finer nuances of managing their departments and guiding learners toward increased accomplishment in Mathematics. This training can

also be extended to teachers, with a particular emphasis on pedagogical understanding.

Similarly, parents can be engaged to contribute to their children's educational development as a component of the collaborative efforts between the educational institution and the local community. The DHs can help parents to instil a sense of motivation in their children to study at home and accomplish their assigned assignments. My understanding is that DHs should improve communication with teachers and parents and foster a collaborative relationship. The DHs should urge teachers to communicate with parents about learner performance and to inform them about classwork and homework assigned to learners. Collaboration between teachers and parents and DHs will contribute to the exchange of information that will ultimately improve learner performance in schools. The SASA advocates for increased parental participation in their children's education.

3.3.1.4 Learning as an element of Deming's quality management theory

According to Anderson et al. (1994), learning refers to the organisation's ability and inclination to participate in activities aimed at acquiring knowledge or seeking information at the individual, team or organisational level. The authors state that this type of learning engagement entails ongoing training and education aimed at enhancing job performance. In a similar vein, Barfield et al. (2005) assert that the process of learning takes place when an organisation demonstrates a willingness to acquire knowledge from its surroundings, as well as from its own experiences, both positive and negative, by means of ongoing examination of its performance. To be completely successful in managing the Mathematics subject and improving learner performance, DHs should participate in a diversity of learning activities both within and outside the school setting. These learning activities can take place within the school setting, such as through school-based workshops, staff meetings and meetings of the SMT. Additionally, DHs can learn through DBE workshops led by subject specialists. This engagement should also involve teachers as part of professional development and should be totally supported by DHs.

DHs should actively facilitate and promote professional development opportunities for teachers within their respective Mathematics departments, since they assume a pivotal and indispensable role in this regard. Teacher development, in my opinion, can

also help improve teaching and learning in schools. Malinga (2016) confirms that DHs must have a broad knowledge of various teaching strategies in order to aid teachers in improving learner performance in Mathematics. Additionally, DHs must do classroom visits to collaborate with teachers and learners and attend various curriculum meetings to discuss curriculum-related issues with the goal of boosting teaching and learning. According to Ogina (2017), this will afford DHs the ability to engage in professional development endeavours, hence facilitating the advancement and enhancement of pedagogical practices within their respective academic units. In my capacity as a researcher, the researcher posit that the use of on-the-job training, in-service training and workshopping facilitates the optimisation of employees' performance potential, hence yielding advantageous outcomes for the business.

- Process Management

According to Anderson et al. (1994), process management involves the use of information, skills, resources, methodologies and frameworks to establish, depict, quantify, regulate, document and enhance processes. On the other hand, Gartner and Naughton (1988) define process management as an organisation's methodological and behavioural practices focused on management actions undertaken by an organisational manager in order to improve quality performance. However, fear, anxiety and tension are undesirable behaviours that emerge from a strong emphasis on results, reward systems and punishment (Anderson et al, 1994). To increase quality management and performance, organisational leaders must minimise activities that contribute to low performance, such as fear and demotivation, by fostering a stress-free environment conducive to hard work and effectiveness. This may result in the formation of teacher motivation, which may result in increased achievement. Khan (2010) suggests that organisational leaders should instead focus on activities that aid in employee motivation, such as participatory planning of all work-related activities (Khan, 2010). Anderson et al. (1994) argue that process management is accomplished by statistical approaches, process modification and the elimination of ineffective operations.

The DH's role is to ensure that their departments perform better in schools. They can accomplish this through narrowing the achievement gaps between low- and high-performing learners in the Mathematics department of schools. The DH's purpose is

to encourage organisational learning within their department by managing the curriculum, teaching programme and teacher development, all of which contribute to high school achievement.

Anderson et al. (1994) view improvement as the continual improvement of an organisation's processes, products and services. According to Khan (2010), the concept of continuous improvement is predicated upon the use of process management methodologies, which lead to gradual enhancements and innovations in products, services and processes. Anderson et al. (1995) further highlight that an organisation's continual improvement can come as a result of its members' learning, experience and invention. Gartner and Naughton (1988) add that continuous improvement can occur by innovating, implementing what works and discarding or terminating what no longer works in the organisation. Here, DHs must participate in ongoing teacher development activities such as self-assessment systems, QMS, self-reading on a subject of their choice, and registration with institutions of higher learning such as universities. This, the researcher believe, can result in an improvement in how DHs manage and lead the Mathematics subject toward increased learner performance.

DHs must work hard to design policies that will help their departments achieve exceptional performance. They are the ones who must set the tone in their departments for teachers in terms of getting great results. DHs must ensure that everyone in their departments is encouraged to be committed to continual improvement. DHs must endorse that all stakeholders are included in the process of school improvement. There must be objectives established for improving results, and these objectives must be communicated to all stakeholders. Smith (2016) asserts that an effective DHs as an educational leader and manager must be able to improve the department in order to enhance learning by engaging teachers, staff and learners. DHs must employ a variety of leadership and quality management theories in order to inspire learners, and teachers must strive diligently to attain superior results in their Mathematics department. DHs must have the competence to collaborate with staff on curriculum, instruction, and learner growth (Smith, 2016).

3.3.1.5 Staff satisfaction as an element of Deming's quality management theory

Staff satisfaction, as defined by Deming (1993), is the degree to which personnel of a business believe the business is consistently meeting their requirements. Anderson et al. (1995) assert that employees derive pride, satisfaction and commitment from their work performance. They believe that a sense of fulfilment at work results in employee loyalty, involvement and identity. Khan (2010) concurs that when employees find contentment in their work, they experience sentiments of pride for the accomplishments they made. This sentiment may also apply in the classroom context, when DHs feel fulfilled as a result of enhanced performance, particularly in the area of Mathematics learner performance. On the other hand, if DHs do not work diligently to improve their leadership and management of Mathematics, poor performance will occur, which will result in a loss of fulfilment. To feel fulfilled, DHs must improve their performance by utilising all available knowledge, skills and expertise.

- Satisfied customers

According to Gartner and Naughton (1988), the purpose of organisational performance is to satisfy the needs of consumers, which in the context of education refers to stakeholders interested in education. These stakeholders include learners, parents, the community, labour markets, and the education department (DBE, 2016). Schools must improve performance in the education sector, which can be accomplished through the application of quality management to satisfy stakeholders with an interest in education.

This likewise holds true for DHs. Their role is to work tirelessly to continuously improve performance in order to satisfy their immediate customers. Individuals working alone are often prone to feeling anxious, exhausted, fatigued and bored. When DHs do not collaborate with other teachers, it will be difficult for them to fulfil all of their responsibilities. Certain responsibilities will cause DHs to feel anxious, exhausted and overburdened. As a result, they rely on the assistance of the teachers in their departments to carry out all given responsibilities. Effective cooperation has the potential to increase an individual's career happiness while also allowing them to be calmer and more satisfied with their duties. Teamwork is critical while performing tough tasks, as they will take much too long if performed alone. According to Spiegel and

Torres (1995), teamwork in the Mathematics department can increase production, improve quality, boost staff morale and minimise expenditures or expenses.

3.3.2 Joseph Juran's Theory of Quality

The researcher also used the theory of quality as proposed by Juran (1986). From his perspective, quality pertains to the state in which a product possesses the capability to fulfil the requirements of customers, hence potentially resulting in consumer contentment. Furthermore, Juran (1986) argues that quality encompasses the entirety of an organisation's endeavours aimed at ensuring that the product aligns with the requirements and expectations of the client. Goetsch and Davis (2003) provide an alternative definition of quality, characterising it as a fluid and constantly evolving condition associated with several aspects such as product, service, processes, people and environment, which aims to satisfy or exceed the expectations of customers. Furthermore, Ishikawa (1968) provides a definition of quality, positing that quality and customer satisfaction are synonymous. Ishikawa's conceptualisation of quality extends beyond just product quality, encompassing the overall quality of individuals, processes and all other facets of the business.

Juran (1986) introduced a theoretical framework that prioritised the implementation of specific tasks aimed at ensuring quality and efficacy within company operations. According to the theoretical framework, it is posited that a product has the potential to satisfy its specified requirements yet may not possess the necessary suitability for practical application (Oakland, 1989). Oakland (1989) posits that, with regards to the theory, the specification of a given product may be flawed or fail to meet the desired expectations of the consumer. The salient aspect of Juran's quality theory lies in its emphasis on educational organisations. This would render the recommendations appropriate for implementation within schools, where the emphasis would be placed on striving for excellence by implementing the strategies proposed in the theoretical framework. According to Deming (2000), the concept of service quality should be applied in educational organisations. According to Cheng's (1995) perspective, education quality refers to the fundamental components inside educational systems that effectively fulfil the expectations of strategic citizens. Michalska-Ćwiek (2009) emphasises the importance of quality in basic education, specifically in the context of developing skills, integrating information and meeting the educational needs of

learners, DHs and teachers in the field of Mathematics. He also emphasises the significance of educational quality, asserting that success in management is gauged by the level of quality demonstrated in educational institutions. In the realm of education, it is imperative to address the matter of quality, which should not be disregarded. The Method employed by educational institutions to assess and ascertain quality are of utmost significance and have proven to be the most influential and efficacious among many endeavours and undertakings (Ibrahim & Umar, 2016). In regard to the theory, my perspective is that the quality of educational services is determined by its ability to meet the ever-expanding demands and needs of the environment, while also facilitating the development of learners. Consequently, this would result in enhanced development and efficacy within educational institutions.

Juran's quality theory consists of what was termed quality trilogy (Madu, 2012). Juran adopts a comprehensive perspective on quality, wherein his conceptualisation of quality centres on a quality trifecta (trilogy) encompassing quality planning, quality control, and quality improvement (Juran, 1986). These quality trilogy is discussed in the forthcoming paragraphs.

3.3.2.1 Quality planning

Juran's quality theory posits that quality begins with planning. This planning include actions that necessitate execution, and that they are in accordance with and conform to the vision, mission and objectives of the business. Furthermore, the theory posits that planned actions must adhere to both customer and regulatory criteria. According to Juran's quality theory, this phase corresponds to the design stage in which an organisation gains an understanding of the needs of its target customers, defines the characteristics and requirements of the product or service, and develops the processes necessary to meet those needs (Kousainov, 2016). This is because according to Juran, quality as a product should meet customer needs, which consequently leads to customer satisfaction. In order to achieve customer satisfaction, it is imperative for organisations to prioritise quality assurance by aligning all business activities with the goal of meeting customer expectations and adhering to established quality standards. Juran (1986) is of the view that in quality planning, organisations need to understand the customer first. Hence, organisations must initially determine customers' needs and wants. This would assist in defining and designing the

products/service features, specifications. Additionally, organisations also need to devise the processes that will enable to meet the customer needs, and that is quality planning. In relation to the theory, quality performance in Mathematics in schools should be the pivotal point of learners' engagement. Accordingly, DHs should use different approaches to manage education and the mathematics department to ensure quality (Juran, 1986). The assumption is that the efforts made by Mathematics teachers must satisfy their customers (learners) they are teaching. The application of Juran's quality principles must be applied in the Mathematics departments by DHs and teachers to improve the quality performance which can satisfy the learners.

3.3.2.2 Quality control

The second component of Juran's quality triangle is quality control. According to Juran (1986), organisations that aim to achieve quality should implement a continuous quality control process, which includes regular checks, inspections and the monitoring of metrics. This would ensure that the process is effectively managed according to predetermined parameters. According to Kousainov (2016), it is imperative for organisational managers to identify the root causes of flaws in order to facilitate the implementation of corrective and preventive measures. According to Juran (1986), the primary objective of quality control is to provide stability and prevent any negative changes, ultimately aiming to preserve the existing state of affairs. The work of scholars such as O'Neill (2003) and Madu (2012) has consistently demonstrated the favourable outcomes associated with quality control in educational institutions. Therefore, according to O'Neill (2003), placing emphasis on learner satisfaction not only facilitates education organisations in restructuring themselves to accommodate learner requirements, but also enables them to establish a quality system for consistently managing and evaluating their effectiveness in meeting or surpassing learner needs. The theory postulates that in order to ensure quality control, it is necessary to establish a process capable of manufacturing the product under specified operating circumstances. Therefore, it is imperative that all quality control procedures are functioning effectively.

Juran (1986) places emphasis on the consideration of both internal and external customers, in addition to the end customers. It is imperative for all members within the company to collectively evaluate the suitability of the complete range of products at

every stage of the production process, taking into account their fitness for use. Within the educational context, DHs bear the task of adopting an operational perspective on management pertaining to the specific subject area they oversee. The individual in question is required to assume responsibility for quality assurance, a task that encompasses the coordination of information from subject teams and the evaluation of the programme's efficacy. Educators strategically develop courses to effectively address the specific requirements and preferences of their learners (Juran, 1986). The findings pertaining to the effective functioning of the Department of Mathematics would then be conveyed to both subject teams. According to the theory, it is understood that the obligation of quality control lies with the designated individuals, specifically the DHs, which includes the teachers involved in the subject matter.

3.3.2.3 Quality improvement

The third component of the Juran's quality trilogy pertains to the concept of quality improvement. Quality improvement involves the identification of areas in which procedures can be enhanced and the deliberate implementation of beneficial changes to attain quantifiably improved performance (Madu, 2012). From a theoretical perspective, these findings pertain to organisations' anticipation of achieving gradual enhancements. Quality improvement is a systematic approach aimed at achieving significant advancements in the level of quality performance by effectively removing faults and minimising the costs associated with subpar quality. It is imperative for educational institutions, encompassing both lower and higher education, to engage in a perpetual process of enhancement and fortification in order to safeguard their status as bastions of intellectual eminence.

In relations to the study, DHs must put emphasis on quality improvement in Mathematics. They must promote the sharing of good ideas and practices among teachers. They must make sure that staff involve themselves in reviewing and improving procedures. DHs and teachers in the Mathematics department must use their resources in the development of examination papers. DHs must use feedback from Mathematics teachers to improve the curriculum in their department.

In addition, Mathematics DHs must create awareness of the need and opportunity for quality improvement in the department they are heading. They also need to set goals for continuous improvement when teaching Mathematics at schools. They can achieve

this through developing a teamwork spirit among Mathematics teachers which will assist them to achieve goals. DHs must conduct training for every teacher in the Mathematics department. DHs should show recognition to teachers who perform well which will motivate them to keep up the good work they are doing. DHs are responsible for promoting ongoing quality improvement within the Mathematics department of the school by fostering the exchange of effective practices and innovative approaches.

3.3 CHAPTER SUMMARY

This chapter dealt with the theoretical framework of the research study. It focused on discussing the concepts that are pertinent to the study. These included performativity, performance management and managerialism. In addition, the chapter also dealt with the two theories that form the basis of the study. These two theories are Deming's quality management theory and Joseph Juran quality management theory. The detailed account of the theories is expected to provide a clear understanding that would assist readers to understand the research study and its findings. The next chapter is Chapter 4, which deals with the methodology of the study.

CHAPTER 4: METHODOLOGY

4.1 INTRODUCTION

The preceding chapter delved into the conceptual and theoretical foundations that underlie the investigation. This chapter elucidates the methods employed to guide the present research investigation. According to Leedy and Ormrod (2015), research methodology refers to the overall approach adopted by a researcher in conducting a research project, and it encompasses the specific instruments and techniques chosen by the researcher for the study. The prevailing perspective posits that techniques play a fundamental role in the process of research planning, as it is guided by established and reputable approaches that have been employed by previous researchers. This chapter centres on the reiteration of the research inquiries that provide direction for the study. Furthermore, the chapter delves into several aspects including the research paradigm, research approach, research design, participant sampling, data collection procedures, data analysis, trustworthiness and ethical considerations. The study is guided by the following research questions:

4.2 RESEARCH PARADIGM OF THE STUDY

According to Schrader (2015), a paradigm serves to elucidate the manner in which observations of the world are conducted, encompassing a comprehensive worldview that shapes individuals' perceptions of the universe. According to Lincoln et al. (2018), a paradigm provides social researchers and experts with a framework that informs them on what is meaningful, logical and suitable in study, based on their worldview. Similarly, Creswell (2016) concurs that a paradigm refers to a theoretical stance that informs the approach and guides the methodology of research.

In my role as the researcher, the researcher align with the social constructivism paradigm, also referred to as interpretivism by Creswell (2016). According to Schrader (2015), social constructivism is a philosophical perspective that aligns with realistic methodologies. According to Lincoln et al. (2018), social constructivism is inclined towards the use of natural qualitative methodologies. In the context of social constructivism, the understanding of the social sphere is contingent upon the perspectives of individuals who are actively engaged in the ongoing phenomenon under investigation (Cohen et al., 2018 Creswell, 2016). According to Lincoln et al.

(2018), social constructivism involves the use of inductive methodologies and individuals' participation to arrive at explanations in research. Researchers rely on the first-hand experiences of participants, which are examined in authentic environments, in order to gain a comprehensive understanding of the topic under investigation (Kaushik & Walsh, 2019). The authors assert that constructivism aligns with the principles of qualitative research, relying on personal viewpoints, data collection, analysis and interpretation to address research inquiries. The next sections discuss social constructivism in relation to its key paradigms, including ontology, epistemology and methodology. This analysis aims to provide a greater understanding of the social constructivism paradigm and its connection to the field of research.

4.2.1 Ontology

According to Creswell and Poth (2017), ontology pertains to the fundamental understanding of the nature of reality. Creswell and Poth (2017) posit that researchers perceive and understand reality according to their perspective, which can be categorised as qualitative, quantitative or a combination of both ways. According to Aliyu et al. (2015), the perception of the reality of nature can be categorised as objective, subjective or manufactured, depending on an individual's perspective. In the context of social constructivism, multiple truths are generated as a result of people's subjective interpretations and their interactions with others and the broader social environment (Cohen et al., 2018). Furthermore, according to Creswell (2016), social constructivism suggests that truth is not an objective reality but rather a subjective construct that is shaped and understood by individuals based on their own interpretations. In the context of the study, it is the duty of the researcher to acknowledge and consider the perspectives, views and experiences of the participants. The researcher collaborates with them to gain a deeper understanding of their social environment by engaging with the subject under investigation.

4.2.2 Epistemology

According to Aliyu et al. (2015), the concept of epistemology pertains to the fundamental nature of knowledge and focuses on the specific type of knowledge that a study aims to acquire, as well as the methods employed to ascertain the nature of reality (Creswell, 2016). In the context of social constructivism, knowledge is generated based on the veracity of the social environment that individuals encounter

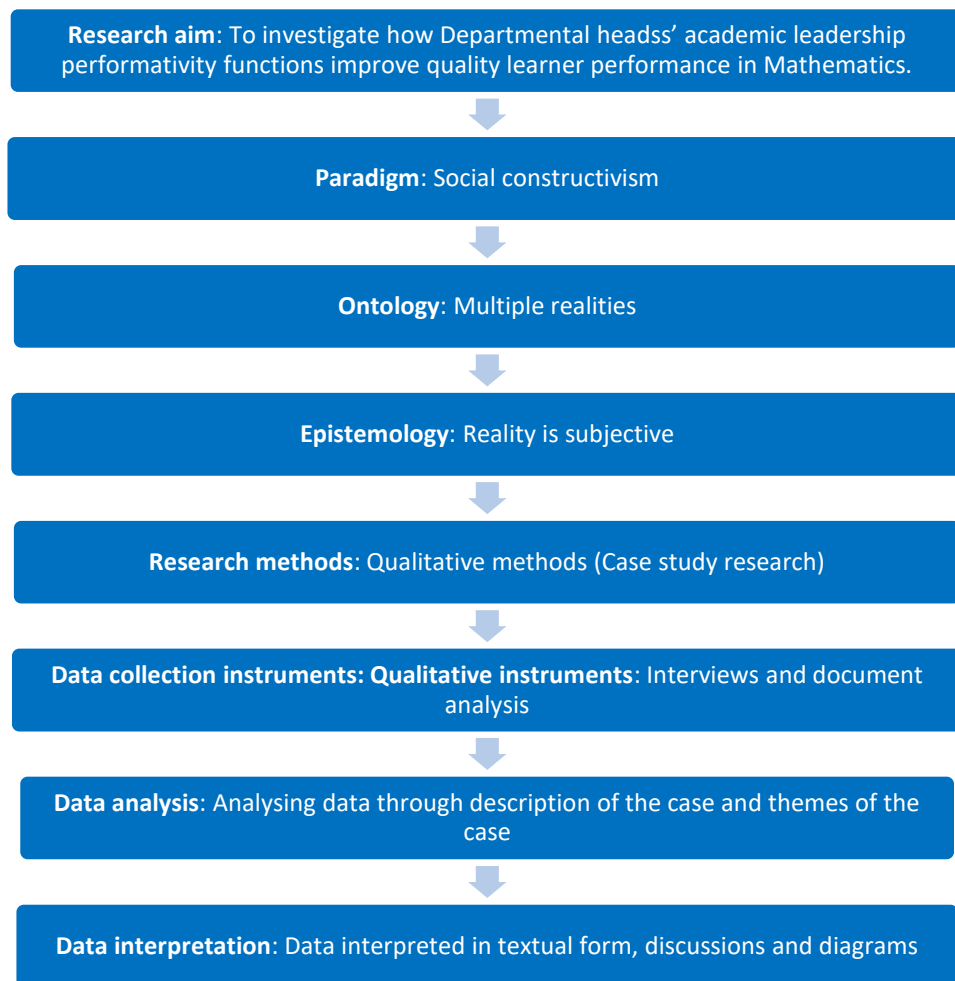
and inhabit (Hathcoat, Meixner, & Nicholas, 2019). Furthermore, Al-Ababneh (2020) highlights the significance of social constructivists in the construction of reality, positing that it is a collaborative endeavour including both the researcher and the studied individuals. Moreover, the scholar asserts that realism is shaped by the subjective experiences of humans, and the researcher establishes a sense of reality by engaging in reciprocal interactions with the individuals under study.

4.2.3 Methodology

Klakegg and Pasian (2016) explicate methodology as a research paradigm that translates ontological and epistemological ideas into prescriptive guidelines that delineate the manner in which research is to be conducted. They assert that methodology has a role in guiding the selection of research methodologies for data collection and analysis. According to Cohen et al. (2018), the use of qualitative research method is advocated by social constructivism. Furthermore, Al-Ababneh (2020) states that social constructivism also advocates for the use of inductive methodologies in the formation of philosophical frameworks, achieved through the process of reaching compromises. Klakegg and Pasian (2016) concur that inductive methodologies rooted in emergent philosophies use qualitative techniques, including conducting interviews, engaging in observation and analysing transcripts.

A schematic representation has been provided to summarise the methodology used in this study, illustrating a systematic and structured approach to the research process. This standard approach encompasses various components, including the research aim, ontology, epistemology, research methodologies, data collecting and data analysis.

Figure 4.1: Research methodology relating to the social constructivism paradigm



4.3 RESEARCH APPROACH OF THE STUDY

The purpose of this study is to examine the impact of academic leadership performativity by DHs in the enhancement of learner performance in Mathematics. The research methodology employed in this study is qualitative in nature. According to Leedy and Ormrod (2015), a qualitative approach is characterised by its focus on the notion that individuals construct their own reality through their encounters with the tangible world. Creswell and Poth (2017) assert that the qualitative research approach is characterised by its occurrence in natural settings, enabling investigators to gain a comprehensive understanding of phenomena by active engagement with the actual experiences.

The selection of qualitative research methodology in this study was based on the researcher's intention to directly gather data from various stakeholders, including DHs, teachers, principals and a CA. This was achieved through personal interactions, one-on-one interviews and analysis of relevant documents. The data acquired aided the researcher in formulating concepts and theories that facilitated comprehension of the participants' social environment, as well as their perceptions and perspectives pertaining to the research subject. According to Schutt (2018), qualitative research aims to enhance comprehension of individuals' thoughts, attitudes and behaviours, with the researcher maintaining receptiveness to alternative explanations. The use of the qualitative research approach facilitated the researcher's ability to engage in informal interactions with the participants. In this context, the researcher promptly addressed the need for clarification, so reducing the occurrence of adverse reactions such as fear and doubts (Leedy & Ormrod, 2015). The prevailing viewpoint was that participants who had decreased fear and possessed a clear understanding of the expected responses to the researchers' inquiries would contribute to the study's ability to gather comprehensive and unambiguous data pertaining to the subject being investigated.

The study used a qualitative research approach to address the research problem and answer the research questions. This approach was deemed appropriate due to its ability to analyse social issues and provide a comprehensive understanding of a phenomenon within its natural context (Schutt, 2018). According to Cannella and Lincoln (2015), qualitative research provides a comprehensive understanding of social phenomena and, within their specific contexts, uncovers significant episodes. Qualitative research is widely recognised for its ability to offer a comprehensive explanation of intricate processes that have influenced and moulded individuals' lives. Furthermore, the use of qualitative research methodologies facilitated the researcher's engagement with participants, as the researcher dedicated a significant amount of time within the research settings.

Advantages of Qualitative Research

According to Cannella and Lincoln (2015), one of the benefits of qualitative research is its capacity to provide researchers with the flexibility to further probe initial participant responses, thereby encouraging participants to provide more detailed

explanations. The point of view is that this gives the participants the chance to reply in their own words, rather than compelling them to select from fixed answers, as is done in quantitative research. Bryman (2016) highlights that qualitative research reflects the detailed description of the participants' feelings, opinions and experiences and interprets the meanings of their actions. The understanding was that in qualitative research it was possible to gain new insight into participants' thoughts, demographic interactive patterns and emotional reasoning processes. The use of qualitative research gave the participants an opportunity to express themselves regarding their understanding of their academic leadership roles they used in improving quality performance in Mathematics.

In addition, Cannella and Lincoln (2015) indicate that the advantage of qualitative research is that it is flexible to follow unforeseen ideas during research and processes effectively. Furthermore, Schutt (2018) highlights that qualitative research increases researcher's sensitivity to the contexts within which the research occurs. Another advantage of qualitative approach according to Leedy and Ormrod (2015) is that the issues and topics covered in the study can be assessed in depth and in detail. Moreover, the researcher has a vision on what to expect (Creswell & Poth, 2017). Some authors such as Crossman (2018), Leedy, and Ormrod (2015) have highlighted the advantages of sampling in using a qualitative approach. Crossman (2018) points out that smaller sample sizes can save costs. Qualitative research uses non-probability sampling that often consists of small chosen sizes.

Disadvantages of Qualitative Research

While qualitative research offers numerous advantages, it's important to heed warnings from scholars.

Cannella and Lincoln (2015), Corbin and Strauss (2015), Creswell and Poth (2017), and Hickman (2017) highlight potential challenges for inexperienced researchers:

- Qualitative research lacks statistical representativeness, which can be a hurdle for novice researchers (Bryman, 2016).
- The assessment, verification, and preservation of data rigidity can be more intricate (Bryman, 2016).

- Qualitative studies typically involve a limited number of participants or cases, making generalisation to larger populations impractical (Creswell & Poth, 2017).
- Data collected may not receive sufficient recognition (Schutt, 2018).
- Qualitative research demands extensive time for data interpretation and analysis, with the potential for investigator bias to influence the data (Cannella & Lincoln, 2015).
- Concealed data may disappear during the research process (Leedy & Ormrod, 2015).
- Replicating findings in qualitative research may pose significant challenges (Schutt, 2018).
- Concerns arise about issues related to confidentiality and anonymity when presenting research findings (Creswell & Poth, 2017).
- The researcher's presence during data collection can impact participants' responses (Cannella & Lincoln, 2015).

However, these challenges can be mitigated by leveraging the researcher's prior experiences in similar research contexts to enhance the study's robustness.

4.4 RESEARCH DESIGN OF THE STUDY

The research study used a case study design. According to Ghauri et al. (2020), the use of a case study approach enables researchers to get extensive, methodical and profound insights into each specific instance under investigation. According to Yin (2018), a case study has the potential to provide primary data and offer unique opportunities for conducting a comprehensive examination of a particular occurrence. According to Lucas, Fleming, and Bhosale (2018), a case study is a research method used by researchers to examine the attributes of a specific unit, such as a school or community. Chopra et al. (2018) provide a definition of a case study as an approach used in research studies. This approach aims to present a distinct illustration of individuals in authentic circumstances, enabling readers to gain an understanding of how concepts and practices can be integrated to create a meaningful existence. According to Ghauri et al. (2020), the case study methodology involves conducting empirical research to examine a specific current occurrence within its real-life setting.

This approach uses numerous sources of evidence to gain a comprehensive understanding of the subject matter.

The basic objective of a case study is to comprehend and analyse distinctive aspects or elements that are specific to the case or cases under investigation. According to Heale and Twycross (2017), the qualitative case study is a research design methodology that facilitates the evaluation of a phenomenon inside a specific environment by using several data sources. This approach initiates the exploration of many perspectives to uncover multiple aspects of the phenomenon. According to Yazan (2015), a case study involves the identification of a real-time phenomenon within its naturally occurring context, taking into account the influence of the environment on the observed differences. The use of case study methodology is a common practice among researchers doing qualitative studies.

This study used a case study methodology to collect comprehensive and insightful information regarding the academic leadership responsibilities of DHs in enhancing the academic achievement of learners in Mathematics within public primary schools. The selection of the case study for this research was deemed suitable due to its capacity to provide insights into the underlying causes and mechanisms, addressing the questions of “why,” in addition to the questions of “what” and “how.” According to Creswell (2016), case studies are used by researchers to gain comprehensive insights into a programme, an occurrence, an activity, a course or one or more persons. The use of the case study approach in this study was deemed appropriate and effective in addressing the research questions in a comprehensive and suitable manner.

In terms of Creswell (2017), the advantage of using a case study design, which contributed to its selection over other designs is that it allows for a comprehensive examination of the phenomenon, utilising many forms of evidence such as interviews with concerned individuals, analysis of documents, and examination of artefacts (Yin, 2018). The case study methodology was employed by the researcher due to its suitability for the study’s objective of providing detailed descriptions and explanations, rather than relying on speculation. Additionally, the chosen phenomenon was neither readily observable nor manipulable (Hancock & Algozzine, 2016). Furthermore, the use of a case study facilitates the empirical investigation of a phenomenon inside its authentic real-life setting, particularly when the demarcation between the phenomenon

and its surrounding context is not readily discernible (Yin, 2018). Scholars such as Berg and Lune (2017) and Lucas et al. (2018) argue in favour of employing the case study approach as a methodology rather than a mere method. They emphasise the advantages of employing case study methodology as a versatile strategy that is well-suited to accommodate the dynamic nature of the research.

Hancock and Algozzine (2016) acknowledge the disadvantages associated with case study research, highlighting concerns such as the excessive level of detail, limited generalisability and the potential for an incomplete contribution to theory. They also present two vignettes that demonstrate how these critiques can be effectively addressed, while also highlighting the advantages offered by this methodology. According to Hancock and Algozzine (2016), case study research can focus on a single instance and offer a comprehensive analysis and interpretation to gain a deeper understanding of that specific situation (referred to as an intrinsic case study). In academic contexts, a case can be employed as an illustrative instance to enhance comprehension of a certain element or subject matter.

4.5 POPULATION OF THE STUDY

The population refers to a group of individuals that have one or more common characteristics that are of interest to a researcher (Dudovskiy, 2018). According to Creswell (2018), a population or target population refers to a large group characterised by specific attributes, from which an academic researcher must select a simplified sample for analysis. The study's population consists of intentionally selected individuals who hold positions as Mathematics DHs, teachers, principals and a CA at primary schools within the Klein Letaba circuit of the Mopani district in the Limpopo province. The combined population of DHs overseeing Mathematics teachers in primary schools within the Klein Letaba circuit is eighteen (18), along with an additional eighteen (18) principals from chosen schools.

4.6 SAMPLE AND SAMPLE FRAME USED IN THE STUDY

4.6.1 Research Sites

The participants who were selected for this research study were principals, a Curriculum advisor (CA), teachers and DHs who were involved in the teaching and

learning of Mathematics in primary schools in the Klein Letaba circuit, Mopani district in Limpopo province. The primary schools in the Klein Letaba circuit are served by a total of eighteen (18) DHs who are responsible for Mathematics.

4.6.2. Sampling techniques used in the study

The researcher employed purposive sampling as a sample technique in this investigation. According to Yazan (2015), purposive sampling is a collection of several non-probability sampling techniques that rely on the researcher's discretion in selecting the units of analysis, which may include individuals, organisations, instances, events or data points, for study. According to Dudovskiy (2018), the use of purposive sampling in a research study facilitates the extraction of substantial information from research participants, particularly in cases where the sample size is limited. The use of purposive sampling in this study was justified due to its focus on specific characteristics of the population under investigation, namely Mathematics DHs, teachers, principals and a CA.

Purposive sampling was employed in this study to deliberately select individuals currently employed in primary schools with a direct impact on their academic managerial duties in the Mathematics department. This method was chosen to effectively investigate the responses to the research questions (Hancock & Algozzine, 2018) and acquire an adequate amount of information from the data (Maree, 2015).

Advantages of purpose sampling

Scholars like Eriksson and Kovalainen (2015), Merriam and Tisdell (2016), and Berg and Lune (2017) highlight the advantages of purposive sampling, emphasising its ability to elucidate the broader impacts of the findings (Berg & Lune, 2017). The method is known for its efficiency in terms of time and cost (Brink, 2018) and its adaptability to enhance study efficacy (Yazan, 2015). When primary information sources are limited, researchers can customise purposive sampling to gather relevant data (Eriksson & Kovalainen, 2015). Maree (2015) also lauds purposive sampling for its merit in systematically selecting suitable participants.

Disadvantages of purposive sampling

In addition to its merits, purposive sampling is acknowledged by various scholars, including Berg and Lune (2017), Eriksson and Kovalainen (2015), and Merriam and Tisdell (2016), to have certain limitations. According to Brink (2018), one limitation of purposive sampling is the potential for bias in participant selection due to subjective or generalised expectations made by researchers during the process of selecting participants for a case study. The persistence of the threat is contingent upon the investigator's work being inadequately conceived or without a foundation in well-defined concepts.

Merriam and Tisdell (2016) issued a warning regarding the potential issues that may arise when students are persuaded to believe that the researcher's selection of units for the case study was appropriate. In addition, Brink (2018) asserts that the use of purposive sampling can result in the implementation of several erroneous or inferential statistical methodologies. In addition, Yazan (2015) highlights that the researcher necessarily omits several subcategories from the sample, resulting in disparate findings in the study. In conclusion, Maree (2016) emphasises that individuals who participate in purposive sampling have the potential to exert influence on the collected data, so compromising the trustworthiness of research findings. However, in the present study, the inclusion of a diverse range of people was carefully planned by the researcher, thus obviating such a problem.

4.6.3 The Sample of the participants

The study comprised individuals who held positions as DHs, teachers, principals and a CA. All the identified groups of participants were chosen using purposive sampling techniques. The participants had the responsibility of teaching Mathematics in primary schools within the Klein Letaba circuit, located in the Mopani district of the Limpopo province. The selection process for the CA involved choosing a candidate from the Klein Letaba circuit. The study specifically focused on selecting a CA who would be responsible for overseeing Mathematics throughout the circuit. Lastly, the study also examined the role of school principals as the individuals responsible for overseeing the implementation of curriculum within educational institutions. The rationale behind the selection of individuals from different backgrounds was to facilitate the incorporation of several perspectives on the subject matter, hence mitigating the

potential for biased outcomes that may arise from relying solely on a homogeneous set of participants.

The study included a carefully selected sample consisting of six (06) DHs who had the responsibility for Mathematics in primary schools, six (06) Mathematics teachers, six (06) principals, and one (01) Mathematics CA. The total number of participants was 19. The justification for choosing a substantial number of participants was to ensure the attainment of information saturation during the process of data gathering. The researcher took into account the factor of gender when selecting the participants for the study, ensuring that both male and female volunteers were included whenever possible.

4.7 DATA COLLECTION OF THE STUDY

The data collection method employed in this study encompassed both interviews and document analysis as tactics for gathering data. The next paragraphs offer a full explanation of the qualities, merits and demerits of both data collection methodologies.

4.7.1 Interviews

Data collection in this study involved the use of interviews. According to Leedy and Ormrod (2015), interviews have the potential to yield significant information that is necessary for understanding the topic being investigated. The interviews were conducted by the researcher in order to gather data from Mathematics teachers, DHs, principals and a CA in primary schools within the Klein Letaba circuit. According to Brace (2018), an interview is a methodological approach employed to elicit the experiences, views and emotions of participants. According to Brace (2018), interviews serve the objective of eliciting the thoughts and perspectives of individuals. According to Maree (2016), the use of interviews enables respondents to express their thoughts, feelings and perspectives, hence facilitating the formation of a comprehensive understanding of the event or phenomenon at hand. According to Maree (2016), an interview is a reciprocal dialogue wherein the interviewer poses questions to the participants in order to gather data and gain insights into their perspectives, beliefs, attitudes, ideas and actions. According to Bloomberg and Volpe (2016), interviews can be characterised as a particular type of prearranged verbal and non-verbal interpersonal dialogue between two or more individuals over shared topics

of interest, with the expectation of being concluded within a specified timeframe. From my perspective, the primary objective of an interview is to obtain a subjective understanding of the prevailing circumstances from the perspective of an individual.

4.7.1.1 Semi-structured in-depth interviews

The research study used semi-structured in-depth interviews as the primary method for data collection. This approach was chosen due to its ability to yield comprehensive and detailed information from participants, including Mathematics teachers, DHs, principals and the CA. By employing this method, the study aimed to gather extensive data on the phenomenon under investigation and get a deeper understanding of the subject matter. According to Scrober (2017), most researchers who employ the case study research design also use semi-structured in-depth interviews. According to Brace (2018), interviews serve as the primary method for data collecting in case study research. According to Ruben and Babbie (2016), a semi-structured in-depth interview refers to an interview format where the interviewer use a set of predetermined questions as a foundation, but also incorporates additional questions that are specifically customised to each individual in order to seek clarification or delve deeper into their rationale.

Semi-structured in-depth interviews involve posing a set of standardised questions to each participant, while allowing the researcher the flexibility to employ probes for the purpose of seeking clarifications (Scrober, 2017). The use of a semi-structured in-depth interview was deemed appropriate for this study due to its capacity to enable the researcher to pose probes or follow-up questions, hence facilitating the acquisition of concealed information from the participants (Ruben & Babbie, 2016). According to Babchuk (2019), this particular form of interview is designed to get a comprehensive understanding of the participants' narratives regarding the phenomenon under investigation and offers the benefit of adaptability.

Advantages of semi-structured interviews

Several scholars, including Nguyen (2015), Sutton and Austin (2016), and Deterding and Waters (2018), agree that semi-structured in-depth interviews provide notable advantages. They suggest that conducting semi-structured in-depth interviews is a feasible approach for facilitating comprehensive and detailed discussions. It is

commonly accepted that the researcher has the ability to carefully analyse the discussions and diverse initial surface-level responses obtained during the semi-structured interviews in order to arrive at nuanced conclusions. Deterding and Waters (2018) emphasise the importance of thoroughly examining both verbal and non-verbal responses, including guesses, laughter, and silence, in order to uncover hidden information that may prove valuable in the subsequent analysis of various themes derived from the conversation (Sutton & Austin, 2016). The prevailing perspective held that semi-structured in-depth interviews afford researchers the opportunity to amalgamate several themes, hence fostering adaptability. According to Nguyen (2015), the use of semi-structured in-depth interviews allows researchers to engage in discussions including a wide range of subjects and themes. Furthermore, the participatory aspect of semi-structured interviews provides an opportunity for participants to freely express their responses. The use of semi-structured in-depth interviews has been found to increase the probability of generating novel ideas that can be implemented. The objective is to demonstrate that a well-conducted semi-structured in-depth interview has the potential to access the participant's internal thoughts, provided that both the researcher and participant actively engage in the process. In summary, it may be argued that semi-structured in-depth interviews offer a more comprehensive understanding of the subject matter and are more manageable in terms of data analysis.

Disadvantages of semi-structured interviews

In addition to its merits, semi-structured in-depth interviews also have certain limitations. According to Denzin (2017), the use of semi-structured in-depth interviews may not be practical in situations where they are not conducted in a face-to-face manner, potentially leading to the loss of data. He asserts that the gathering of data may be compromised as a result of the restricted ability to conduct comprehensive interviews with individuals who have language problems. In this study, the challenge posed by the language barrier was effectively addressed by the use of English, given that all participants in the study were DHs, teachers, principals and a CA holding managerial positions, and possessed a high level of proficiency in spoken English. Nguyen (2017) emphasises that a lack of comprehensive understanding of the subject matter, along with inflexible discourse during semi-structured in-depth interviews, can frequently undermine the quality of the conversation. From my perspective, a reduction

or restriction of responses has the potential to undermine the quality of the discourse. As the researcher, it becomes imperative to solicit further information from the participants. Furthermore, it is worth noting that semi-structured in-depth interviews can potentially cause scheduling difficulties for participants of high social status.

4.7.1.2 Procedure for data collection using semi-structured interviews

In conducting the interviews, certain procedures and processes needed to be satisfied to ensure that all ethical considerations were met. Firstly, the researcher applied for ethical clearance from the University of South Africa Ethics Committee to make sure that the research including data collection methods satisfied all ethical considerations as required. Creswell (2017) indicates that obtaining approval from university research committees is one of the first steps that researchers need to do before undertaking any research. Secondly, the researcher applied in writing for permission to conduct research in Mopani district schools from the Limpopo Department of Education and Mopani district office. Lastly, the researcher sent consent forms to all the participants who participated in the interviews. The consent forms contained information about the aims of the research, issues of anonymity and confidentiality and right to withdraw from participating in the research at any time. The researcher also advised the participants to sign the consent form as a way of showing agreement to participate in the study. Maree (2016) also asserts that obtaining approval from individual research sites and reaching agreements with participants is also one of the ethical issues that governs research.

Before the interviews, the researcher arranged with the participants to decide on suitable venues and times for conducting the interviews. The arranged times fell outside the school programme as requested by Mopani District Education and Limpopo Department of Education since the participants were school principals, DHs, teachers and CA. According to the DBE (2017), research conducted in schools should not in any way disrupt the normal process of teaching and learning.

The interviews began with simple questions requiring biographical information of the participants to break the ice which allowed the participants to relax. Leedy and Ormrod (2015) indicate that it is important for interviewers to establish rapport during interviewing. According to Creswell (2017), rapport can be achieved by beginning the interview with small talk. The author advises that in working to achieve rapport,

interviewers need to be courteous and respectful at all times and should show genuine interest in what the interviewee has to say. After the initial small talk, the interview then proceeded to prepared questions that were semi-structured and required that participants provide experiences, feelings, perceptions and understanding with regard to role of school stakeholders in improving learner performance in the field of Mathematics. During the interviews, the researcher used a video recorder to record the responses with the permission of the participants. Creswell (2017) advises that during interviews, researchers should record participants' response verbatim through the use of hand written notes, video recorders and lap top computers. The researcher also transcribed the interviews immediately after the interview sessions while the interview was still fresh in mind (Lee & Saunders, 2017). According to Creswell (2017), this is one way of ensuring trustworthiness of the collected data. One advice that authors such as Creswell (2017), Leedy and Ormrod (2015) and Maree (2016) give to novice researchers is that they need to keep their reaction to themselves when conducting interviews by not showing surprise, agreement or disapproval to the information volunteered by the participants.

The data collection instrument used in the collection of data in this study was semi-structured interviews. The interviews were conducted using a predetermined interview schedule comprising open-ended questions that were posed to each participant. The open-ended questions were aimed at elucidating and enhancing the understanding of pertinent themes (Lee & Saunders, 2017), as well as acquiring further information on relevant matters. Consequently, the researcher successfully used probing techniques to obtain a more comprehensive understanding of the responses. According to Maree (2016), the use of open-ended questions enabled participants to generate their own responses, so providing the researcher with an opportunity to elicit further information and clarify remarks.

The interview questions were posed in the English language to all participants. This was because individuals (principals, CA and DHs) who participated in this study were considered to be literate, and it was assumed that most of them had high-level qualifications, as they held promotion posts. The interviews undertaken were conducted in person, with the researcher additionally taking into account the imperative of maintaining social distancing measures in light of the ongoing Covid-19 outbreak.

4.7.2 Document Analysis

Document analysis was employed as a supplementary method for data collecting in this study. The use of document analysis served the objective of augmenting the comprehensiveness of the gathered data and reinforcing the information obtained from the interviews. According to Creswell (2016), the use of documents is crucial in the process of presenting data, as it enhances the visibility of the phenomenon being investigated. According to Silverman (2015), the use of document analysis can serve as a valuable tool for researchers seeking to gain access to individuals who are otherwise difficult to contact. There is a wide array of official documents within educational institutions, including but not limited to memorandums, minutes of meetings, working papers and reports. These documents serve as informal records that offer an internal perspective on an organisation (Aksan & Baki, 2017). The document analysis approach involves the collection of data through the examination of documents relevant to a particular domain. This method serves as a foundation for establishing a first set of resources, which can then be enhanced through the application of additional techniques, such as interviews. According to Berg and Lune (2017), documents can fulfil several functions within a research endeavour, such as complementing research data and contributing to the knowledge base through input from the participants. Furthermore, according to Maree (2016), documents serve as a tool for facilitating the pursuit of change and advancement. In cases where several revisions of a same document are available, researchers can analyse and compare these drafts to determine the modifications made. The examination of documents can provide indications for inquiries that need investigation and circumstances that warrant observation within the context of the research (Leedy & Ormrod, 2015). According to Leedy and Ormrod (2015), the use of document analysis can facilitate the generation of novel interview questions. Moreover, they contend that documents can provide valuable insights into the contextual factors influencing the actions of individuals involved and can be subjected to rigorous analysis to validate research outcomes or support corroborative evidence derived from alternative sources.

In my capacity as a researcher, the researcher determined that document analysis was an appropriate methodology for this study. This approach yielded supplementary information pertaining to the academic leadership responsibilities of DHs in enhancing the quality of Mathematics education in primary schools. By using the support provided

by DHs in the form of school papers, the researcher successfully uncovered the significance of DHs in enhancing the standard of Mathematics education in elementary schools. The aforementioned documents also included supplementary information originating from the overall administration of the Mathematics department within the schools.

Advantages of document analysis

Several scholars, including Ruben and Babbie (2016), Creswell (2016), Aksan and Baki (2017), and Yin (2017), assert that document analysis has distinct merits. According to Creswell (2016), document analysis is a research approach that is characterised by its efficiency and organisation, making it less time-consuming compared to other methods. The process should involve the careful selection of data rather than simply collecting data indiscriminately. According to Ruben and Babbie (2016), document analysis is a cost-effective research strategy that is frequently used when it is not viable to obtain new data. Yin (2018) also commends document analysis for its merits. As per the author's assertion, documents possess inconspicuous and non-reactive qualities, so implying that the research process does not have the ability to influence them. Furthermore, Aksan and Baki (2017) argue that papers offer extensive coverage due to their ability to cover a significant period of time, numerous occurrences and diverse locations. From my perspective, the use of papers can serve as a valuable tool for researchers in ensuring the preservation of information that may otherwise elude detection through the process of interviews.

Disadvantages of document analysis

In addition to its inherent benefits, document analysis is not without its limitations. Yin (2018) suggests that there are instances where documentation may not be readily accessible or where the ease of retrieving such documentation is limited. According to Yin (2018), deliberate obstruction of document accessibility may occur. The presence of an imperfect compilation of documents indicates a biased tendency towards selectivity (Rahman, 2017). With regard to the study and its objectives, the examined documents included annual teaching plans, Curriculum and Assessment Policy Statement (CAPS) documents, monitoring tools employed by DHs to oversee and regulate teachers' work, minutes of topic meetings, DHs' portfolios, work schedules

and lesson plans. By reviewing these records, the researcher was able to obtain an accurate depiction of the occurrences taking place within the Mathematics department.

The documents that were requested and analysed included curriculum monitoring tool that focused especially on pre and post moderation tools, moderated assessment tasks, memoranda and marking rubrics, curriculum management file, assessment plan for mathematics, class visits records, subject meetings minutes, CAPS documents, ATPs and work schedules, lesson plans and teachers portfolios. In analysing these documents, special attention was paid to their availability and whether school stakeholders were using them.

4.8 DATA ANALYSIS OF THE STUDY

In the context of qualitative research, it is important to note that data analysis is an iterative process that occurs not just at the analysis stage, but also throughout the data collection phase (Franklin et al., 2017). The data was examined using the method of inductive data analysis, as described by Leedy and Ormrod (2015). The reason for using inductive analysis in this study is due to the nature of the obtained data, which consisted of descriptive textual information. The data analysis process followed the criteria proposed by Akinyode and Khan (2018). Before following these instructions, the researcher engaged in an initial phase of immersing himself in the data. This involved frequently reading the transcribed data in order to get a comprehensive understanding of the meaning encapsulated within the entirety of the acquired data. In addition, the researcher organised comparable perceptions into thematic clusters. To analyse the data, the researcher also used six steps develop by Braun and Clark (2022), namely: organising and familiarization of data, coding, generating themes and sub-themes, reviewing themes and sub-themes, defining, naming themes and sub-themes and writing up. These steps were discussed in detailed in 5.4

In addition to doing inductive data analysis, the researcher also examined the documents utilised by Mathematics DHs for the overall administration of the topic. The documents encompass a range of materials utilised within an academic setting. These include annual teaching plans, CAPSs documents, monitoring tools employed by DHs to oversee and administer teachers' work, work schedules, lesson plans, a Mathematics management file, DHs' portfolios, and minutes from subject meetings.

The documents were analysed to identify any meanings that could be associated with the day-to-day administration of DHs and their impact on enhancing performance in the subject matter. The researcher thoroughly scrutinised the data and their corresponding interpretations to identify any underlying themes and trends. Subsequently, the researcher amalgamated the gathered information with the purpose of formulating a comprehensive depiction of the investigation, and formulating conclusions regarding the potential results of the study.

Data management system in the study

Firstly, the researcher protected all participants by hiding their names. He also kept the field notes safely before compiling research findings. The researcher stored hard copies of the collected data in a locked cupboard/filing cabinet where it would be kept for a period of five years so that it may be used for future research or academic purposes. Electronic information will be stored on a password protected computer. The future use of the stored data will be subject to further Research Ethics Review and approval, if applicable. After five years the hard copies will be shredded and the electronic copies will be permanently deleted from the hard drive of the computer by using a relevant software programme.

4.9 ISSUES OF TRUSTWORTHINESS, CREDIBILITY AND PREFERABILITY IN QUALITATIVE RESEARCH

4.9.1 Researchers' Reflexivity and Positionality

In qualitative research, researchers are considered integral components of the research instruments. Consequently, it was imperative for me to establish a clear positionality in order to minimise any potential bias that could sway the study findings in a specific direction. Initially, the researcher acknowledged the presence of a conflict of interest in the chosen issue because of their concurrent role as a member of the SMT. In light of this, it is possible that the researcher could have exhibited bias towards the participants due to his prior employment as the DHs of Mathematics at a specific school. However, deliberate measures were taken to eliminate personal bias and subjective beliefs. In order to mitigate potential bias in the study, the investigator used the technique of bracketing. According to Cohen et al. (2018), bracketing is a methodological strategy employed in case study research that involves the deliberate

suspension of one's personal beliefs regarding the topic being investigated. The researcher used the method of reflexivity, as described by Van der Wal (2015), which involves the researcher in consistently considering the focus of the study and acknowledging their own biases and interests that may potentially influence the research process. To ensure the trustworthiness of the study, the researcher employed various criteria including credibility, dependability, conformability, authenticity and transferability.

4.9.2 Credibility of the study

In order to enhance the credibility of this study, the researcher used the techniques of member-checking and an audit trail. Candela (2019) asserts that member-checking involves the provision of informal feedback to participants. According to Yin (2018), the methodology entails obtaining comprehensive input regarding the data, logical categorisations, interpretations and findings pertaining to the study cohort. Member-checking was used in the study by distributing interview transcripts to the participants, enabling them to review and validate the accuracy of their responses. The researcher conducted this procedure in order to verify the accuracy of the captured responses. The establishment and maintenance of an audit trail is a fundamental method to enhance the credibility of qualitative research (McMillan & Schumacher, 2015). According to McMillan and Schumacher (2015), the concept of an audit trail refers to a compilation of materials and notes used during the research process to record the researcher's decisions and assumptions. Subsequently, the audit trail was examined by another researcher to determine the veracity of the interpretation of the data. Research materials encompass various types of documents that are used in the research process. These may include interview records, data analysis and process notes, as well as drafts of the final report. In this procedure, it is expected that the informants will have the capacity to verify the findings provided that the researcher has correctly interpreted the data. The concluding phase involved the documentation of the strategies implemented to convey information to the reader.

The researcher established the credibility of the study by thoroughly evaluating and elucidating its believability, specifically in terms of data reliability. According to Hays and Singh (2015), the internal validity of the study can be conceptualised as encompassing the entirety of the data. According to Gunawan (2015), credibility

pertains to the genuineness of the evidence or the perspectives of the participants, as well as the researcher's interpretation and portrayal of them. It is commonly accepted that an investigator's credibility is enhanced when they establish their expertise in the field and validate the research findings by engagement with the participants. According to McMillan and Schumacher (2015), the credibility of a qualitative study is determined by the extent to which the descriptions of human experience resonate with persons who have first-hand knowledge of the same event. The researcher spent considerable time in the field during the data collection process, to enhance the trustworthiness of the findings presented. The researcher bolstered the credibility of the study by using member-checking. Following the completion of data analysis, the researcher effectively provided a concise description of the emerging themes to the participants and solicited their input or verification.

4.9.3 Transferability of the Study

I ensured transferability in this study by extrapolating research findings from one group to another. Transferability, as defined by Creswell (2017), pertains to the potential of research findings to be applicable in different geographical regions or to other groups. According to Singh (2015), ensuring transferability in research can be achieved by providing a comprehensive description of the research setting. A qualitative study would achieve this requirement if the outcomes had relevance to persons not taking part in the study and other researchers can relate the outcomes to their own understandings. Sampson (2017) argues that researchers should supply adequate information about the informants and the study context to allow other bibliophile to judge the fit or transferability of the outcomes to a similar situation or context. To confirm transferability in this study, the researcher discussed the research context and clarified the assumptions that formed the core of the investigation to the participants.

4.9.4 Dependability of the Study

I assured that the research technique was reasonable, observable and plainly identified to ensure dependability of the investigation. Neuman (2017) refers to dependability as "the stability of findings over time". Other studies add that dependability refers to the stability of the data over similar situations (Cohen et al., 2018). The researcher enhanced dependability in this study by using strategies such as data triangulation, member checking, peer debriefing, maintaining an audit trail,

fostering consistency and reflexivity, engaging in prolonged fieldwork, and emphasising credibility and transferability in reporting to establish the reliability and consistency of research findings. These approaches collectively enhanced the trustworthiness and robustness of the research. Therefore, critics of the study should be able to understand all strategies that the researcher used and their value. Brewer (2016) believes that researchers should document research design and implementation, as well as the methodology and methodologies, data collecting details such as field notes, memos, the researcher's reflexivity journal and reflective appraisal of the project.

4.9.5 Conformability of the study

The researcher ensured the study's conformability by explicitly outlining each step of the data analysis process, thereby providing a rationale for the decisions taken. Conformability pertains to the capacity of the researcher to demonstrate that the collected data accurately reflect the participants' responses, devoid of any personal biases or perspectives from the investigator (Cohen et al., 2018). The researcher demonstrated conformability by elucidating the process of recognising suppositions and assumptions and providing evidence that the conclusions were directly derived from the data. In the context of reporting qualitative research, the demonstration of emerging themes was achieved through the inclusion of substantial quotations from the participants. These quotes effectively captured the essence of each theme. Conformability was ensured in this study through the researcher's meticulous use of accurate referencing, the implementation of an audit trail to verify the means and various approaches employed in data collection, and the researcher's reflexivity during participant interaction, analysis and data interpretation.

4.9.6 Triangulation of the study

The researcher used triangulation as a method for data collection from the subjects. Triangulation refers to the systematic approach of using multiple sources in order to formulate informed conclusions (Cohen et al., 2018). The researcher used a triangulation approach, with interviews and document analysis as data collection techniques, in order to obtain a comprehensive and cohesive understanding of the phenomenon under investigation. The use of triangulation and member checks played

a pivotal role in establishing credibility and enhancing the overall trustworthiness of the study.

4.9.7 Prolonged engagement of the study

To make the study credible, the researcher also made use of prolonged engagement. This involved spending long periods with the research participants to achieve data saturation and to collect deeper and richer data. Creswell (2017) posits that prolonged engagement involves lasting presence during observation of long interviews or long-lasting engagement in the field with participants. The author further highlights that during prolonged engagement, the researcher invest sufficient time to become familiar with the setting and context, to test for misinformation, to build trust, and to get to know the data to get rich data

4.9.8 Member checking of the study

The researcher conducted member-checking (Cohen *et al*, 2018) with the participants. The authors reiterate that member checking involves the provision of informal feedback to participants. In terms of the authors, it is a process that involves systematically obtaining feedback about one's data, analytic categories, interpretations and conclusions for the study group. In this study, member checking was conducted by providing the participants with interview transcripts so that they could check and verify the accuracy of their responses and to make sure that the researcher has indeed captured their responses accurately.

4.10 ETHICAL CONSIDERATION OF THE STUDY

Ethical considerations were given due attention in order to prevent any harm to the participants involved in the data collection process, including DHs, teachers, principals and the CA (Gray, 2014). Prior to data collection, the researcher carefully considered several ethical factors, including obtaining access to the participants, ensuring informed consent, addressing potential deception, safeguarding the confidentiality and anonymity of participants, and respecting their right to privacy. The following paragraphs addressed the ethical considerations.

4.10.1 Gaining Access to the Participants

Following the endorsement of the research proposal by the University, the researcher proceeded to submit a written application for ethical clearance to the Ethics Committee of the University of South Africa (Appendix A). Additionally, authorisation was sought from the DBE in Limpopo province to conduct the research in schools (Appendix B). Upon receipt of the authorisation letter from the Department of Education, the researcher proceeded to notify the district manager of Mopani District Education, as well as the circuit managers responsible for the circuits within the Mopani District, regarding the proposed inclusion of DHs and Mathematics teachers from designated primary schools within the circuit (Appendix C). Additionally, the principals and CA were also identified as potential participants in the research. Participants were provided with the information related to the research and asked to sign a consent form if they agreed to participate (Appendix D, E, F, G and H).

4.10.2 Deception

Deception refers to the act of a researcher presenting inaccurate or fabricated data pertaining to certain subjects, or intentionally distorting information on a crucial aspect of the research (Zegwaard et al., 2017). The researcher avoided deception by using debriefing in this study. Debriefing was done at the end of data collection with each participant at the conclusion of any research activities. In this study, the researcher used different data sources, namely semi-structured interviews and document analysis to triangulate data (Creswell, 2018). During data collection, the researcher had lengthy engagement with the DHs, teachers, principals and CA to ensure that they trusted me and answered the questions honestly. The researcher further ensured credibility by conducting member-checking. The researcher shared the transcripts, feedback, and conclusions with the participants so that they could verify that he had transcribed the data appropriately. This is called member-checking.

4.10.3 Privacy

The researcher treated the participants' right to privacy with respect (Berg & Lune, 2017). The researcher kept the responses from the participants confidential. The researcher allocated a pseudonym to each participant so that no one could determine the identity of each respondent or relate what they said to any specific individual

(Jensen & Laurie, 2016). The researcher consistently upheld ethical principles by ensuring the participants' informed consent and safeguarding the collected data through secure storage methods, including audio recordings, USB memory sticks and compact discs. The purpose of this action was to enhance the level of privacy associated with the data gathered from the participants. The additional data obtained from the participants was securely stored on a hard drive and a laptop as a precautionary measure to prevent any loss of the collected data.

4.10.4 Informed Consent

The process of obtaining informed consent involves ensuring that participants are fully informed about the necessary details of the research prior to providing their consent to participate in the study (Jensen & Laurie, 2016). The researcher supplied all the participants with consent forms that addressed the objectives of the study and ethical considerations, like voluntary participation, right of withdrawal from the study, anonymity and confidentiality. Manti and Licari (2018) emphasise that respect for individuals necessitates that all participants be apprised of the goal of the study and what was anticipated from them. The participants were provided with information about the research (Appendix D, E, F and G) and a consent form (Appendix H) where the researcher educated them on the nature and goal of the investigation. Furthermore, the researcher described the contents of the form and offered ample time for participants to evaluate and sign the form agreeing to participate. The researcher also communicated with each individual and organised acceptable times and settings to conduct the interviews. Face-to-face interviews were performed at the participant's preferred venues. The researcher also mailed questionnaires (Appendix I) coupled with a covering note to remind and acquaint participants with the substance of the questionnaire.

The researcher conveyed to the participants that involvement was voluntary. This meant that individuals were free to choose to participate without any pressure or coercion (Committee of Publishing Ethics, 2018). The participants were also told that they had the right to withdraw from the study at any time if they chose to do so. The researcher also made it plain to participants that there were no negative consequences or implications for their unwillingness to partake in the study. The notion was that participants were taking time to contribute to the research process; therefore

the researcher was expected to respect their decisions without trying to manipulate them in any way.

4.10.5 Confidentiality

Information acquired in the study was regarded as confidential and the participants' information remained unidentified to safeguard their privacy. The issues of anonymity, potential harm, data pseudonymisation and confidentiality were be taken into consideration. To ensure anonymity, the researcher refrained from linking any individual participant to their respective data. The researcher used an alternative approach to replace personally identifiable information of participants by using pseudonyms or labelling them. In order to ensure the confidentiality of the data, the researcher implemented measures to protect it and mitigate potential risks to data privacy.

4.11 CHAPTER SUMMARY

This chapter discussed the paradigm, research approach, research design, and data gathering method used to solicit perspectives from participants (specifically, DHs, principals, teachers and a CA) regarding the academic leadership roles of DHs in enhancing the quality of learner achievement in Mathematics in primary schools in Limpopo Province. This study expounded upon the researcher's epistemological, ontological and methodological stance. The study extensively discussed the use of semi-structured interviews and document analysis as qualitative data collection methods. The researcher provided a thorough and well-supported rationale for the selection of the paradigm, design and methodology. The next chapter presents the empirical results derived from the study participants.

CHAPTER 5: PRESENTATION, ANALYSIS AND DISCUSSION OF DATA

5.1 INTRODUCTION

The preceding chapter provided a detailed methodological procedure for the study. In addition, it presented the study paradigm, research approach, research strategy and data gathering techniques that solicited the views of participants (selected Mathematics teachers, Mathematics DHs, principals and a CA) on the academic leadership roles of DHs in improving quality of learner performance in Mathematics in primary schools in Limpopo Province. This section discuss the investigation outcomes, which focused on the analysed and interpreted information collected during field study by the researcher. The study used semi-structured interviews to gather information with selected Mathematics teachers, Mathematics DHs, principals and CA, as well as through literature review and document analysis. The study used a qualitative research strategy to respond to the main research question which was **“How do the academic leadership functions of DHs in primary schools improve learner performance in Mathematics?”**

In order to address the primary research question, it is important to consider the following subsidiary inquiries:

- What management duties do DHs perform in improving performance in Mathematics?
- How do DHs perform their duties towards improving learner achievement in Mathematics?
- What are the challenges that DHs face when performing their duties in improving performance in Mathematics?
- What intervention strategies do you implement to mitigate challenges you encountered while performing your function of improving learner performance?
- What do DHs perceive as strategies that can assist to improve performance in Mathematics?

The research findings were reported in line with the information collection strategies beginning with reporting of information gathered using interviews and followed by information gathered through document enquiry. The findings were presented in accordance with the categories of participants, first teachers, DHs, principals and CA.

5.2 THE CHARACTERISTICS OF PARTICIPANTS

The participants were chosen from Klein Letaba circuit, Mopani District in Limpopo province. The participants included six (06) Mathematics teachers, six (06) Mathematics DHs, six (06) principals and one (01) CA from the primary schools. The researcher chose Mathematics teachers to participate in the enquiry because they had teaching familiarity and they were teaching Mathematics in their respective schools. Because of their qualifications and experience, the researcher thought that participating teachers would contribute a vast amount of information in relation to the topic under study. The researcher further selected DHs because they were responsible for supervising Mathematics in schools. In addition, the emphasis of the study was on DHs' academic leadership functions in improving learner performance in Mathematics. Furthermore, my rationale for selecting primary schools principals was that they were situated strategically to offer information that could make an important input with regard to the research questions. Lastly, a CA was included in this study because he works closely with Mathematics DHs and teachers in the Mopani district schools. Furthermore, CAs are strategically positioned as guardians of the curriculum and their role as curriculum monitors to deliver information that might provide a valued input on the research questions.

5.3 THE PROFILE OF PARTICIPANTS

The data included in the following tables shows the features of the participants in this study. The characteristics are shown in separate tables according to their categories. The issue of gender was taken in to consideration when choosing the participants, where men and women were equally selected. The participants were nine (09) men, nine (09) women and one (01) male CA, which brings the total number of the participants to nineteen (19).

Table 5.1***Biographical information of Mathematics teachers***

Participants	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
						6
Gender	Female	Female	Male	Male	Female	Male
Age	35	45	38	37	40	43
Qualifications	PGCE	STD Ace in Mathematics	PGCE	B. Tec	Bsc (Mathematics and Statistics)	SPTD Ace in Mathematics
Experience as teacher	07	15	12	12	15	14
Number of years teaching Mathematics	07	12	10	08	11	11

In Table 5.1, six Mathematics teachers were chosen as participants. The age of teachers ranged between 35 to 43 years. The majority of the teachers have specialised in Mathematics and two of them did Mathematics in Grade 12 only. Their teaching experience ranged from 07 to 15 years.

Table 5.2***Biographical information of DHs***

Participants	DH1	DH2	DH 3	DH 4	DH 5	DH 6
Gender	Female	Male	Female	Female	Male	Male
Age	46	48	47	43	45	50
Qualifications	STD ACE in Education Management PGD	SPTD ACE in Education Management Bed (Hons)	SPTD ACE in Mathematics Bed (Hons)	STD ACE in Mathematics B. Tec Bed (Hons)	STD ACE in Natural Sciences Bed (Hons)	SPTD ACE in Education Management Bed (Hons)
Experience as teacher	21	23	22	18	20	25
Number of years teaching Mathematics	15	19	17	10	16	19
Number of years working as DH	05	10	12	08	11	15

In this study, six DHs were chosen as participants. The age of teachers ranged between 43 to 50 years. The majority of the DHs have specialised with Mathematics and two of them they did Advanced Certificate in Mathematics. Their teaching experience ranged from 18 to 25 years and between 15 to 19 years teaching Mathematics.

Table 5.3***Biographical information of principals***

Participants	Principal 1	Principal 2	Principal 3	Principal 4	Principal 5	Principal 6
Gender	Female	Male	Male	Female	Female	Male
Age	50	53	55	52	50	53
Qualifications	SPTD BA Bed (Hons)	STD FED BA Bed (Hons)	SED BA Bed (Hons)	SPTD Ace in Education Management Bed (Hons)	SPTD ACE in Education Management Bed (Hons) Masters in Educations	STD ACE in Education Management BA Bed (Hons)
Experience as teacher	20	26	27	24	23	28
Number of years as principal	08	10	12	09	07	12

From the biographical data it is clear that the respondents were three female and male. All of them have English as their first language as they occupying promotional posts. Their ages ranged from 50 to 55 years. They all met the requirements of having a minimum qualification to be appointed as principals, and they also had many years of teaching experience. Their experience as principals of their schools ranged from 07 to 12 years.

Table 5.4***Biographical information of CA***

Gender	Age	Qualifications	Working experience	Experience as CA
Male	55	STD, ACE in Education Management Bed (Hons) Masters and PHD in Education Management, Law and Policy Studies	30	15

The Mathematics CA had 30 years working experience as teacher and CA. He has 15 years' working experience as Mathematics CA. The highest qualification that he has his doctoral degree. He was the most highly experienced in the study and his experience enables him to work closely with Mathematics DHs and teachers in the Mopani East district.

5.4 PRESENTATION, ANALYSIS AND DISCUSSION OF DATA

The researcher used thematic analysis to analyse the data from the participants. The rationale for using the method was that it is a good approach to research participants' views, opinions, knowledge, experiences or values from a set of qualitative data such as interview transcripts. After collecting data from the participants the researcher closely examined the data to identify common themes, topics, ideas and patterns of meaning that come up repeatedly. He also used the following six steps developed by Braun and Clark (2022) to analyse the data:

Step 1: Organising and familiarization of data

Data was arranged in file folders on the computer. They were organised into chunks that could be easily read while analysing the study. Thereafter, the researcher read all the responses from all participants (Teachers, DHs, principals and Curriculum Advisor) to be familiarized himself with the data. Braun and Clark (2022) insist that it is important to get a thorough overview of all the data the researchers collected before they start analysing individual items. This might involve transcribing audio, reading through the text and taking initial notes, and generally looking through the data to get familiar with it.

Step 2: Coding

Secondly, the researcher coded the data by highlighting sections of collected data with different colours, phrases or sentences to come up with shorthand labels or "codes" to describe the content. The researcher went through the transcript of every interview collected from participants and highlighted everything that jumped out as relevant or potentially interesting.

Step 3: Generating themes

Thirdly, the researcher looked over the codes created, identified patterns among them, and started coming up with themes. The researcher also decided to create potential themes that summarised and provided an explicit explanation of the collected data. Seven themes with sub-themes emerged from data collected through the main research question and sub-questions.

Step 4: Reviewing themes

Fourthly, the researcher ensured that his themes were useful and accurately represented the data. He also returned to the data set and compared his themes against it to check if there was missing information: are these themes really present in the data and what can be changed to make his themes work better?

Step 5: Defining, naming themes and sub-themes

Now that the researcher had a final list of themes, he named and defined each of them by formulating exactly what he meant by each theme with sub-themes and figuring out how it helped him understand the data. Creswell (2017) asserts that naming themes involves coming up with a succinct and easily understandable name for each theme with sub-themes.

Step 6: Writing up

Lastly, the researcher wrote up his analysis of the data in the study. The findings in this study address each theme with sub-themes. The following table represents research questions, themes and sub-themes:

Table 5.5

Research questions, themes and sub themes of the study

Research questions	Themes	Sub themes
What management duties do DHs perform in improving performance in Mathematics?	Theme 1: The role of teachers, DHs, principals and CAs in improving learner performance in Mathematics.	5.4.1.1 Teacher collaboration through meetings and workshops 5.4.1.2 Involving learners and parents in teaching and learning 5.4.1.3 Curriculum delivery 5.4.1.4 Planning 5.4.1.5 Organising 5.4.1.6 Team leading 5.4.1.7 Class visits and the control of teachers' work 5.4.1.8 Developing monitoring instruments 5.4.1.9 Mentoring Mathematics teachers 5.4.1.10 Participating in enrichment programmes
What are the challenges that DHs face when performing their duties in improving performance in Mathematics?	Theme 2: The challenges teachers, DHs, principals and CAs encounter when working towards improving learner performance in Mathematics.	5.4.2.1 Lack of relations amongst teachers and DHs 5.4.2.2 DHs who are appointed without subject specialisation 5.4.2.3 Teacher absenteeism 5.4.2.4 School stakeholders' high workload and lack of time

		<p>5.4.2.5 Inadequate support from the school leaders (SMT), DBE, teachers and DHs</p> <p>5.4.2.6 Lack of teaching and learning resources in Mathematics</p> <p>5.4.2.7 Lack of commitment and cooperation amongst DHs and teachers</p> <p>5.5.2.8 Teachers' insubordination</p> <p>5.4.2.9 Lack of the curriculum management files and monitoring evidence by DHs</p>
<p>What intervention strategies do you implement to mitigate challenges you encountered while performing your function of improving learner performance?</p>	<p>Theme 3: Teachers, DHs, principals and CAs' interventions to mitigate challenges encountered while working in improving learner performance in schools.</p>	<p>5.4.3.1 Implementation of a leave mechanism</p> <p>5.4.3.2 Prioritising work to be done</p> <p>5.4.3.3 Straight talk with teacher perpetrators</p> <p>5.4.3.4 Inviting principals to attend Mathematics subject meetings as a strategy to address inadequate support from the school leaders and DBE</p> <p>5.4.3.5 Convening meetings with DHs</p> <p>5.4.3.6 Appropriate appointment of DHs</p> <p>5.4.3.7 Liaising with the Department of Basic Education to provide schools with documents</p>

<p>How do DHs perform their duties towards improving learner achievement in Mathematics?</p>	<p>Theme 4: Strategies that teachers, DHs, principals and CAs use to improve learner performance in Mathematics.</p>	<p>5.4.4.1 Lifelong learning 5.4.4.2 Bringing Mathematics to the real-life situation 5.4.4.3 Setting high expectations 5.4.4.4 Giving more work and fortnight assessment to learners 5.4.4.5 Adherence to DBE policies 5.4.4.6 Monitoring teachers' work 5.4.4.7 Establishment of subject committees and convening subject meetings</p>
<p>How do the academic leadership functions of Departmental heads in primary schools improve learner performance in Mathematics?</p>	<p>Theme 5: Description of various leadership styles exercised by DHs, principals and CAs when improving learner performance in Mathematics.</p>	<p>5.4.5.1 Instructional leadership style 5.4.5.2 Transformational leadership style 5.4.5.3 Democratic leadership style 5.4.5.4 Autocratic leadership style 5.4.5.5 Laissez-faire leadership style 5.4.5.6 Coaching leadership style 5.4.5.7 Affiliative leadership style 5.4.5.8 Pacesetting leadership style</p>
<p>What do DHs perceive as factors that can assist to improve performance in Mathematics?</p>	<p>Theme 6: Newly appointed DHs and how they are introduced to their new roles.</p>	<p>5.4.6.1 Induction workshops 5.4.6.2 Formal meetings</p>

<p>What do DHs perceive as factors that can assist to improve performance in Mathematics?</p>	<p>Theme 7: Professional development that SMTs engage in for improvement in their careers.</p>	<p>5.4.7.1 SMTs, staff and subject meetings that DHs engage in to improve their careers 5.4.7.2 Workshops and trainings that DHs engage in to improve their careers</p>

The study has seven themes that emerged from research questions. The following emerged themes would be discussed in full in the next coming paragraphs:

- Theme 1: The role of teachers, DHs, principals and CAs in improving learner performance in Mathematics.
- Theme 2: The challenges teachers, DHs, principals and CAs encounter when working towards improving learner performance in Mathematics.
- Theme 3: Teachers, DHs, principals and CAs' interventions to mitigate challenges encountered while working in improving learner performance in schools.
- Theme 4: Strategies that teachers, DHs, principals and CAs use to improve learner performance in Mathematics.
- Theme 5: Description of various leadership styles exercised by DHs, principals and CAs when improving learner performance in Mathematics.
- Theme 6: Newly appointed DHs and how they are introduced to their new roles.
- Theme 7: Professional development that SMTs engage in for improvement in their careers.

5.4.1 Theme 1: The role of teachers, DHs, principals and CAs in improving learner performance in Mathematics

Regarding the theme, the role of teachers, DHs, principals and CAs in improving learner performance in Mathematics, various sub-themes which emerged are discussed.

5.4.1.1 Teacher collaboration through meetings and workshops

Teacher collaboration through meetings and workshops refers to what teachers, DHs, principals and CAs do in improving learners' achievement in the Mathematics department. Mathematics teachers, DHs, principals and CA indicated that as school stakeholders, they have the duty to collaborate with one another to convene and attend meetings and workshops. Mathematics teachers pointed out that during staff meetings, teachers and DHs have the opportunity to interact with colleagues.

In addition to school-based meetings that involve teachers, DHs and principals. DHs, principals and CA reported that DHs and teachers also attend subject gatherings and training prearranged by the DBE, which are facilitated by CAs. They further explained

that during these subject meetings and workshops, they interact with teachers from different schools where there is information-sharing. These are some of the participants' views:

Teacher 1 indicated that:

"I also attend cluster meetings and workshops that develop us in the subject. Furthermore, I share knowledge with my colleagues and other teachers from other schools who teach mathematics. In turn, I also share the methods or steps of solving mathematical problems as well as teaching strategies. This helps me to acquire full knowledge of the subject and skills because I also learn many ways of teaching the subject from them".

Teacher 5 supported that:

"My other role is to collaborate with other teacher in the subject meetings and workshops to share the best practice of teaching Mathematics. This helps me to get more knowledge on the subject and the skill of teaching it".

DH 3 mentioned that:

"I have the duty to conduct subject meetings and workshops with teachers. During workshops and subject meetings, I am able to discuss everything concerning Mathematics with my teachers".

Principal 6 emphasised that:

"I have to duty to make sure that DHs conduct workshops and subject meetings in the Mathematics department. I also make sure that all teachers attend these workshops and subject meetings".

CA pointed out that:

"I conduct a workshop on the usage of DBE workbooks and curriculum coverage/SBA moderation instruments. I also ensure that DHs have audit instruments for informal/formal tasks. I also ensure that DHs have updated curriculum resource files".

These views are corroborated by Saul (2019) who argues that collaboration among teachers, DHs and CAs is an influential professional development action that can assist them expand their subject knowledge, meditate about teaching approaches in different ways and learn new ideas to implement in the class. The point is that regular interactions amongst teachers, DHs and CAs in the Mathematics department is important, because it increases professional and interpersonal relationships. Moreover, teachers depend on each other for support, where they develop relationships based on trust and compassion. In addition, CAs have the duty to capacitate DHs on monitoring and supporting teachers in the Mathematics department, which they can only achieve through interactions during meetings, either at school or district level (Deming, 1986). They also have the duty to capacitate DHs on moderation processes and classroom visits. The view is that meetings are important in that they serve as a platform in which DHs are capacitated on tracking learner performance in schools to improve the achievement when working at schools.

5.4.1.2 Involving learners and parents in teaching and learning

Mathematics teachers indicated that as school stakeholders, they are bound to include learners and parents in the school curriculum activities. Accordingly, teachers should ensure that all learners are involved in curriculum activities in the classroom. They need to make sure that all learners give maximum participation during teaching and learning. One teacher highlighted that as a teacher, his role is to conduct diagnostic assessment on learners aimed at determining challenging areas in learners' daily learning. The participant pointed out that the rationale for doing diagnostic assessments on learners is to provide opportunities for creating efforts to improve learner performance. In addition, the participant showed that diagnostic assessment of learners also assists teachers to work in line with CAPS and annual teaching plans (ATPS) as required by the DBE. Other teachers pointed out that their main role in achieving improvement on learner performance was through involving parental participation. They argued that learners had the tendency to forget school work including homework. They debated that involving parents would ensure that learning not only occurred in schools, but also continued at home. These are some of the participants' views:

Teacher 2 pointed out that:

“As a Mathematics teacher, I have the duty to do diagnostic assessment to my learners in order find out the problematic areas, so that I can put my effort more on that. I also make sure that I follow the CAPS documents and the ATPs, as required by the department. I further ensure that in everyday lessons. I identify the following: problematic areas and areas where learners excel”.

Teacher 5 stated that:

“Involving parents, some of the learners easily forget about their homework. When parents participate in their children’s education, they ensure that learning continues also at home”.

Anderson et al. (1994) pointed out that there should be a partnership between schools and their community shareholders including parents to enhance learner achievement in schools. They further indicated that DHs and teachers can benefit from the assistance of a variety of stakeholders, including subject specialists who can train DHs on the finer nuances of managing and guiding learners toward increased accomplishment in the Mathematics subject. Schools should actively promote parental involvement, as parents, given their extended interaction with their children, can engage with them regarding schoolwork in a supportive environment, free from external factors like bullying by peers and teacher intimidation that can hinder learning outcomes.

Elhuni and Ahmad (2014) support the findings when they indicate that parents can be engaged in education to assist their children as part of the association between the school and the community. In this regard, DHs can help parents to instil a sense of motivation in children to complete their school work at home and accomplish their assignments. Communication between parents and teachers should be of a high standard to foster a collaborative relationship. This can be achieved through setting up communication channels including social media and phone calls. To strengthen this school-community partnerships, principals and DHs should encourage teachers to communicate with parents about learner performance and to inform them about classwork and homework assigned to learners. Collaboration between parents and teachers and other school stakeholders will contribute to the exchange of information

that will ultimately improve learner performance in schools. The SASA advocates for increased parent involvement in their children's education. Including parents in their children's education is a foundation for learner's development leading to a proper upbringing. Teachers should work closely with parents in schools where parents might assist teachers by monitoring their children's work at home. The view is that close monitoring by parents and school would also improve learner performance in Mathematics. It is also vital that teachers conduct diagnostic tests to detect learners with learning hurdles so as to focus attention on them. In conclusion, the involvement of parents in the education of their children would assist in creating awareness of parents regarding their role of assisting children with homework. On the other hand, parents would be able to monitor their children when they are at home and motivate them to focus on school work.

5.4.1.3 Curriculum delivery

DHs as one of the most vital school stakeholders have the role of ensuring curriculum delivery in schools, which plays an important role in improving learner performance in Mathematics. DHs stated that their main duty was to ensure that curriculum delivery takes place in schools. This curriculum delivery is achieved through continuous monitoring of teaching and learning. DHs stressed that they also had the duty to teach and assess learners in Mathematics. In addition, they agreed that they had the duty to distribute learning teaching support materials (LTSM) to teachers in the Mathematics department, which have the potential to increase the work rate of both learners and teachers. The distribution of teacher-learner support materials includes textbooks, workbooks and exercise books all learners in schools.

DH 5 indicated that:

"I have to make sure teachers have all relevant learning teaching support materials in the Mathematics department. I also have to make sure that all learners have Mathematics textbooks and exercise books. My role is to ensure that effective curriculum delivery take place in the Mathematics department. I do this by checking that teachers attend classes according to the timetables on a daily".

DH 6 declared that:

“As DH in our school, I have role to lead the curriculum or the subjects that are under my supervision. I ensure that teaching and learning is taking place properly”.

The finding is in support of the EEA (2016), which indicates that the core duty of DHs is curriculum delivery and teaching. Within this core role, DHs are expected to engage in classroom teaching, act as class teachers when necessary, and manage assessment and recording of learner achievement. When DHs involve themselves in curriculum delivery, it might lead to enhancement in the performance of teachers in the subject, which could also result in learner academic improvement.

5.4.1.4 Planning

DHs indicated that teachers, DHs, principals and CAs also involve themselves in planning every aspect of school work. DHs and principals highlighted that to achieve successful results in Mathematics; teachers, DHs and principals have the duty to plan every curriculum activity in their Mathematics department. They indicated that it is their duty to make sure that all activities are included in the curriculum management plan. They also stressed that there are assessment programmes for all learning areas including Mathematics that they have to follow. In addition, they indicated that their duty was to make sure that there was an annual academic performance report, a programme for class visits and a timetable for subject meetings for the whole year. Other DHs pointed out that their role as school stakeholders in improving learner performance in Mathematics involved planning aspects that include ensuring that mandatory curriculum documents such as planners, trackers, ATPS, budgeting and policies are made available for teachers to use at all times. This would ensure that there is effectiveness in the way in which teachers carry out the curriculum for learner improvement. One of the principals pointed he encouraged DHs to plan their work timeously at school to achieve better results.

DH 2 specified that:

“I have the duty to make sure that the following documents that are used by teachers in the Mathematics department are available: planner and tracker, annual teaching plan and assessment plan. I have to check whether teachers

use tracker in Mathematics in order to teach what is needed according to the Mathematics policy”.

Principal 2 cited that:

“I encourage Departmental heads to plan their work in their department. DHs are critical to strategic implementation, so they need to be involved in the strategic planning from the beginning to the end. They need to own it otherwise; it will just be a fruitless exercise to do it without them”.

The finding is in line with Stabback (2016) who suggests that DHs should participate in planning activities such as strategy planning, school year planning, curriculum planning, forecasting, programming, scheduling, budgeting, policy development and process organisation. When planning is done by DHs at schools, it is important because they remain the closest stakeholders to their teachers in their respective schools. Planning is the core business of DHs when it comes to executing their Mathematics department (Deming, 1986). The prerequisite is that DHs should ensure that the delivery of the curriculum occurs in a conducive environment and teachers are delivering their lessons daily to learners.

5.4.1.5 Organising

The findings also suggest that teachers, DHs, principals and CAs involve themselves with organising school activities and programmes to achieve improvement on learner performance in Mathematics. DHs stated that they have the duty to engage in organising through drawing schedules for class visits and making sure that it is communicated to all interested parties in schools. They further explained that the schedule includes the QMS management plan. DHs highlighted that they also had the duty to establish subject committees in their Mathematics department, and these committees needed to be functional to enhance learner achievement. They stressed that they had the responsibility to assist in developing subject policies in the department and make sure that curriculum needs and LTSM were available and promptly distributed to both teachers and learners in the Mathematics department. The principal highlighted that she advised DHs to arrange furniture in the classroom for conducive working environment.

DH 2 stated that:

“My duty is to establish subject committee in my Mathematics department and ensure that it is functional in order to enhance learner achievement”.

Principal mentioned that:

“The DHs have to advise teachers on how to arrange their classrooms for it to be conducive to learning, and cater for individual and group discussion activities”.

The response is reinforced by Stabback (2016) who indicates that DHs immerse themselves in organising class visit schedules, subject committee formation, QMS schedules, curricular needs, subject policies and provision of LTSM. DHs should be actively involved in organising activities such as delegating assignments or allocating resources and forming committees. This will assist in improving learner performance in Mathematics.

5.4.1.6 Team leading

DHs stated that they have the duty to lead group of teachers in the Mathematics department. To lead these groups, DHs pointed out that they had a duty to conduct subject meetings and workshops with teachers. The participants highlighted that during workshops and subject meetings, they were able to discuss everything concerning Mathematics. While leading the groups of teachers, they explained that they also had the duty to delegate activities to other teachers. Principals explained that it was their duty to encourage and motivate teachers in their group to perform harder in order to attain quality outcomes in Mathematics. The participants further explained that they had the duty to coordinate all the curriculum activities in the Mathematics department and make sure every required task took place in the school. One DHs expressed his role of improving learner performance in mathematics through motivation. The participant said that he motivated and supervised teachers to improve teaching and learning. He said that he also gave instructions and directions during meetings related to how teachers had to work to improve learner performance in Mathematics. These is what they said:

DH 3 indicated that:

“My duty is to provide the direction for entire Mathematics department. I make sure that learners are given highest quality teaching by teachers in the class. I have the role to lead the Mathematics department and teachers in the school. As leader, I make sure that Mathematics subject policy is developed which shows how things are submitted in the Mathematics department”.

DH 4 expressed that:

“My role is to motivate and supervise teachers under my department to improve curriculum delivery in the Mathematics subject. I give instructions and directions in the meeting to teachers under my Mathematics department. As leader, I influence my teachers to teach to increase the quality of learner performance in the school”.

Principal 3 indicated that:

“I encourage DHs and teachers to work as team because team teaching will also assist in improving the achievement of learners”.

The finding is in support of Robinson et al. (2020), who specify that real teams reinforce leadership, augment teaching and learning, cultivate relationships, increase job satisfaction and provide a means for mentoring and supportive to new teachers and administrators. The finding concurs with that of Ogina (2017) who pointed out that DHs are visionary leaders who have the capacity, capability and exceptional abilities to ensure that their Mathematics departments achieve better results at schools. DHs can achieve this by collaborating with teachers, and teamwork must be fostered in order for their departments to run effectively. As visionary leaders, DHs should work hard to build a team that collaborates on tactics to assist them achieve a new vision and increase performance (Deming, 1986). Furthermore, working as a team between DHs and teachers could allow them to discuss their work in collaboration and, as a result, they could grow professionally. They would also help one another in dealing with problems that they encountered during the teaching of Mathematics. DHs have the obligation as instructional leaders, to assist teachers in creating good environments for curriculum delivery. They also need to work collaboratively with teachers to enhance learner achievement in Mathematics subject in schools.

The finding is in line with Khan (2010) and Deming (1986) who highlighted that internal cooperation amongst DHs and teachers might result in enhanced individual and organisational performance. They pointed out that DHs must promote the formation of teams within schools amongst teachers. These may include subject teams whose purpose is to discuss difficulties encountered during teaching and learning as well as accomplishments made during their work. Furthermore, the teams would function as a springboard for the exchange of ideas and strategies for performance improvement.

Some of the principals indicated that DHs are coerced to use teamwork in their schools to enhance learner performance in Mathematics. Principals have to encourage DHs to set teams' priorities and performance objectives in the Mathematics department. They also need to encourage DHs to involve teachers as team members in decision-making processes in schools. Furthermore, DHs should involve their team members in the process of managing tasks, planning, delegation, tracking learners' performance and reporting.

5.4.1.7 Class visits and the control of teachers' work

DHs also have the role of controlling teachers work as a means of increasing learner performance in Mathematics. When managing the curriculum, DHs indicated that they have to control lesson planning, which they achieve by checking and monitoring teachers' files. The majority of the participants stated that they have to check whether teachers' lesson planning is in line with the CAPS requirements. In addition to controlling lesson planning, school stakeholders also have to monitor lesson presentation by teachers. They manage to do this through conducting class visits where they observe teachers in practice. The observation of lesson presentation serves the purpose of ensuring that teachers conduct their lessons in line with CAPS policy.

DH 6 specified that:

"I also engage in conducting class visits. The class visits are planned and conducted as per planned class visits programme. These class visits are aimed at monitoring and assessing the manner in which teachers conduct their lesson presentation to discover whether it is in line with prepared lesson plans as

required by the CAPS policy. This is where I provide support to teachers who have challenges in lesson presentation”.

The finding is in line with EEA (2016) which points out that DHs perform tasks such as: directing and supporting teachers, supervising the work of teachers and learners, developing policy and coordinating evaluation of all subjects within the department. DHs as central managers in schools, have an important role to play in cultivating effective teaching and learning through supervision and control in schools. DHs should conduct monitoring and controlling activities that take place in the Mathematics department and make sure that teachers are carrying out their given responsibilities properly. They should also check regularly that teachers in Mathematics cover the curriculum, which is achieved through scrutinising learners’ exercise books against pace setters and ATPS.

In addition to the work done by DHs of conducting class visits, principals as vital school stakeholders also play their part through delegation of powers. They delegate responsibilities such as controlling of pace setters, assessment programmes and curriculum coverage to DHs whose role is to provide reports to the principals.

Principal 2 said that:

“I delegate other roles to the DHs and deputy principal when it comes to controlling teachers’ pace setters, assessment programmes, curriculum coverage and many more. I remain accountable to all delegated duties, DHs and deputy principal must give reports on the delegated duties”.

On top of their role of empowering others through delegation, principals also have the duty to make sure that moderation processes take place in the Mathematics department. They need to make sure that DHs have the required monitoring tools when conducting moderation process in schools. They also need to ensure that DHs and teachers assess learners when teaching them to check their level of understanding. In addition, DHs monitor whether teachers in the Mathematics department in the school do formal assessment. During SMT meetings, DHs are reminded to conduct pre-moderation of formal tasks before learners write the tasks, and to do post-moderation after correcting learners’ scripts. Lastly, they need to

ensure that teachers set quality work that aligns with acceptable cognitive levels as demanded by policies.

The finding is strengthened by Juran (1986) who indicates that DHs have the responsibility to take an operational view of management in the subject they are managing. They must be responsible for quality assurance, which involves organising information from subject teams and checking the efficiency of the programme. These teachers design the programmes in a way that would ensure that the needs of their learners are met (Juran, 1986). The results of monitoring the smooth running of the Mathematics department would then be interconnected to both DHs and teachers. The understanding, in relation to the theory is that quality control is the responsibility of DHs.

5.4.1.8 Developing monitoring instruments

Developing monitoring instruments is a role of DHs and CAs in enhancing learner achievement in Mathematics. DHs and CA mentioned that they had the duty to develop monitoring instruments to be used in checking and tracking the work of teachers in the Mathematics department. They indicated that monitoring instruments included curriculum coverage, moderation of formal tasks and audits of written work tools. In addition, they mentioned that they had the duty to develop other instruments that would assist in monitoring curriculum management in schools. These instruments include class visits and availability of Mathematics documents. Furthermore, they emphasised that these documents assist them to check if curriculum delivery is taking place in schools or not.

DH 4 pointed out that:

My duty is to develop monitoring instruments to be used when controlling teachers work in the Mathematics department.

CA indicated that:

“My duty is to develop curriculum coverage instruments and SBA moderation instruments for the DHs”.

The finding is in line with Juran (1985) that indicated that quality control is needed in schools to check that real teaching and learning is happening. He further pointed out

that for schools as organisations to strive for quality, they should engage in ongoing quality control that involves periodic checks and reviews, and tracking metrics (Juran, 1986). Regular checks and inspections would ensure that the process is under control and meets specifications. In schools, DHs and principals should develop monitoring tools to be used when monitoring the smooth running of teaching and learning. The monitoring tools should include audits of curriculum coverage, moderation of formal assessment and use of work books. O'Neill (2003) agrees that schools should try to meet learners' needs through developing a quality assurance system for continuously monitoring how successfully to ensure learner satisfaction.

5.4.1.9 Mentoring Mathematics teachers

Mentoring Mathematics teachers is also a role of DHs, principals and CAs to enhance the achievement of learners in Mathematics. DHs and principals stated that they had the duty to mentor Mathematics teachers in their departments. DHs indicated that they were the ones who led teachers and they showed them techniques and strategies of teaching Mathematics in the classroom. They stressed that they mentored teachers through workshops, QMS and subject meetings. Furthermore, they explained that they mentored teachers on how to handle topics that were difficult to teach, and this helped them to teach these topics successfully to learners. They also explained to them that teacher professional development in the Mathematics subject, was a vital tool to close current gaps and to ensure efficiency. One of the principals highlighted that she motivated teachers to mentor newly appointed teachers on how to present lesson to learners in the classroom.

DH1 stated that:

“I facilitate teacher professional development in the Mathematics subject, as teacher professional development is an essential instrument to reduce present shortages in knowledge and to ensure efficiency. I orientate new appointed Mathematics teachers and provide teacher professional development to enable teachers to obtain new expertise”.

Principal 4 quantified that:

“I ensure that if the teacher is new, DHs must mentor that teacher and they must show what is expected from him or her. I also ensure that DHs must ensure that the teacher preparation is well conducted”.

Perloff (2020) supports the finding by stating that mentoring plays an essential role in developing teachers to enhance their performance, especially in areas that are challenging during routine implementation. He further pointed out that DHs should ensure that they provide mentoring to their teachers in schools.

5.4.1.10 Participating in enrichment programmes

Participating in enrichment programmes is also a vital role performed by teachers, DHs, principals and CAs in improving learner performance in Mathematics. Principals and DHs pointed out that they had the duty to ensure that their schools participated in enrichment programmes that aimed at improving learner performance in Mathematics. They also highlighted that they systematically linked the schools to the external mathematical frameworks such the Association for Mathematics Education of South Africa (AMESA) and Maths Olympiads where learners were exposed to different mathematical applications, and where they were measured against their local and international counterparts.

DH indicated that:

“I ensure that teachers and learners are participating in the enrichment activities. I also motivate and inspire them that they become more recipient to competitive, active and lifelong learning”.

Principal 3 stated that:

“I systematically link the school to the outside mathematical frameworks such AMESA and Math Olympiads where the learners are exposed to different mathematical applications. This duty also gives me the provision to outsource relevant Mathematics personnel and facilitators to assist learners”.

The finding is in support of Anderson et al. (1995), who specify that DHs and teachers participate in learning activities on a personal, team or institutional level. They state that this type of learning engagement entails ongoing training and education aimed at enhancing job performance. DHs and teachers should participate in different learning

initiatives to enhance their knowledge and improve their performance in schools. DHs should participate in a diversity of learning activities occurring both internal and external to the school setting. These learning activities can take place within the school setting, such as through Mathematics competitions. Schools should also participate in circuit Mathematics competitions with aim of learning in order to enhance learner achievement in Mathematics. This engagement should also involve teachers as an important cog in professional development and should be totally supported by DHs.

5.4.2 Theme 2: The Challenges teachers, DHs, principals and CAs Encounter when Working towards Improving Learner Performance in Mathematics

Regarding this theme, the challenges teachers, DHs, principals and CAs encounter when working towards improving learner performance in Mathematics, numerous sub-themes arose.

5.4.2.1 Lack of relations amongst teachers, DHs and principals

Lack of working relationship amongst teachers, DHs, principals and CAs including colleagues within the Mathematics department can hinder learner performance in schools. Participating teachers in the study indicated that when the relationship amongst school stakeholders was not good, for instance, between teachers and their supervisors, it could also destroy effective curriculum delivery in schools and due to this, no improvement on learner performance would occur. Some of the teachers pointed out that their supervisors did not have a good relationship with teachers in schools. They further pointed out that they were afraid to approach their supervisors when they had challenges in the Mathematics department due to their inapproachability. One of the teachers pointed out that there was no communication between teachers and DHs at school. Furthermore, she pointed out that if there was no communication in the Mathematics department, no improvement of learner performance would happen in the school. The participants expressed themselves as follows.

Teacher 5 lamented that:

“There is lack of good relations with the DHs in the school, which is a challenge that I encountered. An unapproachable DHs at times makes it difficult to share the challenges that I encounter with the subject and which makes it difficult to report. When problems persist without solutions it means learners will have to progress to the next standard without having the necessary support. As a teacher, my morale and interest in the subject is diminished”.

Teacher 6 protested that:

“There is no good relationship and communication between myself and the DH. And also, poor relationship between teachers and DHs leading to poor communication between them”.

Onasanya (2020) supports the findings that when there is no relationship between staff members and their supervisors, it can hinder progress in schools. He further points out that staff members should have good relationship with their supervisors because it is an important ingredient for effective schools. DHs and principals should ensure that there is effective communication amongst teachers to help them to understand the school goals. In addition, effective communication would serve as a catalyst for motivation that would encourage teachers to do more for the schools. When good workplace relationships exist among teachers, teachers, DHs, learners and principals could feel secure and satisfied which would, consequently, lead to higher school performance (Onasanya, 2020). DHs should have decent professional working relationships with their colleagues that would help to uplift the standard of collaboration in the Mathematics department. Both teachers and DHs should feel free to approach each other when there is a need. DHs who are approachable would uplift the working morale of their teachers in the Mathematics department and learner achievement would improve.

5.4.2.2 DHs who are appointed without subject specialisation

The existence of DHs who lack sound subject knowledge in Mathematics poses a challenge when it comes to providing support to teachers. Teachers, principals and the CA in the study indicated that some the DHs lacked sound knowledge because they were supervising a subject without proper qualifications or specialisation. They

further indicated that DHs who lacked sound subject knowledge in Mathematics would fail to provide academic and material support in the Mathematics department. The view was that this could impede the performance of learners.

Teacher 1 complained that:

“It is good to be led by a DHs who does not have sound knowledge of the subject because they would not be able to give support on the issues of the subject in cases where teachers need assistance. A DHs who is knowledgeable may be perceived as capable and might find it easy to notice when the teacher struggles, especially when she or he checks or moderates the teacher’s work”.

Teacher 3 lamented that:

“Lack of support due to low subject knowledge, occurs when a DHs does not possess adequate subject knowledge. This becomes a problem because as the teacher sometimes you will face challenges or problems which will need extra help from the HD but if they do not have knowledge about the subject, it simple means that both of them will be failing the leaners”.

Principal 3 added that:

“Recruitment of DHs who do not have subject specialisation in Mathematics while they are delegated to manage the subject is also a challenge since they would lack the required knowledge to do the task effectively”.

The CA protested that:

“Some of the DHs are supervising the Mathematics subject without subject specialisation. It is difficult for them to manage Mathematics teachers because they lack subject matter in Mathematics. Furthermore, when teachers who need the support during challenges in Mathematics, they do not get assistance”.

Malinga (2016) agrees that a number of DHs lack the subject knowledge or the credibility to manage subjects they are appointed to supervise. He further points out that DHs who did not specialize in Mathematics in tertiary institution had challenges when it comes to subject knowledge in Mathematics. Due to the lack of subject knowledge in Mathematics, they would have trouble in supervising it. DHs should

supervise the subject of their specialisation where they would have the capacity to solve problems that Mathematics teachers encounter when executing their teaching activities. They would also be able to lead the Mathematics department effectively and would also be able to implement possible strategies that could be used in the Mathematics department.

5.4.2.3 Teacher absenteeism

Teacher absenteeism is also a challenge that teachers, DHs and principals encounter when working in schools to improve learner performance in Mathematics. Teachers and DHs reported that teacher absenteeism prevents them from rendering effective curriculum delivery in schools. They further indicated that in most instances where teachers were absent from school for long periods, their colleagues were required to work extra hours to cover the classes of the absent teachers. DHs indicated that Mathematics teachers were often absent for a number of reasons including family responsibilities, sickness and other related matters. One teacher complained that when absent teachers eventually came to school, they did not catch up to cover lost curriculum ground. Another teacher indicated that some of the teachers would be absent from school for a period covering one to two weeks without any replacement. She further pointed out that teachers who were absent from work derailed progress in the subject that they were teaching because they did not create time to close the gap in covering the curriculum. The participant further complained that she worked extra hours to try to relieve teachers who were absent from work.

Teacher 4 bewailed that:

“Teachers do not come to schools to teach their learners on a daily basis due to their confidentially problems. Their absenteeism caused us to work extra hours without taking a break trying to cover their periods and this is a challenge that we encountered in our school”.

DH 2 complained that:

“When a teacher is continually absent, learner achievement can be considerably affected in an undesirable manner. Teachers’ absenteeism undermines the excellence of teaching and learning in schools and this could lead to parents’ reduced confidence in teachers”.

In terms of the above findings, it seems that DHs and teachers might be unknowingly derailing the progress of their learners due to their high levels of absenteeism. The findings revealed that teacher absenteeism in schools can create negative perceptions in the eyes of both supervisors and learners in schools and society. Furthermore, it can also hamper a good working relationship amongst colleagues and leads to a contaminated working atmosphere at school and affects learners' motivation and awareness in their studies. The finding was corroborated by Aucejo and Romano (2016) who indicate that when teachers are continually absent from schools, the performance of learners may deteriorate. They further highlighted that the more often the teacher is absent from the classroom, the less their learners are inclined to achieve high marks on formal tasks. Teachers should come to school on a daily basis where possible. They should make sure that they are well prepared when they go to class to teach learners. When they are absent from work due to lawful reasons such as sicknesses and family responsibilities, they should make sure that when they go back to work, they implement catch-up lessons with learners.

5.4.2.4 DHs' high workload and lack of time

DHs having high workloads can also derail their performance in improving learner performance in Mathematics. Most of the DHs pointed out that they had many duties to execute in the school including teaching learners, administration, monitoring and supervising teachers. They further complained that they failed to execute some of these duties because they were unmanageable. The participants further lamented that due to the workload, they did not have enough time to execute all duties effectively, and hence some of the duties lagged behind. Moreover, some of the DHs stressed that heavy loads obstructed them in achieving their instructional leadership responsibilities that comprised teaching, learning, evaluation and leading the department. It seems that occupying a DHs position is not child's play because there is lot of work that DHs have to do. CA indicated that due to administration and governance obligations that need to be performed by DHs, their workload started to become heavier which made it problematic for them to observe and scrutinise teaching and learning at schools. They even failed to supervise their teachers due to the workload that they carried. One of the DHs pointed out that the school is experiencing understaffing, due to shortage of teachers, which led to the principal giving her more

periods than what she was expected to perform, and this has consequently led to reduced performance in the execution of her duties.

DH 2 bemoaned that:

“Due to understaffing challenge, I am carrying the workload that hinders me to execute my role that I am expected to carry. The heavy workloads obstruct me from performing my instructional leadership duties of managing teachers towards teaching, learning and assessing”.

DH 3 complained that:

“I have many roles to fulfil as DHs such as teaching, monitoring, supervising, supporting, administration and many more. These roles are too numerous to be completed by one person because the DHs is managing and leading all learning areas in Mathematics in the higher grades”.

CA added that:

“DHs who are full time teachers with minimal time for supporting or monitoring their teachers’ work. This is a challenge because they are unable to render support fully to their teachers at schools due more work that they have”.

The finding coincides with Tapala et al. (2020) and Zide (2020) who indicate that DHs struggled to cope with workload when performing their duties in schools due to little time and many responsibilities. They further pointed out that DHs are unable to perform all delegated duties due to workload, which makes it problematic for them to control teaching and learning. When DHs are given many duties to execute at schools, it is a problem because they are unable to perform tasks that they are supposed to carry at schools due to workload. They would be unable to even supervise and monitor the effective curriculum delivery at schools.

5.4.2.5 Inadequate support from the school leaders (SMT) and DBE

Inadequate support from SMT and DBE is also a challenge that teachers, DHs, principals and CAs encounter and has a negative impact on learner performance.

DHs complained that they did not have proper assistance from the principals and the DBE. This lack of support from the DBE and principals was exacerbated by the

increasingly uncaring attitude of principals who often focused on governance matters while ignoring curriculum implementation. DHs protested that in most cases when they presented their inputs on what the schools needed to do to improve performance, the principals seemed uncaring. The majority of the DHs indicated that they had many tasks to do in supervising teachers and carrying other administrative duties in schools, which principals seemed to ignore in terms of how much work DHs were expected to perform. One of the DHs indicated that she was supervising all subjects for intermediate and senior phase without receiving support from her superiors. She further emphasised that she needed support from her superiors to perform her task properly. Another DHs indicated that his principal did not care about curriculum implementation at school, but he focused on governance only. This was a challenge because he did not care about poor performance in the school. In addition, the participant said that the DBE also did not support them in schools. Inadequate support by the DBE contributed to reduced performance in the school. DHs pointed out that the DBE only addressed the challenges during workshops and training. The participants disclosed that the DBE did not focus on school-specific challenges but relied on general workshops and training which embraced all the schools without specifically focusing on challenges that each school experiences.

DH 3 lamented that:

“I have many tasks to supervise in the school because I am the only departmental head for intersen phase and I am supervising all the subjects in the two phases. Our school enrolment allows us to have one intermediate and senior phase DH. Due to that, I expect the support from the school leader and his deputy principal but I do not get it. This is too much work make me to be stressful and I do not execute my duties properly”.

DH 6 bewailed that:

“The principal does not often have a focus on the curriculum implementation, but always focus on the governance area of the school. He is always worried about maintenance projects and fails to listen to the inputs about improving curriculum implementation. This has led to low morale amongst teachers in all subjects, leading to poor performance. I believe that to improve performance,

the principal should focus more on supporting DHs and teachers in teaching and learning which would improve performance”.

Leithwood (2016) and Ogina (2017) argue that due to DHs lack of support from principals and district officials, their performance is not acceptable. They further pointed out that DHs are unlikely to be innovative due to lack of support from their supervisors. This revelation is supported by Mobarra (2017) who argues that support should also be made available to teachers at the school level. In addition, principals should provide support to DHs and teachers who had learners with learning challenges. For DHs to do better in schools, they should be provided support by their principals. If DHs were supported, they would be able to perform their delegated tasks effectively. They would also be able to state their difficulties to their superiors with the goal of increasing learner achievement in the Mathematics department. With regard to the above findings, it is important that the DBE should provide undivided support to DHs when performing their duties at schools. DHs should be provided with the essential teaching and learning support resources that would assist them to perform their duties. Accordingly, the support from principals and DBE should lead to learner improvement in Mathematics.

5.4.2.6 Lack of teaching and learning resources in Mathematics

Lack of resources including Mathematics curriculum documents and other resources was also a challenge that hampered DHs and CAs' performance in improving learner performance in Mathematics. DHs and CA indicated that lack of resources disrupted normal teaching and learning in the Mathematics department. They further emphasised that learners did not have the necessary resources for learning. In addition, they indicated that they did not have resources such as charts, markers and mathematical instruments. The absence of these teaching and learning resources emanated from the lack of support by the School Governing Body (SGB), some participants (DHs) added. One DHs indicated that the SGB said they did not have adequate funds to buy required resources. In addition, the CA indicated that the challenge of the unavailability of curriculum documents hindered him and DHs from performing their duties as expected in schools. He indicated that he did not have enough curriculum documents in the circuit to be distributed to teachers at schools.

He further pointed out that when the curriculum documents were unavailable; it was challenging because it affected curriculum delivery in schools.

Teacher 5 bemoaned that:

“The inadequate funds to run some different activities such as academic issues examples; teaching and learning materials, building facilities and lack of discipline which leads to poor learners’ academic performance”.

DH 6 lamented that:

“I also face the challenge of lack of resources that include teaching and learning resources. These include lack as charts, markers, mathematical instruments. The SGB fails to budget for teaching learning support materials for the Mathematics department while prioritising other areas”.

CA complained that:

“The challenge of the availability of curriculum documents hinders me and DHs to perform our duties as expected in schools. We do not have enough curriculum documents in our circuit to be districted to teachers at schools. If the curriculum documents are no available, it is challenge because it affects curriculum delivery in schools”.

The finding is in line with TIMSS (2015) that availability of necessary teaching and learning resources would have a positive influence on learner performance. DHs and teachers should have teaching and learning resources to work better in their subject. The availability of teaching and learning materials is important for both teachers and learners in the Mathematics department. DHs and teachers should use teaching and learning resources when teaching learners because they assist with important information on numerous topics. SGB and school leaders should have adequate budget for necessary learning teaching resources in schools to enhance the attainment of learners. CAs should be provided with enough Mathematics curriculum documents to assist them (teachers and DHs) to execute their tasks effectively. The availability of resources would enable them to distribute these resources to all DHs and teachers in all schools and would improve learner performance at schools.

5.4.2.7 Lack of commitment and cooperation amongst school stakeholders

Lack of commitment by school stakeholders including DHs and teachers, who are the guardians of the core curriculum in schools was revealed as one of the challenges that principals encounter when performing their managerial duties in schools. Principals complained that DHs and teachers were sometimes not committed to their work. They lamented that DHs exhibit a lack of commitment through their reluctance to convene subject meetings, inadequate class visits, poor controlling of teachers and a lack of monitoring and evaluation in the schools, while teachers also showed a lack of commitment through poor class attendance and poor lesson planning. Some principals complained that DHs and teachers lacked commitment, which led to poor cooperation. Most of the principals pointed out that DHs lacked cooperation when it came to executing their responsibilities in the Mathematics department through refusing to convene meetings. They further indicated that DHs did not perform their work as assigned. They did not submit their monthly reports to their supervisors.

Principal 4 lamented that:

“The DHs is not doing all his roles successful because he is not committed. As the principal, I need to do follow-up to make that the DHs supervises and conducts class visits to teachers. Monitoring of teachers’ work is not done properly and when I inquiry to the DH, he said that he didn’t finish the work because of many tasks that is allocated to him”.

Principal 5 protested that:

“The DHs lacks cooperation when it comes to doing his duties. The DHs shows unwillingness to work when given duties to him. He doesn’t accept to execute his duties when delegated to him. He indicates that he has many duties to do. He doesn’t even monitor teachers’ work or supervise them regularly”.

The finding confirms what was stated by Ogina (2017) who pointed out that enhancement of learner achievement and attainment of excellence education in today’s global sphere demands a higher level of commitment and collaboration in teaching. It needs the commitment of DHs to augment learner performance in schools. DHs should work harder to make improvements in their Mathematics departments. They needed to execute their duties willingly without being pushed by their

supervisors. On the other hand, there must be cooperation between DHs and principals at schools. DHs and principals should know that the improvement of learner performance is their responsibility.

5.5.2.8 Teachers' insubordination

Teachers' insubordination also came up as a challenge inhibiting improvement in learner performance in Mathematics. DHs pointed out that insubordination was exhibited through teachers' lack of respect for supervisors. In addition, teachers showed insubordination through poor performance of expected work. One of the participants (DHs) stated that teachers did not attend subject meetings when invited. He pointed out that they always gave excuses. Another participant complained that teachers did not submit their lesson preparation according to the plan in the subject policy.

DH 2 lamented that:

"Some of the Mathematics teachers did not submit their work. Some of teachers go to the class without proper preparation. Some teachers neglect to carry out instructions delegated to them, which becomes a serious challenge I face as a principal in the school".

DH 6 complained that:

"My main challenge is that I face as a DHs when performing my duties is the constant excuses by teachers to attend subject meetings. Most teachers sign the invitation in the communication book but later send cell phone messages to give apologies for failure to attend the meetings".

The finding aligns with studies by Ogina (2017) and Onasanya (2020) who argue that there is no healthy interaction between teachers and DHs at schools. They further highlighted that teachers do not perform duties when delegated by their DHs. This shows signs of teachers' insubordination. Teachers should attend subject meetings when asked by DHs in the Mathematics department. They need to know that attending meetings is a way of teacher development and they would be able to interact with each other in meetings. They would also be able to share ideas about learner improvement in the Mathematics department.

5.4.2.9 Lack of the curriculum management files and monitoring evidence by DHs

The CA complained that Mathematics DHs and teachers do not have curriculum resource files at schools. He further protested that some of their curriculum files are not up to date. He complained that it is difficult to manage or teach Mathematics when curriculum files are not available for DHs and teachers.

CA indicated that:

“Mathematics DHs and teachers do not have Curriculum resource file at schools. Some of their curriculum files are not up to date. It is difficult to manage or teach Mathematics in schools when curriculum files are not available”.

The CA also complained that when he visited schools to provide support to teachers and DHs, he found out that there was no evidence that indicated support of teachers by DHs. He further lamented that DHs did not produce evidence of curriculum monitoring at schools. Furthermore, he commented that there was no evidence of DHs’ audit of learners’ written work and moderation of formal tasks at schools.

CA said that:

“When I visit schools to provide support to teachers and DHs, I found out there is no evidence of teachers that they support by DHs. DHs are not producing evidence to show that monitoring is conducted at schools”.

The finding is in line with DBE (2016) which highlights that DHs should regularly check teachers’ handling of the curriculum (curriculum monitoring) and inspecting work done by learners; work with teachers to increase curriculum coverage; and assist teachers with difficulties related to curriculum coverage. DHs should also have curriculum management files to keep all curriculum-related documents. For DHs to manage Mathematics subject well in schools, they need to have curriculum management files containing all the required and mandatory documents and policies. If DHs fail to produce monitoring evidence to CAs, it means that they did not do monitoring at all. This discrepancy might be the result of the scarcity of necessary subject knowledge on what to monitor in Mathematics subject in schools.

5.4.3 Theme 3: Teachers, DHs, principals and CAs' Interventions to Mitigate Challenges Encountered while Working in Improving Learner Performance in Schools

With regard to teachers, DHs, principals and CAs' interventions to mitigate challenges encountered while working in enhancing learner achievement in schools, various sub-themes emerged from the examination of information generated from interviews.

5.4.3.1 Implementation of a leave mechanism

To combat teacher absenteeism in schools, DHs and principals stated that they used control measures such as medical certification to recognise sick leave. They further indicated that teachers who were absent should be given leave forms to complete and attach necessary documents to accompany the leave forms. DHs highlighted that they generated their own strategies and put measures in place to supervise and control absence and late-coming of teachers in their Mathematics departments. They further explained that by doing this, the issue of absenteeism and late-coming could be resolved and the performance of learners might be improved. One of the DHs mentioned that he encouraged his teachers to come to school daily to teach learners to finish the syllabus. Another DH talked about encouraging absent teachers to do catch-up programmes as a way of reducing the undesirable impact of teacher absenteeism on learner performance.

DH 2 suggested that:

“As DH, teacher absenteeism is my first priority to address to ensure education quality and learners' learning occur in the school. I am encouraging teachers to come to school every day to teach learners. I also encourage teachers to prepare catch-up programmes if they were absent due to valid reasons. I also develop tracking system to monitor absenteeism of teachers and communicated to all of them in the school”.

Principal 3 specified that:

“In our school, we have established effective school management practices to hold absent teachers accountable for their absence. Absent teachers are given leave forms to complete and weekly reports are sent to district administrators.

We ensure that teachers sign attendance logbooks twice a day in my office as principal”.

The finding aligns with that of Aucejo and Romano (2016) who state that absenteeism and late-coming have an undesirable effect on the conveyance of value-added education to learners in schools. They further pointed out that it is tough for teachers to finish their work due to absenteeism in schools. In order to complete the curriculum and improve learner performance, schools should develop control measures for late-coming and non-attendance of teachers in schools. Due to the high rate of teacher absenteeism, there is constant loss of teaching and learning time, which adversely affects learner performance. As a strategy, creating mechanisms and putting structures in place by DHs in schools to monitor absenteeism and late-coming could curb these malpractices by teachers in their Mathematics departments. Instituting control measures (policy) of curbing late-coming and non-attendance would ensure that teaching time lost is recovered by teachers in schools.

5.4.3.2 Prioritising work to be done

DHs suggested that the strategy of prioritising work would help in augmenting the performance of DHs, teachers and learners in the Mathematics subject. To deal with the issue of workload and dearth of time, DHs explained that they needed to plan and prioritise their daily tasks. They indicated that when there was need for delegation, they delegated some of duties to their teachers in order to complete their tasks on time. One of the DHs mentioned that she needed to make time for completing her work. She further stated that she completed some of the work after school and at home.

DH 3 proposed that:

“There is a need for creativity to manage my time effectively to complete all the work given. I will try to work extra hours to finish their job”.

DH 6 cited that:

“Due to their workload in schools, I ensure that I work extra hours complete my obligation tasks. I also ensure that I sacrifice to work after schools and take some work to do at home to balance my administration duties”.

The finding supports the views of Zide (2020) who suggests that DHs should be given a lighter workload so that they can oversee teaching and learning. He further indicates that this would allow them to perform delegated duties effectively and improve learner performance. School leaders should address the challenge of shortage of teachers so that the workload of DHs could be reduced, leading to DHs being assigned with only managerial roles as part of their daily work requirements. This would also give them an opportunity to effectively lead the curriculum in the Mathematics department. In addition, it would assist them to improve learners' achievement in subject. The assumption is that schools should consider giving a lighter workload to DHs so they could oversee and control teaching and learning of Mathematics.

5.4.3.3 Straight talk with teacher perpetrators

DHs and principals highlighted that the best way to deal with teachers' insubordination was to have a discussion, or what one DHs referred to as "straight talk". One DHs pointed out that during these straight talks, the DHs should try their best to express their own feelings about the ill-discipline of teachers so that they would know that what they were doing was undesirable. Other DHs debated that they would try to build strong professional relationships with the teachers who misbehaved in the Mathematics department so that it would be simple to eradicate these behaviours. In dealing with the challenge of constant excuses about attending subject meetings by teachers, participants pointed out that they would enforce compliance to attend subject meetings. They further stated that they put it down as policy that every staff member within the Mathematics department was compelled to attend subject meetings without fail. They indicated that they would state that failure to attend subject meetings would be followed by accountability sessions where staff members could account in writing to explain the reasons for their failure to attend meetings. The written account would be handed to the principal for further measures to be taken.

DH 6 added that:

"In order to deal with insubordination teachers in my Mathematics department, I will try to call the teacher and talk to him or her about their behaviour. I will try to express my feelings about the way they misbehaves."

Principal confirmed that:

“I talk face to face with insubordination teachers that it is an offence to disrespect their supervisors in schools. I also encourage them to execute tasks given by their DHs when working at schools”.

The finding is in support of that proposed by Onasanya (2020) who specifies that DHs and teachers must adhere to statutes, rules and regulations when performing their work. He further indicates that DHs and teachers must know the legal documents such as the Labour Relations Act 66 of 1995, Employment of Educators Act 76 of 1998, and South African Schools Act 84 of 1996, which are essential to education in our country. DHs should be able to use these policies in various situations including in cases of teacher insubordination. Due to their knowledge of this legislation, they should be able to inform teachers that documents like these provide rules and guidelines for teachers' conditions of service, which need to be observed and adhered to. School leaders must always advise teachers about these rules and regulations to avoid inadvertently committing misconduct.

5.4.3.4 Inviting principals to attend Mathematics subject meetings

DHs explained that they would invite the principal to attend Mathematics subject committee meetings. They emphasised that this would open the principal's perceptions about the plight of the Mathematics department and the lack of resources that the department is experiencing. One DHs indicated that to solve the issue of support from DBE, more especially support from Mathematics CAs, they would ask the principal to write invitation letters requesting them to come and render support to teachers at schools.

DH 1 indicated that:

“Inviting principal to attend subject meeting would encourage him to provide the necessary support in terms of providing resources”.

DH 6 suggested that:

“In dealing with the inadequate support by the DBE, I will liaise with the principal to write a letter to the circuit manager complaining about the poor support that the school receives from the DBE. In the letter I will specifically request the DBE to send CAs to service the school”.

Mogashoa (2021) agrees that school leaders should invite experts to assist both DHs and teachers with career professional development, which should become a culture for schools. DBE officials should assist DHs and teachers in implementation of the CAPS policy to promote the effective curriculum delivery and learning in the classrooms. Principals also need to monitor the implementation of the curriculum carried out by these DHs and teachers. There should be collaboration between DHs and curriculum advisors to assist teachers to enforce CAPS successfully in the Mathematics department. The understanding is that inviting CAs to come to schools to support their teachers could improve learner performance in Mathematics.

5.4.3.5 Convening meetings with DHs

DHs indicated that they needed to be invited to meetings with their supervisors to discuss curriculum issues that required their attention and participation. One principal specified that principals should encourage DHs to do their work effectively including monitoring, supervision, class visits and audit of written work to bring improvement in the Mathematics department. The principal further emphasised that DHs should know that the curriculum of schools is in their hands, therefore they need to work hard to attain desired outcomes in the Mathematics department.

Principal 6 stated that:

“During meetings, I keep on motivating the DHs to follow the programme of monitoring teachers’ work in order to make sure that they improve their teaching and learners’ achievement in Mathematics. I also encourage the DHs to conduct class visit and give feedback to teachers as form of supporting them”.

In addition to a lack of commitment, an absence of cooperation seems to be a challenge that the majority of principals face in schools. To deal with this challenge, it emerged that the majority of the participants views convening meetings with DHs as an appropriate strategy. Some of the participants indicated that to solve the issue of lack of cooperation in schools, principals should have meetings with their SMTs. The participants stressed working as team as a vital strategy that could be used in eradicating the lack of cooperation amongst school stakeholders.

Principal 4 indicated that:

“I explain to the SMT including DHs that in order to attain the goals set in the school, they need to work as team. DHs needs to cooperate well with the SMT by executing the duties allocated to him. I ensure that he does all duties delegated to him willingly to increase the learners’ academic achievement in the school”.

DH 5 suggested that:

“In each working situation, there are people who show negative behaviour. In my Mathematics department, I am encouraging my teachers to work as team and respect each other in order to achieve best-anticipated results. I also tell them that everyone is important and no one is special in our department”.

The finding is supported by Malinga (2016) that DHs should have plan of action to do all their roles all the time. DHs should work extra hours in order to finish all their tasks that they are supposed to do. During meetings, principals should remind DHs about their roles and responsibilities in the supervision of the curriculum and enhancement of learner achievement. For the SMT to achieve their goals, they have to cooperate well with each other. DHs should be aware that principals have the obligation to delegate some duties to them. They should accept such delegated tasks and execute them effectively.

5.4.3.6 Appropriate appointment of DHs

Some of the principals and teachers pointed out that principals should recommend the correct appointment of the DHs in the schools. One of DHs suggested that DBE should appoint DHs with subject content knowledge. DHs explained that appointment should be made according to the curriculum needs of the schools. They further emphasised that SGBs need to be capacitated on recruitment and interviewing procedures to recommend and appoint suitable candidates for both post level 1 and management posts. One principal mentioned that DHs should be appointed according to the curriculum needs and correct content subject knowledge in the schools.

Teacher 5 quoted that:

“Some of DHs lack subject content knowledge, as results they are unable to assist teachers in their department. According to my view the Department of Education may appoint DHs with appropriate subject content knowledge”.

Principal 6 suggested that:

“I deal with lack of subject knowledge in our school by appointing DHs according to the curriculum need of the school. In Mathematics, the DHs should have appropriate content subject knowledge to the department”.

The finding in line with Motala (2020) who specifies that appointment of DHs to promotional posts should be based on bringing improvement in the Mathematics department. SGBs should be equipped on recommending suitable candidates who would be competent in schools rather than appointing them because of comradeship. Appointing DHs according to the curriculum requirements of the school would assist the schools to select applicants who are suitable to the posts. Furthermore, the selected applicants would have correct content knowledge of the subject. DHs with correct content subject knowledge would be able to assist teachers and learners with effective teaching and learning in the Mathematics department.

5.4.3.7 Liaising with the Department of Basic Education to provide schools with documents

Liaising with the DBE was revealed as another strategy that CAs use in assisting DHs to perform their functions of enhancing learner achievement in schools. The CA indicated that he tried his best to liaise with the DBE to support teachers with Mathematics curriculum documents. He stated that the availability of the Mathematics curriculum documents would promote the performance of both learners and teachers in Mathematics. One of the principals indicated that she needs to liaise with DBE in terms of providing resources in schools.

Principal 3 affirmed that:

“My task is ensure that there is enough resources in the school by purchasing them with Norms and Standards funds. I also liaise DBE to provide schools with workbooks, textbooks and learning teaching support materials”.

CA indicated that:

“To solve the shortages of Mathematics documents in my office, I liaise with the senior authorities to supply them to me”.

The finding supports the DBE (2016) which indicates that education department has a role to provide high-quality support materials for learners and teachers in schools. With regard to addressing the shortage of resources in schools, management and CAs should liaise with the DBE to provide the necessary resources in schools. The understanding is that documents play a vital role in the provision of quality delivery of the curriculum. Teachers are able to perform their duties successfully when they are in possession of required documents including ATPs and other policy documents.

5.4.4 Theme 4: Strategies that teachers, DHs, principals and CAs use to improve learner performance in Mathematics

Under this theme, various sub-themes emerged through interviews. These sub-themes are deliberated in full below.

5.4.4.1 Lifelong learning

Lifelong learning is a tactic that DHs and teachers use to enhance learner performance in Mathematics. Teachers, principals and DHs indicated that teachers should try to research different strategies that they could use in class when teaching. One of the teachers pointed out that teachers may watch *You Tube* media to learn how to present different topics to improve their teaching methods and strategies. One of the DHs indicated that teachers could also participate in The Association for Mathematics Education of South Africa (AMESA) programmes where they could share information and teaching strategies with colleagues. One principal indicated that DHs and Mathematics teachers need to develop themselves in the subject to gain more strategies on how to assist learners in the classroom. DHs and teachers should upgrade themselves by attending development programmes in subject they teach. These programmes may be in the form of workshop and training or distance learning. This was supported by principals who indicated that DHs and teachers should engage in lifelong learning by attending in-service training related to the subject they teach. According to one of the principals, this would assist teachers to be unlocked on teaching difficult topics to learners.

Teacher 5 suggested that:

“For every topic that I have to present, I make preparations by exploring every avenue e.g., YouTube to find an exciting way to present the lesson applying everyday life to gain the attention of learners. Preparation before class is key to have a productive lesson”.

DH 5 proposed that:

“I need to encourage my teachers to increase subject content understanding and academic knowledge in the subject in order to increase learner performance. This must be done through attending in-service trainings and professional development in Mathematics”.

Principal 3 added that:

“I also encourage the DHs and teachers that there are many ways to be used in improving learner attainment in school. They must know that improvement must start from Mathematics DHs and teachers first by attending in-service training in the subjects where they will assist learners on how to tackle in topics in the class when teaching learners”.

Khan (2010) supports the finding by indicating that participating in different learning activities is a way of continuous improvement. The point is that participating in different learning activities by DHs and teachers would equip them with more strategies on how lessons should be presented to learners. DHs and teachers should pay attention to individual learners according to their needs in the Mathematics subject. The belief is that when DHs and teacher participate in development, it would improve the academic achievement of learners. DHs and teachers need to keep on improving themselves professionally in order to keep well informed on the latest developments, teaching tactics and methods in the education field. To address learner performance in schools, teachers need to develop themselves with the aim of addressing learning needs. Teacher development is indispensable since it helps learners to perform successfully in the Mathematics subject. To improve teaching and learning, teachers should be encouraged to attend workshops and provide feedback to staff in staff meetings. Bassesar (2017) agrees that Mathematics DHs and teachers should attend professional development in the subject that they teach. He stresses that in-service training serves as a catalyst for DHs’ success in their departments. Kirori and

Dickinson (2020) agree that in-service training also serves to keep DHs' skills and knowledge up to date to boost teaching and learning, which may result in improved job performance in their departments. They highlighted that effective in-service training is critical in allowing DHs to disseminate the knowledge gained via teaching and learning throughout their departments.

5.4.4.2 Bringing Mathematics to the real-life situation

The findings suggest that bringing Mathematics to the real-life situation is another strategy that DHs and teachers can use to advance learner achievement in Mathematics. Some of the teachers indicated that to make Mathematics interesting to learners they aligned their teaching to real-life situations using concrete examples and moving to abstract objectives. They further explained that learners learn better when they are taught about what they see in their lives. Furthermore, teachers should use concrete objects and practical to teach learners in the Mathematics classes. One teacher indicated that teachers should teach Mathematics by introducing new methods of teaching such as game-based teaching or teaching where learners play games as part of introducing Mathematics lessons. The participant further explained that he connects his teaching to real-world situations to achieve better learner understanding.

Teacher 2 advised that:

“Where possible, I must use concrete objects and practical for learners to comprehend better and easy to recall when writing tests and examinations”.

Teacher 3 recommended that:

“Instead of teaching math in traditional or normal way she advised us to introduce new methods of teaching for example, game-based teaching or learning where learners can play sort of a game while introducing a lesson. When I teach Mathematics, I connect it into a daily life situation to let my learners see that Mathematics is everywhere in lives, for examples, teaching fraction when they see a box of pizza they should see a fractions”.

The view was that DHs and teachers should be innovative when teaching and managing their Mathematics subject and department in schools. They should ensure that there is improvement in learner performance. To accomplish this, they needed to

encourage their teachers to bring Mathematics to the real-life situation when teaching learners. This supported by Khan (2010) who indicates that for leaders to improve their results in their organisations, they need to be innovative. He further indicates that they need to use different approaches that would lead to continuous improvement in their organisations. To improve learner performance in schools, DHs should encourage their teachers to use tangible examples when teaching in the class. This would assist learners to understand Mathematics better and their work rate would improve. The point of view is that teachers should give examples of things that are happening daily when teaching learners in the classroom. Teachers should ensure that their lesson presentations are interesting to maintain learners' attention when learning.

5.4.4.3 Setting high expectations

DHs mentioned that to realise a higher level of learner achievement in Mathematics, DHs and teachers should set high prospects for learners to achieve better. Setting high expectations by school stakeholders is essential to make sure that learners continue improve their performance when learning Mathematics. This is because without setting high expectations for learners in the classroom, learners could develop bad attitudes towards Mathematics and may lose interest.

DH 4 suggested that:

“For the learner to perform well in Mathematics, Mathematics teachers must set high expectations for all learners. This is good because it encourages growth of all learners and they will strive to achieve high results in the learning process”.

DH 5 said that:

“As DH in the school, I have a huge role of ensuring that the quality of education is offered to learners by setting high expectations of acceptable quality”.

In line with Juran's (1986) theory of quality management, quality performance in Mathematics should be the pivotal point of learners' engagement. Accordingly, DHs should use different approaches to manage the Mathematics department to ensure quality. The assumption is that the efforts made by Mathematics teachers must satisfy their customers (learners) they are teaching. The presentation of Juran's quality

principles should be adopted in the Mathematics departments by DHs and teachers to improve the quality performance which can satisfy the learners.

5.4.4.4 Giving more work and fortnight assessment to learners

To make sure that there is learner performance improvement in Mathematics, DHs and teachers including both DHs and teachers should give more work as well as fortnight assessment to learners. Learners should be given more work to write in their classes by their Mathematics teachers, which it is believed might contribute to improvement in learner performance. Teachers stated that by giving learners more written work, learners would have time to practice what they have learnt in the class. They further highlighted that DHs and teachers should also call learners to work out their answers on the chalkboard and try to explain how they arrived at the answer. DHs and teachers should use formative assessments on learners in Mathematics on a daily basis. Furthermore, they should give learners fortnightly assessments to enhance learner performance in Mathematics. Learners should be given fortnight assessment to write every two weeks after teaching them. Moreover, these tests gauge whether learners have understood what they have been taught by teachers or not. One principal declared that he gave learners fortnightly assessment as a means of improving their performance.

Teacher 6 proposed that:

“I give learners more work to write that is required by policy. During holidays, I make sure that learners are given more activities to write at home”.

DH 4 stated that:

“I encourage teachers to conduct assessment for learners in Mathematics subject per fortnight. This will make learners to know mathematical concepts and they will improve their work rate in Mathematics”.

Khan (2010) indicates that leaders should be creative when working with staff at work. They need to come up with different strategies that may assist them to achieve better results. Organisational leaders should instead focus on activities that aid in employee motivation, such as participatory planning of all work-related activities (Khan, 2010). Anderson et al. (1995) argue that process management is accomplished by statistical approaches, process modification and the elimination of ineffective operations. DHs

should be creative to encourage their teachers to give more work to learners with the aim of enhancing achievement in Mathematics department. Furthermore, they need to encourage their teachers to conduct fortnightly assessments. The point is that when learners are given more written work in the class by teachers, they would be able to practise what they have learnt. The adage is that practice makes perfect, this means practising work given by teachers would help learners understand better what they were taught by their teachers and learner performance would improve. Moreover, formative assessment or fortnightly tests are helpful to learners because it is another method of assessing learners while they are learning in the classrooms. It also assists Mathematics teachers to plan their lessons in a meaningful way. It works as a roadmap to let the teacher know if all the aims set out at the commencement of the lesson were met or not.

5.4.4.5 Adherence to DBE policies

To improve learner performance, teachers and DHs also propose adherence to DBE policies as a strategy. DHs indicated that Mathematics teachers should follow the policy when teaching learners in the classroom. They further claimed that the Mathematics CAPS document provides details of what teachers need to teach and evaluate in Mathematics. When DHs and teachers follow the CAPS policy during teaching in classrooms, there is a likelihood of increasing the academic attainment of learners in Mathematics. One DH suggested the use of Foundations for Learning Campaigns (FFLC) as a way of enhancing learner performance in the subject. The participant suggested that using FFLC would assist school stakeholders in determining and following DBE proposals on teaching content geared at improving performance. One of the DHs highlighted that she ensured that teachers adhere to policies and ATPs supplied by DBE.

DH 2 revealed that:

“I ensure that teachers adhere to policies by monitoring the usage of ATPs to cover the syllabus as curriculum leader. I also ensure that the content is covered by teachers as per the dictate of the annual teaching plan”.

DH 3 declared that:

“I check whether the teacher is in line with the annual teaching plan. Basically, I also ensure that curriculum coverage is adhered to. As curriculum leaders, we should also make sure that the syllabus is covered”.

DH 5 pointed out that:

“I also make sure that teachers within the Mathematics department adhere to DBE policies such as the Foundation for Learning Campaign (FFLC). FFLC provides guidelines and activities that aim at improving learner performance. In using the FFLC, teachers only need to follow the guidelines and activities as indicated and stick with them for the prepared periods”.

DHs and teachers should adhere to educational policies in the Mathematics department. They should follow CAPS document when teaching in the class. The finding is reinforced by Smith (2016), who indicated that DHs should work hard to design subject policies that will help their departments achieve exceptional performance, as they are the ones who must set the tone in their departments for teachers in terms of getting great results. DHs must ensure that everyone in their departments is encouraged to follow policies such as subject policies, ATPs and CAPS to ensure continual improvement in the Mathematics department. Mathematics CAPS documents are content-based and specifically prescribe what needs to be taught by teachers in the Mathematics classrooms. When teachers follow CAPS documents when teaching learners, they could help learners to recognise and resolve problems and finally make judgements by means of critical and original thinking.

5.4.4.6 Monitoring teachers' work

DHs, principals and the CA indicated that learner performance can be improved by close monitoring of teacher's work by DHs at schools. They further highlighted that DHs should be aware of every occurrence in the classroom. They added that DHs need to know the difficulties that teachers encounter when teaching in the classroom to provide them proper assistance. This support can take place through class visits. In support of the above statements, DHs indicated that performance can be improved through monitoring of lesson preparations. The DHs stressed that monitoring lesson preparations was done in order to verify whether lesson plans aligned to the CAPS policy as well as checking teaching and learning progress of teachers to verify if they

were covering the curriculum as required. One principal pointed out that school leaders had a duty to monitor teaching and learning. The CA also pointed out that his duty was to monitor whether teachers were doing their work effectively through checking teacher portfolios, teacher assessment books and programmes of assessment.

DH 6 mentioned that:

“I also try to improve teachers’ performance in the department through monitoring their lesson preparation. I usually monitor teachers’ lesson preparation twice in a quarter. I request teachers to bring their files in order to check the lesson plans. When checking the lesson plans, I verify whether the lesson align with the CAPS policy. I also check the progress of the teacher with regard to teaching and learning which assist me to track curriculum coverage”.

Principal 4 indicated that:

“I have the duty to monitor that teaching and learning is taking place in the school. This is done by making sure that teachers are going to class, being prepared to teach learners and learners attend school daily”.

CA added that:

“I should visit schools, talk to teachers and get into the classroom to communicate with the teachers. I also check teacher portfolios, teacher assessment books and check whether they do follow the programme of assessment”.

Monitoring of teaching and learning by DHs and principals could inform them about the strengths and weaknesses that teachers and learners experience in Mathematics so that these can be solved timeously. When effective monitoring is done by DHs and principals at schools, learner performance could improve. Based on Juran’s (1986) quality principles, DHs should be responsible for quality assurance in the Mathematics department; they should coordinate information from subject teams and check the effectiveness of the programmes to implement in the department. The results of monitoring the smooth running of the department of Mathematics by DHs should be communicated to Mathematics teachers. Juran (1986) indicated that quality control

involves everyone: in the context of this study, this would include DHs in the Mathematics department.

The viewpoint is that monitoring should be done effectively in schools because it allows supervisors (principals and DHs) to collect data that informs and facilitates improvement in Mathematics. Principals and DHs should monitor learning activities that take place in schools to increase teaching and learning. The point is that class visits conducted by supervisors to their teachers are important in schools because it is another way of offering professional learning to teachers. When teachers observe colleagues in practice, it could help them because new ways or method of doing things could be found.

5.4.4.7 Establishment of subject committees and convening subject meetings

The CA mentioned that DHs should establish subject committees in their respective schools as a means of improving learner performance in Mathematics. DHs and teachers should develop subject policies that indicate how things should be done in the Mathematics department and ensure that each member has a copy. The CA stated that the subject committees should meet timeously to discuss different issues concerning Mathematics and learner performance.

CA expressed that:

“During this subject committees, teachers must meet and share information on different intervention approaches to be used in the class when teaching learners. DHs should unpack and deliberated the contents of the subject policy”.

Principals reported that DHs should hold monthly subject meetings with their teachers in order discuss issues related matters to learner performance in Mathematics. During subject meetings, DHs and teachers should be able to develop intervention strategies that they should implement when teaching Mathematics. In addition, DHs and teachers should be able to sit down in a formal subject meeting and discuss ways and approaches that may be used in the class, which will assist learners to perform better in Mathematics. Moreover, DHs and teachers shared information during subject meetings.

Principal 6 stated that:

“The DHs and teachers must sit down in a formal subject meeting and discuss the ways and strategies that may be used in the class which will assist learners to perform better in Mathematics. The DHs and teachers must share information when having subject meetings in Mathematics”.

During these subject committees, school stakeholders should meet and share information on different intervention strategies to be used in the classroom when teaching learners. Moreover, DHs should unpack and discuss the contents of the subject policy. The formation of subject committees in the Mathematics department would improve the teacher-learner performance in schools. This would help DHs and teachers to collaborate together through information-sharing. Ogina (2017) agrees that meetings are an activity where staff can share and interchange material, acquire feedback, design lesson plans, work together and make important decisions. During subject meetings, teachers would be able to enhance their individual professional understanding and subject knowledge about content and their practice of teaching Mathematics. The understanding is that proper subject meetings amongst teachers would enable them to discuss issues related to the subject and make joint decisions about what needs to be done to improve learners' performance.

5.4.5 Theme 5: Description of Various Leadership Styles exercised by Departmental heads, Principals and CAs when Improving Learner Performance in Mathematics

DHs, principals and CA highlighted the use of leadership styles as a means to enhancing learner attainment in Mathematics. They further indicated that they applies a particular leadership style depending on the situation in schools. Each leadership style is discussed below:

5.4.5.1 Instructional leadership style

Principals and DHs pointed out that they preferred to use the instructional leadership style to enhance learner performance in schools. They indicated that they used the instructional leadership style to facilitate operations during teaching and learning in schools. One of the DHs mentioned that the instructional leadership style was used when establishing educational goals, scheduling core curriculum and assessing

teachers in the school. Some of the principals reported that they used the instructional leadership style when providing support and guidance to DHs and teachers in the Mathematics department. They further indicated that this leadership style permitted them to connect with each other and set clear goals related to learner achievement.

DH 1 said that:

“Instructional leadership style is used when dealing with teaching and learning to enrich learner attainment in the school. I use this leadership style when forming flawless educational purposes, scheduling the core curriculum and assessing teachers and teaching in the Mathematics department”.

Principal 2 indicated that:

“I use instructional leadership style because it allows me to work alongside Mathematics DHs and teachers to provide assistance and guidance in establishing best practices on teaching at schools. It also permits me to interconnect with them and set clear goals related to learner achievement in the school”.

DHs as instructional leaders have the duty to improve teachers’ work rate by providing support and assistance for effective teaching and learning in schools (Mashapa, 2019). DHs have to drive instructional leadership since they play a key role, which determines whether teachers teach and learners learn effectively in the classroom.

Principals, as instructional leaders are involved with the practice of coordination, planning, evaluation and improvement of teaching and learning in the Mathematics department. The principals as instructional leaders who work directly with Mathematics DHs and teachers are able to evaluate teachers’ work rate and help to develop their skills through coaching and mentoring. Principals as instructional leaders should spend time working on pedagogical matters, taking action to expand DHs and teachers’ pedagogical knowledge, as well as holding teachers responsible for refining their instructional skills.

5.4.5.2 Transformational leadership style

DHs and principals mentioned that they also used the transformational leadership style when leading the Mathematics department. Some of the DHs and principals

mentioned that they used transformational leadership in times of change, especially when they must implement new policies that required teamwork. In addition, one DHs said that he also made use of the transformational leadership style to achieve staff buy-in so that they became part of the implementation team. The DHs further highlighted that this staff buy-in was achieved through training and education regarding new policies or initiatives that required implementation. In addition, one of the principals indicated that he uses transformational leadership style when he wants staff members to implement changes that are required according to the policy. Another principal said that she used transformational leadership style to persuade teachers to join the vision and share ideas to achieve better results in the school. In addition, some principals indicated that they used the transformational leadership style to motivate DHs and teachers to find a better way of teaching Mathematics and working hard towards improving learner performance in the schools.

DHs1 stated that:

“My role during the exercise of transformational leadership is to make sure that staff have buy-in of whatever policy or initiative that need implementation. I achieve staff buy-in through providing education or training about impending policies or initiatives. My other role involves making sure that staff maintain and sustain the implemented policies or initiatives and stick to it until it becomes part of the department culture”.

DHs3 expressed his views this way:

“I use transformational leadership in my department because it allows persuading my teachers to join the vision and share their ideals in order to achieve better performance in school”.

Principal 4 highlighted that:

“I use transformational leadership style when I promote the development of the DHs and teachers in the Mathematics department. In this leadership style, I motivate the DHs and teachers to find a better way of teaching Mathematics in order to uplift the performance of learners in the school.”

Principal 6 posited her view as follows:

“Transformational leadership style assists me to focus on motivating and inspiring my team to perform to attain better results in school. My role is to set a clear vision and help my teachers to reach their goal”.

Gandolfi and Stone (2017) argue that transformational leadership used by DHs drives teachers to work harder because it motivates them, encourages teachers to be unselfish and work more for the team than for themselves, and inspires teachers to focus on higher-level requirements. DHs as transformational leaders at schools encourage teachers to find ways to grow and change in the Mathematics department. DHs also help teachers find resolutions to conflicts that occur in the Mathematic department.

Principals as transformational leaders have to empower their school teams to have a voice in decision-making processes and enable collective goal setting in the Mathematics department. To add more, they are the ones who create a culture of innovation and improvement in the Mathematics department. They are also able to influence the results of the schools by outlining high-performance expectations in the Mathematics department.

5.4.5.3 Democratic leadership style

DHs and principals also reported that the DL style is important when it used correctly, depending on the situation when it arises. Some of the DHs further indicated that they used the DL style because this helped them to create a cooperative atmosphere in the Mathematics department. Furthermore, they argued that they used this leadership style because it encouraged and promoted power-sharing among teachers in the Mathematics department. Moreover, they stressed that it created collaboration and collegiality amongst teachers, which allowed inputs from colleagues in the school. One DHs highlighted that it allowed everybody to partake in decision-making processes in the school. In addition, one of the principals stated that the DL style permitted school stakeholders to listen to each other and use their suggestions to cooperate and to develop feelings of belonging and ownership. This is what they said.

DH 3 mentioned that:

“I use DL style when managing my teachers in school. I use this leadership because it allows everybody to contribute in decision-making. I use this

leadership because it allows discussion to take place amongst teachers in order to bring improvement in school”.

Principal 3 articulated that:

“All leadership styles are very important and there is no single leadership style, which can suit all circumstances. However, for the sake of buying-in the support of all teachers I normally use DL because South Africa is a democratic country. I listen and use their suggestions if necessary to make them cooperate and have the feeling of belonging and ownership”.

Ma and Marion (2019) point out that DHs should keep in mind that democracy is about managing power when it comes to subject management in schools. The DL style is important because it increases information-sharing and willingness between DHs and teachers in the Mathematics department and all activities will be done with mutual respect.

Democratic principals create opportunities to listen and share ideas with their DHs and teachers in schools. They are also more flexible and responsive to the needs of their DHs in the Mathematics department. Democratic leaders are able to motivate DHs and teachers to take part in decision-making through exhibiting respectfulness and approachability. The use of the DL style by principals creates a constructive relationship with DHs and teachers, resulting in the establishment of a secure environment in which DHs and teachers feel free to approach the principal when there is a need. Finally, democratic leaders also display concern for the well-being and personal needs of DHs and teachers in the Mathematics department. The involvement of the DHs and teachers in the decision-making process by principals can enhance confidence and improve performance.

5.4.5.4 Autocratic leadership style

DHs and principals pointed out that autocratic leadership style was another leadership that they used when working with teachers to improve learner attainment in the Mathematics department. They reported that this leadership style was used in the Mathematics department when dealing with policy matters. They further indicated that when dealing with policy matters, they had full control of the Mathematics team, leaving no room for autonomy within the group. This is the leadership style that does

not allow teachers to do as they wish when working in the Mathematics department. One of the participants indicated that she used this leadership style when dealing with activities that did not need to be negotiated with colleagues and that were based on departmental policy. One of the principals mentioned that she used autocratic leadership style to instruct DHs and teachers to attend learners without fail during teaching periods in the school. The CA indicated that he used this leadership style during submission of teachers and learners' portfolio during Continuous Assessment (CASS).

DH 4 indicated that:

"Sometimes as Mathematics DH, I use authoritative leadership style where it needs more power to be used. Some activities do not need negotiation from the colleagues to execute; activities that are departmental policy-related they need this leadership style to be used".

Principal 5 mentioned that:

"I use autocratic leadership style when I instruct the DHs and teachers to attend learners for teaching during their periods. I do not negotiate with them because according to their job descriptions, they must teach learners. This is a policy matter".

CA also showed how he used this leadership style:

"I am bound to be an authoritarian leader sometimes. During submission of teacher and learner portfolio, I use this leadership style to request all selected teachers to submit their work without any excuses".

O'Reilly and Chatman (2020) agree that the autocratic leadership style can be used effectively to improve work rate and management in departments with low performance and ineffective leadership. Autocratic DHs do not allow the participation of their teachers in decision-making as they make all decisions, and teachers are required to follow given instructions to the latter.

In using the autocratic leadership style, principals merely give instructions to DHs and teachers on how to execute tasks as expected, and they avoid creating open lines of communication between them (Wu, Shen, Zhang & Zheng, 2020). Autocratic

leadership usually only involves handing down already finalised decisions and policies for subordinates to implement without any questioning from the latter. This practice permits speedy decision-making.

CAs used the autocratic leadership style to assist DHs and teachers to enhance learner attainment in Mathematics. The CA used the authoritarian leadership style when there was a requirement to meet submission dates or to ensure that assessments circulars/policies were implemented. This leadership style is used when issuing circulars requesting schools to submit Mathematics CASS files for both teachers and learners for moderation purposes.

5.4.5.5 Laissez-faire leadership style

DHs and principals highlighted that laissez-faire leadership style was used when working with teachers in school. They further indicated that this leadership style allowed them to delegate duties to Mathematics DHs and teachers. One of the DHs indicated that this leadership style allowed teachers to be creative and to solve problems on their own. In addition, one of the principals reported that he sometimes gave the DHs and teachers a chance to work on their own without controlling them. He further pointed out that he also allowed the Mathematics team to set their own targets to achieve better results in Mathematics. However, one principal pointed out that even though he allowed staff to work independently in some decision-making, he also had to retain accountability, since teams would have to report back on every decision made. Another principal indicated that the reason for using the laissez-faire leadership style was to share the workload, which was achieved through delegation of some of the work to either DHs or teachers.

DH 2 indicated that:

“Laissez-faire leadership style allows my teachers to solve problems through using their own techniques. When delegated and allowing teachers to perform duties, I am aware that the accountability of the delegated duties remains with me as the DH”.

DH 5 reported that:

“I use laissez- faire leadership style in the school when leading teachers in Mathematics. Sometimes I allow my teachers to work on their own without taking part. As leader, I will not be able to solve all problems encountered by my teachers, here I allow them to solve some of the problems they encountered without my involvement. This leadership style is good because it allows my teachers to come up with decisions on their own”.

Principal 3 supported that:

“Sometimes there is a situation where I as the principal give the DHs and teachers chance to do their work on their own without controlling. Here I allow the Mathematics team to set their own target to achieve better results in Mathematics”.

Principal 6 said that:

“Due to many duties that need to be done in the school, as the principal, I would not manage to do all of them, without other stakeholders’ participation through delegation. Therefore, I use laissez-faire leadership style to delegate some of the obligations to DHs and teachers to perform”.

The finding agrees with that of Yasmin et al. (2019) who indicate that laissez-faire leadership style gives complete rights and powers to followers to make decisions, to establish goals, to work out problems and to overcome hurdles. They further pointed out that in this style, decision-making is passed on to the followers. Principals as laissez-faire leaders have work-related commitments when working at schools and allow DHs and teachers to make decisions in the Mathematics department. They allow their DHs and teachers to have freedom to determine working procedures, techniques and goal-setting in the Mathematics department, which leads to improving learner performance.

5.4.5.6 Coaching leadership style

Coaching leadership style was revealed as one of the leadership strategies employed by the CA in assisting DHs to improve the performance of learners in Mathematics. The CA also used the leadership style to coach teachers on handling different topics when teaching Mathematics. The CA indicated that he used the coaching leadership

style when showing DHs and teachers how things must be done in the Mathematics department. According to the CA, this leadership is suitable for listening to DHs' challenges, noting them down and recognising the strong and weak points to motivate them. He indicated that he gave constructive feedback to DHs to fix the challenges encountered. The CA explained that during his visits to assist DHs and teachers in schools so as to recognise their strengths and weaknesses, he motivated them to use different approaches to improve the teaching of Mathematics.

DH 1 stated that:

"I have the role to monitor and coach teachers in in my Mathematics department and ensure that there is accountability and the likelihood of positive implications for teacher quality, improved classroom practices, and learner performance".

CA stated that:

"I use coaching leadership style to show how things might be done when teaching Mathematics in schools. I also motivate them to use different approaches to accommodate all learners in the class".

The finding is supported by Gandolfi and Stone (2017) who indicate that DHs and teachers should be encouraged by their supervisors to perform well in schools to improve learner performance. They further point out that through motivation and encouragement, they would be able to assist their followers to achieve individual and institution goals. CAs should motivate DHs and teachers to work hard to improve learner performance in Mathematics. They should show them skills to be used to turn underperformance to success in the Mathematics subject. CAs should meet with DHs and teachers regularly to provide support to ensure that they keep up with current standards.

5.4.5.7 Affiliative leadership style

Affiliative leadership was also another leadership strategy that the CA and principals used to assist DHs in improving learner performance in Mathematics. The CA and principals pointed out that he used affiliative leadership style to build a healthy relationship with DHs and to create effective collaboration to motivate them to work effectively no matter what the conditions are. The CA also highlighted that he

sometimes preferred affiliative leadership style because it allowed him to create effective teams amongst DHs and teachers in the Mathematics department. He also mentioned that this leadership style permitted him to have good relationships with DHs and teachers in schools. Furthermore, this leadership style helped them to work together as team and to achieve their goal and improve learner performance in schools. To keep the morale of DHs and teachers at school, one of the principals indicated that he communicates every time with his team.

Principal 5 cited that:

“As principal of the school, I use positive and regular communication as tools to keep team morale high and increase the chances of achieving goals when working with DHs and teachers”.

CA said that:

“I also use affiliative leadership style when performing my tasks in my office. This leadership style allows me to have good relationship with teachers and DHs in the Mathematics department. It also makes DHs and teachers to feel free to contact me when they encounter challenges in Mathematics”.

The finding is in line with Gandolfi and Stone (2017) who indicate that leaders should encourage team members to work as team to achieve common goals. They further pointed out that leaders should ensure that all team members are happy when performing their work. In addition, the authors argued that affiliative leadership style leads to trust and harmony in the team, taking teamwork to the next level that contributes to improvement of learner performance in Mathematics. To this end, CAs should encourage DHs and teachers to put learners first by ensuring that all learners are coping in the Mathematics department (Deming, 1986). In turn, CAs should put DHs and teachers first to ensure that they get support when teaching learners in schools. During school visits, CAs should allow teachers to voice out their difficulties that hinder them from improving learner performance at schools and provide specific guidance and solutions.

5.4.5.8 Pacesetting leadership style

Pacesetting leadership was also revealed as another leadership used by CAs and principals in assisting Mathematics teachers to improve learner performance in Mathematics. The CA highlighted that he used the pacesetting leadership style to illustrate high standards for performance which the DHs should follow and implement in their schools to achieve better results in Mathematics. The CA indicated that he preferred to use the pacesetting leadership style when focusing on encouraging DHs and teachers to set their goals and perform hard to achieve a high pass rate. He also pointed out that this leadership style was best because it is goal-oriented leadership that drives DHs and teachers to accomplish high pass rate. One of the principals indicated that he encouraged his DHs to set the tone by leading their teams from the front line.

Principal 6 mentioned that:

“I encourage my DHs to set the tone by being leading their teams from the front and serving as an example. I also encourage them to set clear expectation that motivate teachers to perform their duties to their highest abilities”.

CA mentioned that:

“I also prefer pacesetting leadership style because it allows me to encourage my Mathematics DHs and teachers to set their goals that they need to achieve when working in the class”.

The finding corroborates the views of Mashapa (2019) who specifies that school leaders should put their focus on learner performance and results at schools. He further indicated that leaders should encourage team members to excel when they were working to achieve better results in schools. In addition, DHs and teachers are expected to work hard and be as creative as the pacesetting leader in schools. In addition, CAs should encourage DHs and teachers to set high goals for improvement of learner performance in Mathematics. On the other hand, DHs as leaders should be encouraged to communicate their expectations to their team members. They should also set the tone through their work ethic and their example so that others follow what they are doing in the Mathematics department.

5.4.6 Theme 6: Newly Appointed DHs and How They are introduced to their New Roles

The sub-themes which emerged from this theme are discussed in the following sections.

5.4.6.1 Induction workshop

DHs pointed out that they received induction workshops from their supervisors as part of their preparations for managing the Mathematics department. In terms of DHs, principals and the DBE are responsible for providing preparation for the newly appointed DHs before they assume their duties. Principals and CA pointed out that before DHs could assume their duties, they made sure that they knew their roles and responsibilities. One of the principals indicated that he organised orientation and induction workshops before DHs started their work in the school. The induction workshop covered what the DHs would be doing in their new position. The CA also indicated that he conducted induction workshops for the newly appointed DHs in the Mathematics department. This is what they said:

Principal 2 highlighted that:

“I organise an orientation and induction workshop to orientate the DHs before he resumes with his roles. This induction workshop is organised internally to develop the DHs before he may start his job of being responsible for Mathematics department. This workshop is about the DHs new job description”.

CA also supported that:

“The most preparation that I prepare DHs before they occupy the respective position is on the roles and regulations of DHs. As the district we invite newly appointed DHs to orientate them on their roles and responsibilities in schools”.

The finding is in line with De Nobile (2017) who advises that all DHs should undertake training before appointment to the DHs managerial post. These training and induction programmes serve to prepare newly appointed DHs in their managerial and leadership role. Saavedra (2017) also points out that DHs need more trainings to prepare them for the new job that they are expected to do in the Mathematics department. DHs should be given induction training because they have the responsibility to give

strategic direction and development in relations to the management of Mathematics or the subject that they lead. Lárusdóttir and O'Connor (2017) indicate that DHs should also be capacitated on curriculum and practices concerning leading of the Mathematics department. They further pointed out that training received by DHs should help them to manage and lead their Mathematics departments effectively. Mokoena (2017) agrees that DHs need to be trained on curriculum matters as well as on management to lead their departments effectively. Induction workshops provided by principals and CAs should provide DHs with curriculum leadership skills of leading and managing their Mathematics department effectively. DHs should be capacitated on the development of monitoring tools that should be used to monitor the curriculum delivery in schools. DHs should be trained on the record-keeping and filing system to keep all information in the Mathematics department safely.

5.4.6.2 Formal meetings

Principals indicated that formal meetings were conducted with newly appointed DHs to capacitate them on how to perform their duties when working in the Mathematics department. They further mentioned that having formal meetings with DHs was a form of preparation that they provided to DHs before they could occupy their positions in the Mathematics department. One of the principals stated that she discussed with newly appointed DHs during formal meeting. She further indicated that during the meeting, she discussed issues related to her position that included curriculum planning, monitoring and evaluation. Another principal pointed out that he explained to the DHs that he was the one who would advocate for effectual teaching and learning in the school and he must render support to teachers in the department.

Principal 4 indicated that:

“During formal meeting with Mathematics DHs, I discussed different matters concerning her position, such as curriculum planning, curriculum monitoring and evaluation. I also gave the DHs job descriptions and explained what each point meant”.

Principal 6 mentioned that:

“I conducted formal meeting with the newly appointed DHs before he could assume his DHs duties. I also explained to him, his responsibility to advocate

for effective teaching and to provide clarity and assistance to teachers in his department”.

The findings link with Nyambegera (2020) who indicates that DHs should be equipped with adequate curriculum-related matters by their seniors to lead in the enhancement of learner performance in schools. During formal meetings, principals should make sure that they train DHs about curriculum-related matters to prepare them for their new position. Principals and CAs should ensure that DHs are provided with adequate curriculum supervision in the Mathematics department. This would assist DHs to check learners’ class work and teachers’ professional records regularly with the aim of improving performance in schools. DHs should be capacitated on how to provide strong leadership, guidance and advice to their teachers within the Mathematics department and also act as a model of good practice. DHs should ensure that learner performance in Mathematics improves by making sure that effective teaching and learning happen. They should also ensure that all learners are able to learn effectively and should monitor the learners’ progress and performance in Mathematics.

5.4.7 Theme 7: Professional Development that SMTs Engage in for Improvement in their Careers

Regarding this theme, various sub-themes arose through interviews. These sub-themes are discussed in detail below.

5.4.7.1 SMTs, staff and subject meetings

Principals and DHs indicated SMTs, staff and subject meetings are the forms of professional development received by DHs from principals that aims at improving learner performance in Mathematics. DHs reported that principals provided professional development to DHs through SMT meetings in schools. They further pointed out that their principals developed them in different areas such as curriculum management and leadership matters. One of the DHs indicated that the principal developed her through giving reports in the staff meeting. She further specified that, after the principal had attended meetings at circuit or district offices, he normally gave reports to teachers in formal staff meetings. Another DHs mentioned that the principal attended subject meetings as a way of supporting the DHs in the Mathematics department. She further indicated that, during the meetings, the principal capacitated

teachers about human relations and curriculum-related matters. One of the principals declared that during meetings, he discussed matters concerning Mathematics by providing assistance to teachers. Another principal said that he capacitated teachers and DHs on curriculum and leadership skills.

DH 2 stated that:

“The principal developed me through giving reports in the staff meeting. When the principal attend circuit or district meetings, he always reports to staff members in a formal meeting or morning briefing”.

DH 5 declared that:

“I received professional development from the principal through subject meetings organised within the school. The principal developed me about human relations and curriculum-related matters”.

Principal 2 stated that:

“I also encourage the DHs and teachers to conduct subject meetings to discuss matters concerning Mathematics and this gives teachers a chance to discuss curriculum matters, share ideas and support each other”.

Principal 6 mentioned that:

“I develop my DHs during SMT meetings. I capacitated them on different areas such as curriculum management and leadership skills in generally”.

Munje (2016) highlighted that due to a lack of professional development provided to DHs, meetings were taken as professional development to them. Principals opted to use SMT and Staff meetings to develop their DHs at schools. DHs are professionally developed by principals during subject meeting. Principals are able to attend and assist both DHs and teachers in the Mathematics department. Teachers who teach the same subject have the opportunity to discuss and collaborate during subject meetings relating to Mathematics. Professional development could take place in a formal or informal meeting; therefore, teachers would keep on learning every day. During meetings when teacher discuss matters, they are improving their skills and knowledge that could boost both their performance and that of the learners.

5.4.7.2 Workshops and trainings

Principals, DHs and CAs pointed out that DHs received workshops and training from their principals and CAs where they were developed in many areas related to curriculum matters. One of the DHs reported that the principal workshopped her about curriculum management which included teaching, assessment, moderation, monitoring and evaluation in Mathematics. One principal also advised her that there was a workload that taken on by her in promotion post. Another principal mentioned that during workshop and training, he encouraged the DHs to monitor if teaching and learning occur in the Mathematics department. He further indicated that the DHs has the duty to do class visits to assist teachers in the Mathematics department. The CA pointed out that during the workshops, he capacitated DHs on setting of district quality formal assessment tasks.

DH 5 reported what the principal did:

“The principal workshops me about curriculum management that includes teaching, assessment, moderation, monitoring and evaluation in the Mathematics department. The principal indicates to me that promotional post comes with lot of packages such as workload and I must work extra hours to execute all duties that belong to the Mathematics department”.

Principal 4 stated that:

“I also encourage the DHs to monitor that teaching and learning happen in the school. I also encourage the DHs to conduct class visits where he expected to provide assistance to the teachers in order to improve their teaching abilities”.

CA declared that:

“I invite DHs to management workshops in which I train them on their roles and responsibilities in schools. I also capacitate DHs on setting of district quality formal assessment tasks in which I moderate as district CA”.

Principals are the ones who provide professional development to DHs in the school. They need to encourage DHs to attend workshops when their schools receive invitations. Through attending workshops, DHs would have the opportunity to develop their teachers on various issues that exist in schools. They could develop them on

educational matters or policies so that they would be balanced teachers when executing their daily duties in schools. In terms of DBE (2018), CAs are responsible for training teachers on work schedules, assessment programmes and lesson plans to successfully implement CAPS in their classrooms and that they are responsible for training them on effective teaching and assessment methods. CAs need to provide workshops and training to teachers for better implementation of the curriculum in the classroom. They also need to prepare them to adapt to changes that could affect their teaching and learning of Mathematics. CAs need to provide professional development to DHs on monitoring and support to empower teachers for better curriculum implementation.

5.5 DOCUMENT ANALYSIS

To acquire comprehensive data, it was also imperative for the researcher to collect data using document analysis as a means to deepen understanding in relations to the topic under study. The aim was to achieve study purpose, where the researcher reviewed the documents used by DHs in the Mathematics department. The documents include ATPS, CAPS documents, monitoring tools that DHs use to monitor and manage teachers work, minutes of subject meetings, DHs' portfolios, work schedules and lesson plans (DBE. 2018 & Smith, 2016). Reviewing these documents would give a true reflection of what goes on within the Mathematics department and supplement data collected through interviews. The following table was used to check the availability of the documents.

Table 5.6: Availability of documents

Documents	Participant (DH)	Evidence		Comments
		No	Yes	
Monitoring tools such as: <ul style="list-style-type: none"> • Pre- and post-moderation tools • Moderated tasks • Memorandum and marking rubric • Curriculum Management file • Assessment plan for Mathematics 	1		X	Records for all documents were available
	2		X	Records for all documents were available
	3		X	Records for all documents were available
	4	X		Some of the records were missing (post-moderation report and curriculum management plan missing)
	5	X		Some of the records were missing (Assessment plan and post-moderation report)
	6		X	Records for all documents were available
Class-visits records	1		X	Records available
	2	X		The DHs did not produce evidence of conducting class visits.
	3		X	Records available
	4	X		The DHs did not produce evidence of conducting class visits.
	5	X		The DHs did not produce evidence of conducting class visits.
	6		X	Records available
Subject meeting minutes	1		X	Subject meeting minutes available
	2	X		No records of minutes produced
	3		X	Subject meeting minutes available
	4	X		No records of minutes produced

Documents	Participant (DH)	Evidence		Comments
		No	Yes	
	5		X	Subject meeting minutes available
	6		X	Subject meeting minutes available
CAPS document ATPS Work schedules	1		X	All documents available and record of distribution to teachers available
	2		X	All documents available and record of distribution to teachers available
	3		X	All documents available and record of distribution to teachers available
	4		X	All documents available and record of distribution to teachers available
	5		X	All documents available and record of distribution to teachers available
	6		X	All documents available and record of distribution to teachers available
Lesson plans	1		X	Records of self-developed lesson plans available
	2	X		Only lessons from ATPs developed by DBE
	3	X		Only lessons from ATPs developed by DBE
	4	X		Only lessons from ATPs developed by DBE
	5	X		Only lessons from ATPs developed by DBE
	6		X	Records of self-developed lesson plans available
Teachers' portfolios	1		X	Portfolio file available
	2		X	Portfolio file available
	3		X	Portfolio file available
	4		X	Portfolio file available
	5		X	Portfolio file available

Documents	Participant (DH)	Evidence		Comments
		No	Yes	
	6		X	Portfolio file available

5.5.1 Discussion on the Availability of Documents

5.5.1.1 Availability of monitoring tools

The majority of the DHs (DHs1, 2, 3 and 6) managed to produce record evidence of monitoring tools that they use to monitor the quality of effective teaching and learning in schools. Two-thirds (66.7%) of the participants (DHs) managed to produce all monitoring tools that include pre- and post-moderation tools, moderated tasks, memorandum and marking rubric, curriculum management file and assessment plan for Mathematics. Only 33.3% of the DHs (DHs 4 and 5) did not produce all the documents. One participant omitted the post-moderation report and curriculum management plan and the other one omitted the assessment plan and post-moderation report. The missing of records of post-moderation tools, curriculum management plans and assessment plans from some of the participants, shows that post-moderation was not done by some of the participants. Furthermore, the findings on the availability of monitoring tools from the majority of the participants attest that there is enough evidence that DHs are doing their work of monitoring as expected by the DBE.

5.5.1.2 Class visits conducted in schools

Half of the DHs (DHs1, 3 and 6) produced the evidence of class-visits observation tools. While the other half of class-visits observation tool or reports of DHs1, 4 and 5 were not available. Therefore, the absence of class-visits observation tool attests that class visits are not conducted by DHs in the Mathematics department.

5.5.1.3 Availability of minutes of subject meetings

DHs1, 3, 5 and 6 managed to produce a record of minutes as evidence that they conducted subject meetings in their Mathematics department. I checked what was in the minute books whether were curriculum-related or not. What were found in the minute books were matters related with curriculum matters such as analysis of learner performance, intervention strategies for underperformed learners and effective

teaching and learning in the class. Some of the DHs managed to produce evidence of the minutes while some of them did not produce the evidence. From the findings, it is clear that some of the participants are carrying out their roles and responsibilities of leading the Mathematics department effectively to improve learner performance. Few of the participants pointed out that had subject meetings with their teachers but there was no evidence of that. Therefore, the researcher perceived that the two DHs might be at dysfunctional schools as there was no evidence of minutes that they held subject meetings in their Mathematics department.

5.5.1.4 Availability of Mathematics CAPS document to teachers

After the researcher requested DHs to provide distribution records of Mathematics documents for teachers in the Mathematics department, the majority of the DHs showed the researcher the records of all the documents that included the CAPS policy, ATPS and work schedules. This showed the researcher that DHs were doing their tasks in an acceptable way when it comes to recording their work.

5.5.1.5 Availability of lesson plans developed by teachers

When it comes to producing lessons developed by teachers at schools, DHs1 and 2 managed to produce the lessons developed at schools by their teachers. The rest of the participants (DHs 2, 3, 4 and 5) only produced lesson plans from the ATPs designed by the DBE.

5.5.1.6 Teacher portfolios available in schools

The majority of the DHs showed the researcher teacher portfolio files for all teachers in the Mathematics department. This showed the researcher that DHs were doing their tasks in an acceptable way when it comes to filing their work.

5.6 CHAPTER SUMMARY

The chapter reported the findings as deduced from the data analysis process based on the researcher' qualitative data collection through interviews. The findings reported the collected and analyzed data based on various categories of participants that include Mathematics teachers, DHs, principals and a CA. I used qualitative data analysis to address the research questions based on the role of DHs in improving learner achievement in Mathematics in primary schools. The analyzed data revealed

emerging themes that various stakeholder volunteered as roles contributing to improvement of learner achievement in Mathematics. In addition, the researcher also analyzed documents that related to the day-to-day teaching and learning of Mathematics, which provided evidence of what is actually taking place in schools. The next chapter focuses on the summary of research findings, conclusions, recommendations and theory or development of a curriculum management model for Mathematics in relations to the study.

CHAPTER 6: SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

6.1 INTRODUCTION

The previous chapter presented the research findings, which focused on the analysed and interpreted data collected during field study by the researcher. Data was collected through face-to-face semi-structured interviews with selected Mathematics teachers, Mathematics DHs, principals and CA, as well as through document analysis. A qualitative research design was employed. The following research questions both the main and sub-questions are restated to evaluate whether the study mandate was achieved.

The main research question for the study was:

- How do the academic leadership functions of Departmental heads in primary schools improve learner performance in Mathematics?

The following sub-questions were necessary to answer the main research question:

- What management duties do DHs perform in improving performance in Mathematics?
- How do DHs perform their duties towards improving learner achievement in Mathematics? What are the challenges that DHs face when performing their duties in improving performance in Mathematics?
- What intervention strategies do you implement to mitigate challenges you encountered while performing your function of improving learner performance?
- What do DHs perceive as factors that can assist to improve performance in Mathematics?

The purpose of this study is to investigate how DHs' academic leadership performativity functions improve quality learner performance in Mathematics. In order to accomplish the aims of the study, Mathematics teachers, DHs, principals and CA were the participants in the study. The preceding chapter offered the outcomes of the study based on the semi-structured interviews and document analysis conducted from the participants. The preceding chapter offered the research results of the study which were supported with the literature review, theoretical and conceptual framework

presented in Chapter 2 and 3. This chapter presents a summary of the findings, recommendations, conclusions and the limitations of the study. This is followed by the conclusions from the literature review and empirical studies based on the research questions that were raised in Chapter 1. The chapter ends with crafting of the model that contributes to the knowledge, recommendations and suggestions for further research.

6.2 SUMMARY OF CHAPTERS

Chapter 1 dealt with the research background of the study, research problem, research purpose, rationale, research questions and preliminary literature review. It also deals with theoretical and conceptual framework. Moreover, the chapter also focused on the brief introduction of research methodology with an emphasis on the research design, research data collection techniques, sampling criteria, trustworthiness and credibility of the study, ethical considerations and limitations of the study.

Chapter 2 focused on the literature review of the study. It also focused on the academic leadership roles of DHs in improving excellence of learner achievement in Mathematics. Firstly, it looked at the position of DH. In addition, it focused on the duties, qualities, challenges faced by DHs in managing a Mathematics department and leadership styles used by DHs to manage their department. Moreover, the literature also discussed how DHs lead and manage their Mathematics departments to improve learner performance. The discussion also focused on international, continental and local aspects.

Chapter 3 dealt with theoretical and conceptual framework of the study. The chapter further focused on discussing the concepts that are pertinent to the study. These included performativity, performance management and managerialism. Furthermore, it also dealt with the two theories that formed the basis of the study. These two theories are Deming's quality management theory and Joseph Juran's quality management theory. The detailed account of the theories was expected to provide a clear understanding that would assist readers to understand the study and its findings.

Chapter 4 was about the method that was employed in the study. The chapter focused on the restatement of the research questions that guided the study. In addition, the

chapter also explored the following aspects that include the research paradigm, research approach, research design, sampling of the participants, data collection techniques, data analysis, trustworthiness of the study and ethical issues of the study.

Chapter 5 presented the research findings from the data gathered from the participants (Mathematics teachers, DHs, principals and CAs), and analysis and interpretation were explored in terms of themes and sub-themes. In addition, it also presented data analysis and provided a critical, thoughtful evaluation of the data to answer the research questions of the study and generate the findings.

6.3 SUMMARY OF THE RESEARCH FINDINGS

This chapter focuses on the conclusions of the research findings presented in Chapter 5 based on the collected data from 19 participants who included primary schools Mathematics teachers, DHs, principals and CA. The research results are discussed using themes. Themes were developed to answer the main research question and the sub-questions. The themes that emerged during data analysis include the role of school stakeholders in improving learner performance in Mathematics; the challenges school stakeholders encounter when working towards improving learner performance in Mathematics; school stakeholders' interventions to mitigate challenges encountered while working in improving learner performance in schools; strategies that school stakeholders use to improve learner performance in Mathematics; a description of various leadership styles exercised by DHs and principals when improving learner performance in Mathematics; the induction of newly appointed DHs; and professional development that SMTs engage in for improvement in their careers. The themes are summarised in the upcoming paragraphs.

6.3.1 Conclusions Relating to Theme 1: The Role of teachers, DHs, principals and CAs in Improving Learner Performance in Mathematics

The outcomes of the study regarding the role of teachers, DHs, principals and CAs in enhancing learner achievement in Mathematics revealed that school stakeholders (teachers, DHs, principals and a CA) are engaged in various roles in enhancing learner achievement in Mathematics. These roles are linked to improved learner performance. As school stakeholders, DHs and teachers are involved in meetings and workshops to gain knowledge geared towards enhancing learner achievement (section 5.4.1.1).

They participate in collaborative activities that require both learners and parents' participation. In addition, the study revealed that the role of DHs in enhancing learner achievement is that of effective implementation of the curriculum. DHs participate as part of curriculum implementation through their engagement in activities such as developing timetables for class-visits, QMS and facilitating support meetings as well as organising workshops for teacher (section 5.4.1.2). Furthermore, it was found that DHs curriculum implementation role involves exercising their leadership roles where they lead the Mathematics department by overseeing and guiding groups of teachers to enhance their work rate. It was also found that the curriculum implementation role of DHs involves monitoring lesson planning in the Mathematics department (section 5.4.1.6). Furthermore, DHs also verified the alignment between teachers' lesson planning and the standards outlined in the CAPS.

Based on the findings, DHs and CAs have the role of developing monitoring devices with the aim of enhancing learner performance. The findings revealed that DHs and CAs develop these monitoring tools for the purpose of assessing and monitoring the performance of teachers (section 5.4.1.8). Another important role of DHs as revealed in the study is that of mentoring their teachers. This includes guiding teachers in the application of effective teaching methodologies and method specifically tailored to the subject of Mathematics within the classroom setting. In terms of the findings, DHs are able to mentor teachers during workshops, QMS, and subject-specific meetings (section 5.4.1.9). Lastly, the study revealed that DHs and principals ensure that their schools participate in enrichment programmes designed to enhance learner achievement in the field of Mathematics. They ensure that their schools participate in external curriculum and mathematical programmes, such as the Association for Mathematics Education of South Africa (AMESA) and Maths Olympiads with the aim of enhancing learner performance in schools (section 5.4.1.10).

6.3.2 Conclusion Relating to Theme 2: The Challenges teachers, DHs, principals and CAs Encounter when Working towards Improving Learner Performance in Mathematics

Regarding this theme, the findings of the study revealed various challenges. It was revealed that an absence of collaborative relationships among teachers, DHs, principals and CAs, especially colleagues within the Mathematics department present

a serious challenge on activities that aim at improving learner achievement in schools. The absence of positive relationships among school shareholders, such as between teachers and their supervisors, has a detrimental effect on effective teaching and learning inside schools (section 5.4.2.1). The study further found that DHs who have inadequate subject expertise in Mathematics present a significant obstacle in terms of offering assistance to teachers. In addition, DHs who have inadequate topic knowledge in Mathematics are unable to offer academic and material assistance within the Mathematics department (section 5.4.2.2).

The research study also revealed that teacher absenteeism poses a significant problem for school stakeholders in their efforts to enhance learner performance. High level teacher absenteeism was revealed to increase teacher workload resulting on increased teachers' obligation to spend additional hours to compensate for the classes of the absent teachers and this create a problem to DHs at schools (section 5.4.2.3). It was revealed that the existence of high workloads among DHs may negatively impact their ability to effectively enhance learner achievement in Mathematics. The study further pointed out that in reality, DHs are responsible for a multitude of tasks within schools including the instruction of learners, administrative chores, as well as the oversight and guidance of other teachers. Due to an overload of duties, they often fail to fulfil some responsibilities leading to poor work performance (section 5.4.2.4). In addition, the study revealed that DHs receive insufficient assistance from SMT and DBE authorities which makes it difficult to carry out their tasks effectively. The findings reported that DHs also face a challenge caused by inadequate support from principals and DBE. This poor support from these stakeholders often results in DHs not having enough resources such as Mathematics curriculum documents and other related materials, which are essential for effective teaching and learning in schools (section 5.4.2.6).

Another challenge as revealed in the study is that some DHs and teachers lack commitment when it comes to performing their tasks in schools. Regarding this challenge, principals were found to have serious concerns with the perceived lack of commitment among DHs and teachers in their professional duties. They indicated that DHs do not organise subject meetings, conduct insufficient of class visits, and have ineffective supervision of teachers, and inadequate monitoring and evaluation practices within schools (section 5.4.2.7). The findings showed that the issue of

teachers' insubordination is a significant obstacle to the enhancement of learners' achievement in the subject. Seemingly, teachers demonstrate a lack of respect towards their supervisors, including insubordination and below par performance in their assigned tasks. Lastly, the study found that DHs and teachers do not adequately maintain curriculum files in schools. The CA expressed dissatisfaction with the lack of curriculum resource files for Mathematics DHs and teachers within the school setting (section 5.4.2.9).

6.3.3 Conclusions Relating to Theme 3: Teachers, DHs, principals and CAs' Interventions to Mitigate Challenges Encountered while Working on Improving Learner Performance in Schools

Regarding teachers, DHs, principals and CAs' interventions to mitigate challenges encountered while working in enhancing learner achievement in schools, the study found a number of intervention strategies, which are summarised below.

In mitigating the challenge of frequent teacher absenteeism, implementation of leave mechanism was revealed as a strategy to deal with this challenge. It was suggested that schools should employ control methods, such as requiring medical certification to validate sick absence (section 5.4.3.1). To mitigate the challenge of high workload in DHs, the findings proposed the implementation of a prioritisation strategy for work, which has the potential to increase the performance of DHs and learners in the field of Mathematics. In adding to the high workload problem, DHs also face the challenge of time constraints, and it was suggested that school stakeholders should implement daily planning and prioritisation strategies to meet their responsibilities (section 5.4.3.2). The study showed that to deal with insubordination, DHs should directly address teacher perpetrators about the problem. During these candid discussions, DHs should make an effort to articulate their own sentiments over the lack of discipline among teachers, so as to ensure their awareness of the undesirability of their actions (section 5.4.3.3).

To mitigate the challenge of lack of support from school stakeholders, DHs should extend invitations to principals to participate in Mathematics subject committee meetings with the aim of requesting their support. The importance of this action lies in its potential to broaden the principal's understanding of the challenges faced by the Mathematics department and the insufficient resources at its disposal. During these

meeting with principals, DHs recommended that the principal approach the DBE (CAs) to provide support to teachers at schools (section 5.4.3.4). In addition, the study revealed that DHs should be included in meetings with their supervisors to engage in discussions regarding curriculum matters that demand their involvement and input. The study further showed that principals should promote the effective performance of DHs through activities like as monitoring, supervision, conducting class visits and reviewing written work (section 5.4.3.4).

6.3.4 Conclusions Relating to Theme 4: Strategies that teachers, DHs, principals and CAs use to Improve Learner Performance in Mathematics

In relations to the theme, the study found various strategies. Lifelong learning is perceived to assist teachers and DHs in improving learner performance. With regard to the finding, DHs and teachers should keep on learning to upgrade their work rate in schools and to enhance their instructional practices within the classroom setting. As part of their learning, DHs and teachers should engage in the AMESA initiatives, which may enable them to exchange knowledge and pedagogical approaches with their peers (section 5.4.4.1). The study found that Mathematics teachers should use real-life applications when teaching learners in the classroom. The study further showed that teachers need to employ a pedagogical approach that connects the subject matter to real-world scenarios, starting with tangible examples and then progressing towards more abstract concepts (section 5.4.4.2).

Another strategy shown in the study is that of enhancing learner performance in Mathematics. To this end, both DHs and teachers should establish elevated expectations for learners, hence facilitating improved outcomes (section 5.4.4.3). The study revealed that DHs and teachers need to provide more work and fortnightly assessment such as assignments, tests, research or investigations to learners to facilitate enhanced learner performance in the field of Mathematics (section 5.4.4.4). The study also pointed out that DHs and teachers should strictly follow DBE Mathematics policies and perform as expected by adhering to the prescribed guidelines when teaching learners (section 5.4.4.5).

In addition, thoroughly monitoring the work of teachers and learners, which leads to increasing learner performance was revealed as a strategy that school stakeholders employ in improving learner performance. To achieve this, DHs should possess

knowledge of classroom activities in instances where teachers are occupied with instructional duties (section 5.4.4.6). Furthermore, DHs should offer assistance to their teachers during class visits.

Implementing the establishment of subject committees within their respective educational institutions by DHs was also pointed as a strategy to enhance learner achievement in the field of Mathematics. During these subject committee meetings, DHs and teachers should collaborate to establish comprehensive subject policies within the Mathematics department, outlining the preferred approaches and practices (section 5.4.4.7).

6.3.5 Conclusions Relating to Theme 5: Description of Various Leadership Styles Exercised by DHs, Principals and CAs when Improving Learner Performance in Mathematics

This theme revealed that various leadership styles are used. Instructional leadership style was found to inspire effective teaching and learning in schools, establish educational goals, and is used by school stakeholders to schedule core curriculum, and assess teachers in the school. In addition, the style is also used when providing support and guidance to DHs and teachers in the Mathematics department. The study further showed that DHs and principals use an instructional leadership approach to facilitate the advancement of good teaching and learning inside schools. Furthermore, principals use an instructional leadership approach while offering assistance and guidance to department heads and teachers within the Mathematics department (section 5.4.5.1).

Transformational leadership was also revealed as used by school stakeholders. The leadership style was found to be frequently used in times of change, especially when implementing new policies that require teamwork and to motivate colleagues to find a better ways of teaching Mathematics and working hard towards improving learner performance in the schools. DHs and principals use transformational leadership style to inspire and encourage followers to achieve their full potential and go beyond expectations. Furthermore, DHs and principals use it to effectively garner support and commitment from staff members (section 5.4.5.2).

Democratic leadership was also found to be one of the leadership strategies that school stakeholders use to create a cooperative atmosphere in the Mathematics department. This style encourages and promotes power-sharing amongst teachers in the Mathematics department, and creates collaboration and collegiality amongst teachers, which allows inputs from colleagues in the school, and allows everybody to partake in decision-making practices in the school. Furthermore, this leadership assists school stakeholders in fostering a sense of inclusivity and collaboration and emphasises an open communication and active participation in the Mathematics department (Section 5.4.5.3).

The autocratic leadership style was also found to assist school stakeholders to improve learner performance in the Mathematics department, when dealing with policy matters, during submission of teachers and learners' portfolio during CASS, and meeting attendance requirements. The study showed that DHs and principals prefer this leadership style because it restricts teachers' autonomy inside the Mathematics department, hence limiting their freedom to act as they please (section 5.4.5.4).

Based on the findings in the study, the laissez-faire leadership style is employed by DHs and principals when collaborating with teachers within educational institutions. This leadership style enables principals to assign responsibilities to Mathematics DHs and teachers for execution. Furthermore, it facilitates the cultivation of creativity and independent problem-solving skills among teachers (section 5.4.5.5).

Coaching leadership was used by principals and CAs to coach teachers on handling different topics when teaching Mathematics in schools. Principals and CAs also use this leadership style as it is suitable for listening to DHs challenges, noting them down and recognising the strong and weak points to motivate them. The study further showed that CAs employ this leadership style to provide direction and assistance to teachers in effectively instructing various mathematical concepts inside educational settings. They also employ a coaching leadership approach while instructing DHs and teachers during workshops on the proper procedures within the Mathematics department. As per the guidance provided by the CAs, this particular leadership approach is deemed appropriate for effectively addressing the issues faced by DHs (section 5.4.5.6).

The study revealed that CAs use affiliative leadership style to assist DHs in improving learner performance in Mathematics. CAs use this leadership style to build a healthy relationship with DHs and teachers, to create effective collaboration to motivate them to work effectively no matter what the conditions are, and to create effective teams amongst DHs and teachers in the Mathematics department (section 5.4.5.7).

Lastly, a pacesetter leadership style was another leadership style that CAs use to enhance learner achievement in Mathematics, and to encourage DHs and teachers to set their goals and work hard to achieve a high pass rate in schools (section 5.4.5.8).

6.3.6 Conclusions Relating to Theme 6: Newly Appointed DHs and How They are Introduced to Their New Roles

From this theme, it emerged that DHs are introduced to their new roles through induction workshops and formal meetings. The findings revealed that DHs receive comprehensive guidance from their superiors regarding curriculum-related issues to effectively enhance learner performance in educational institutions. The study further showed that the responsibility for preparing newly appointed DHs lies with the principals and the DBE. Furthermore, principals are tasked with ensuring that these DHs receive enough training prior to assuming their duties. The purpose of the induction workshop is to provide DHs with an orientation to their new role and its associated responsibilities.

6.3.7 Conclusions Relating to the Theme 7: Professional Development that SMTs Engage in for Improvement in Their Careers

Regarding this theme, it came out that school stakeholders engage in SMTs, staff and subject meetings as well as workshops and trainings. The finding showed that these initiatives were designed to enhance learner performance in the field of Mathematics and also assist in broadening DHs and teachers' career knowledge. The findings point out that principals take the responsibility to provide professional development to DHs through staff meetings (section 5.4.7.1). The study further revealed that during staff meetings, principals report to staff members about curriculum management and leadership issues after attending circuit meetings. Lastly, the findings showed that DHs also receive support from principals during subject meetings where they are allocated

a slot to discuss issues pertaining to the Mathematics subject, with the intention of offering support to teachers (section 5.4.7.1).

The findings revealed that DHs also undergo workshops and training sessions that are facilitated by CAs, which are often conducted outside school premises which focus on various aspects linked to curricular affairs. In these workshops and training programmes, DHs engage in discussions regarding their curriculum management in the Mathematics subject. Furthermore, the workshops and training encompass several aspects such as teaching methodologies, assessment strategies, moderation techniques, as well as monitoring and evaluation processes (section 5.4.7.2).

6.4 DOCUMENT ANALYSIS

In relation to the analysis of documents used by DHs and teachers with the aim of enhancing learner achievement in Mathematics, a number of documents were accessed in their categorical order from schools. They include monitoring tools such as pre- and post-moderation tools, moderated tasks, memoranda and marking rubrics and curriculum management files. The documents were specifically collected to check how school stakeholders manage the Mathematics subject and teachers to ensure quality towards improving learner performance. In addition, assessment documents including assessment plans as well as teaching and learning documents that include records of class visits, subject-meeting minutes, ATPs, work schedules, teachers' portfolios, and CAPS documents were requested and analyzed to check whether school stakeholders used them for their intended purposes. During the analysis of school documents, it was found that the majority of DHs in the selected school are in possession of the required monitoring tools, assessment documents and teaching and learning documents as required by the DBE. In the main, these documents indicate that there are efforts made to ensure that learner performance is improved.

6.5 THE STUDY'S CONTRIBUTION TO KNOWLEDGE

With regard to the above, recommendations on ways of addressing the findings of the study are offered. Figure 6.1 denotes the proposed model that could be used to guide school stakeholders on supporting DHs in improving learner performance in Mathematics and other subjects in schools. This model is referred to as "Model on school stakeholders' support of DHs in improving learner performance". The school

stakeholders include department officials (CAs), parents and SGBs, SMTs (principals, deputy principals and DHs) and Mathematics teachers who have a supporting role to play in improving learner performance. The model could be used not only in Mathematics, but in all subject areas incorporating DBE and Further Education and Training. The model consists of the following elements depicting the type of support generated from each school stakeholder. These are DBE, principal, DHs, teachers, parents and learners. The model is divided into two levels of support that include DBE level of support and school level of support.

The DHs support model (Figure 6.1 – see overleaf) consists of a two-phase support system. The two-phase support system comprises of DBE level support and school-based level support. The following paragraphs provide a comprehensive discussion of each level of support and how it contributes to improve school stakeholders' performance.

6.5.1 DBE-Level Support

In terms of the DHs stakeholder support model, the DBE level support consists of various elements including support to parents, support to principals, support to DHs, support to teachers and support to learners. These various elements are discussed below.

6.5.1.1 Support to parents

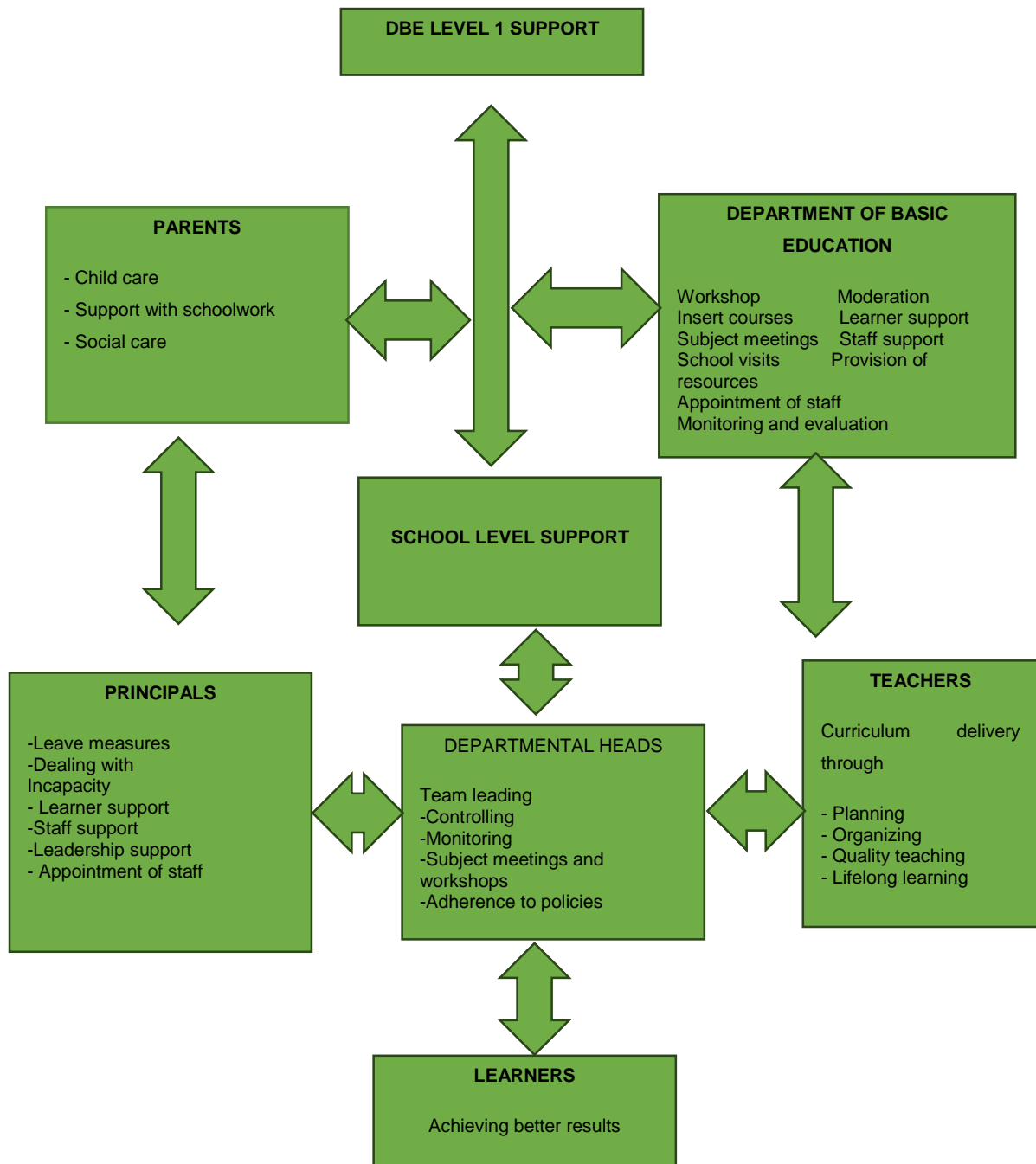
In terms of the model, the DBE provides support to parents of learners who attend school through provisioning of services. These services include specialists' interventions such as healthcare, nutrition, psycho-social support, norms and standards funds and child grants. These services allow learners to access education and to achieve the desired DBE goals. On the other hand, parents also have an obligation which can be regarded as a form of support towards the DBE in its provision of education to their children through actions such as child care, supporting their children with school work when completing homework and other take home tasks, as well as social care.

6.5.1.2 Support to principals

Secondly, the DBE provides support to principals as managers of schools. This is important because the DBE expects principals to perform, where their success is regarded as the success of the DBE and their failure is deemed as the failure of the DBE. In this regard, the DBE has to ensure that it provides the necessary support that include keeping principals abreast with new educational development. It is able to achieve this through workshops, in-service courses and principals' meetings. In these meetings, the DBE ensures that it transfers its vision to principals so that their actions as they manage schools would lead to the achievement of that vision and enhance learner achievement in schools.

Figure 6.1

Departmental heads Stakeholder Support Model



6.5.1.3 Support to DHs

The DBE also has the role of providing support directly to DHs and teachers who are regarded as the custodians of the curriculum in schools. At this level, the DBE provides its support through CAs who are specialists in their specific subject areas. CAs provide

support to DHs through workshops, insert courses, subject meetings and school visits. In addition, CAs also support DHs and teachers in schools through moderation of learners and teachers work for specific timeframes. Moreover, they provide support through curriculum monitoring and evaluation where they pay special visits to schools for the purpose. This level of support is aimed at ensuring that DHs and teachers perform in a way that would lead to improved learner performance.

6.5.1.4 Support to teachers

The DBE provides support to teachers in schools to increase the quality of teaching and learning. This is done through improving their capacity and practices, which is achieved through workshops and in-service training. The DBE also ensures that it provides high-quality learning materials to teachers to improve their level of teaching in the classrooms. In addition, DBE officials (CAs) support teachers by undertaking regular assessment of common tasks each term to track learner progress in schools. This is done through establishing standardised assessments in schools. Curriculum advisors also provide support to teachers through moderating learners and teachers' portfolios during CASS moderation process.

6.5.2 School-Level Support

The second level of support in terms of the model involves that of school-based support. This level of support comprises of elements that include parent support, school principals, DHs and teachers. The following sections provide a thorough discussion of each element and its impact on performance improvement.

6.5.2.1 Parental support

In terms of this model, parents provide support to teachers, DHs and principals in schools. They provide support by engaging themselves in the activities of the schools. The understanding is that parents' engagement in schools promotes working relationships and improves the learning, development and health of children in schools. If parents are actively involved in their children's education, teaching and learning in schools can be optimised. In addition, when parents and schools work together, it helps learners to develop into responsible adults who are self-confident and effective and can contribute to the growth of the nation.

With regard to the model, DHs, teachers and principals have the responsibility to interconnect effectively with parents and learners about learner performance in schools. This is supported by national guidelines that indicate that parents must support learners at schools (DBE, 2015). In addition to the parental support provided to schools, DHs, teachers and principals have the role of advising parents on strategies to support their children school work. To attain this, DHs, teachers and principals consistently release comprehensive subject plans for parents' perusal containing expectations, pass requirements, the amount of expected written work, homework timetables and assessment programmes to be given to learners. These comprehensive subject plans assist parents to have knowledge of their children's learning programmes to be able to render support to their children.

6.5.2.2 School principals' support

School principals as the gatekeepers in schools have the role of ensuring that school stakeholders perform as expected. They achieve this through providing leadership support to school stakeholders including DHs, teachers, learners, parents and the SGB. Their role is to make sure that schools are in possession of resources and mandatory policies for effective functioning. In addition, they provide direct support to DHs so that they can carry out their functions of managing and monitoring curriculum in schools. Furthermore, principals also have the role of managing leave records and analysing absenteeism patterns of teachers in schools to improve learner performance. They also update teachers on the number of days available on each category of leave e.g. personal urgent matters or family responsibilities. They ensure that absent teachers account to the principals by completing leave forms with clear recommendations whether the leave is approved or not. If not, or leave days in that category are finished, then a recommendation of leave without pay must be made. Principals must take corrective action against serial absenteeism. This is done to increase learner performance in schools.

6.5.2.3 DHs support

Regarding the model, DHs have the role to ensure that curriculum implementation is done in schools. The model shows that curriculum implementation in the classroom is the touchstone of accomplishment in schools. DHs as the custodians of the curriculum have vested responsibilities to ensure that performance in schools is optimal. They

are expected to achieve this through exercising team leadership by establishing teams (subject committees). They also have the role of controlling and monitoring curriculum and ensuring adherence to policies such as the CAPS. Monitoring includes informal or unplanned class visits observation which assists DHs to identify possible gaps that require their assistance. In addition, DHs also have the responsibility to organise and manage subject meetings to discuss issues pertaining to teachers and learner performance improvement. In line with the model, it is the responsibility of DHs to make sure that there is learner improvement in schools in terms of performance. They are projected to reach this goal through class visits, monitoring curriculum coverage and moderation of teachers and learners' work. Moreover, the DHs' role involves mentoring and coaching their teachers in specific subject areas in schools with the aim of promoting positive classroom practices and improving learner performance.

6.5.2.4 Teacher support

Teachers as the implementers of the curriculum have the role of delivering effective curriculum to learners in schools. They need to ensure that detailed lesson plans which outline the specific activities and assessments are designed in schools. These lessons plans assist learners in achieving learning objectives and improving performance. Teachers also have the role of helping learners to engage with the content they learn in the classroom. To execute all their roles, teachers expect DHs to assist them to achieve success in providing the curriculum, which they achieve through effective planning, organising, quality teaching and keeping themselves abreast of new trends in education and their subject area through lifelong learning.

6.5.2.5 Learner support

In terms of the model, learners are expected to come to school being prepared to learn every day. They know that they have the responsibility to write all assessments given to them by their teachers which include homework, tests, assignments, investigations and projects. They further pay attention to teachers during lesson presentation. They also seek clarity if they do not understand what teachers are presenting to promote understanding. This assist learners to perform well and improve their performance in schools. Furthermore, when learners improve their performance, it benefits the DBE because its goal is to develop schools into centres of excellence and improve learner

performance in all grades. Moreover, all school stakeholders also feel happy about the positive outcomes of enhancing learner achievement in schools.

6.6 LIMITATIONS OF THE STUDY

The use of a case study limited the research study due to financial constraints. The sample selected, which consists of nineteen (19) participants was too small for generalisation of the research findings. The research findings applied only to the sample population while the majority of DHs, teachers, principals and CAs in South Africa may be experiencing similar challenges. The study was only carried out in Mopani district in Limpopo province and the results of the study may not be readily generalisable to other districts due to the specific context of challenges in each district and province. The study was also limited by the use of interviews and document analysis, which were the only data collection tools used in the study, while other data collection strategies such as surveys were excluded. The exclusion of other data collection strategies was due to the costs expected to be accrued during the course of data collection process.

6.7 RECOMMENDATIONS

In addition to the development of the model, this study provides suggestions to improve learner performance. This section provides the recommendations based on the outcomes from the data. The recommendations arose from investigating the academic leadership functions of DHs in enhancing learner achievement in Mathematics in primary schools.

- **Recommendation 1: Curriculum management and leadership training development**

The study revealed that DHs, on assumption of duty, do not receive any form of training especially on curriculum management and leadership. It is recommended that DHs should receive ongoing and coherent curriculum leadership training and development on management of teaching and learning in schools. The curriculum leadership training and development of DHs should be based on a needs analysis of all DHs. The study further recommends that clear policies be developed by the DBE

in collaboration with institutions of higher learning to develop training and development programmes for aspirant DHs.

- **Recommendation 2: Institutionalised strategy in dealing with teacher absenteeism.**

The study found that one of the main challenges that DHs face while working towards improving learner performance was the high level of teacher absenteeism in schools. It is, therefore, recommended that school stakeholders, especially SMTs should establish a comprehensive institutional policy aimed at regulating lack of punctuality and absenteeism among teaching staff to optimise the educational curriculum and enhance learner achievement in schools. SMTs should implement strategies and establish systems inside schools to effectively monitor absenteeism of teachers and effectively address these as misconduct issues if teachers are absent without valid reasons.

- **Recommendation 3: Strategic approach in addressing teacher workload.**

The study found the high workload as another challenge hindering the performance of DHs in improving learner performance in schools. It is, thus, recommended that SMTs reduce the workload of DHs to enable them to effectively oversee and manage the process of teaching and learning. In addition, the DBE should address the issue of teacher scarcity to alleviate the burden on DHs. Reducing the workload of DHs would enable them to facilitate their supervisory responsibilities and management of Mathematics instruction and learning.

6.8 RECOMMENDATIONS FOR FUTURE RESEARCH

This study investigated the academic leadership functions of DHs in improving learner performance in Mathematics in primary schools of the Mopani District. Thus, the researcher recommends that additional studies should focus on the support that school principals can provide to DHs and teachers to enhance learner achievement in schools.

- A study to investigate the challenges faced by principals in providing leadership support to DHs when executing their tasks towards improving learner performance in schools.

- DHs' perceptions of principals' leadership support on improvement of learners' performance.
- A study to investigate strategies use by principals to create a school culture that encourages positive attitudes to DHs and principals towards professional development in schools.
- The role of the principal as instructional leader in improving learner achievement in South African primary schools.

6.9 CONCLUSION

The study concentrated on the leadership role of DHs in improving learner performance in Mathematics. Since the study used a small sample of the population, it cannot be generalised beyond the scope of this study. However, the study showed that school stakeholders including DHs play an important role in improving learner performance in schools, including on the Mathematics subject. In addition, it highlights interventions used by school stakeholders to mitigate the challenges hindering progress as well as strategies employed to improve learner performance. It also put focus on leadership styles that principals and other school stakeholders' use in leading the Mathematics department as well as working for improved performance. It depicts various activities involved in the process of inducting newly appointed DHs as they start with their new roles including professional development initiatives they undergo in the course of their careers. Finally, the study draws on recommendations based on the findings that aim at informing school stakeholders and the DBE on actions that could be used in improving learner performance in schools.

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APPENDICES

APPENDIX A: ETHICAL CLEARANCE



UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date: 2022/10/12

Ref: **2022/10/12/69472335/26/AM**

Dear Mr DG BALOYI

Name: Mr DG BALOYI

Student No.:69472335

Decision: Ethics Approval from
2022/10/12 to 2027/10/12

Researcher(s): Name: Mr DG BALOYI
E-mail address: 69472335@myunisa.ac.za
Telephone: 0605628253

Supervisor(s): Name: PROF S.S. KHUMALO
E-mail address: ekhumass@unisa.ac.za
Telephone: 0846134257

Title of research:

The role of departmental heads in improving learners' achievement in Mathematics in Limpopo primary schools.

Qualification: PhD Education Management

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2022/10/12 to 2027/10/12.

*The **low risk** application was reviewed by the Ethics Review Committee on 2022/10/12 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached.
2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.



3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the UNISA College of Education Ethics Review Committee.
4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing.
6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
8. No field work activities may continue after the expiry date **2027/10/12**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

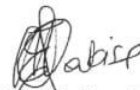
Note:

*The reference number **2022/10/12/69472335/26/AM** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Kind regards,



Prof AT Motlhabane
CHAIRPERSON: CEDU RERC
motlhat@unisa.ac.za



Prof Mpine Makoe
ACTING EXECUTIVE DEAN
qakisme@unisa.ac.za

APPENDIX B: PERMISSION LETTER FROM LIMPOPO DEPARTMENT OF EDUCATION



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

CONFIDENTIAL

Ref: 2/2/2

Enq: Makola MC

Tel No: 015 290 9448

E-mail: MakolaMC@edu.limpopo.gov.za

Baloyi DG
P O Box 81
Giyani
0826

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

1. The above bears reference.
2. The Department wishes to inform you that your request to conduct research has been approved. Topic of the research proposal: **"THE ROLE OF DEPARTMENTAL HEADS IN IMPROVING LEARNERS ACHIEVEMENT IN MATHEMATICS IN LIMPOPO PRIMARY"**
3. The following conditions should be considered:
 - 3.1 The research should not have any financial implications for Limpopo Department of Education.
 - 3.2 Arrangements should be made with the Circuit Office and the School concerned.
 - 3.3 The conduct of research should not in anyhow disrupt the academic programs at the schools.
 - 3.4 The research should not be conducted during the time of Examinations especially the fourth term.
 - 3.5 During the study, applicable research ethics should be adhered to; in particular the principle of voluntary participation (the people involved should be respected).
 - 3.6 Upon completion of research study, the researcher shall share the final product of the research with the Department.

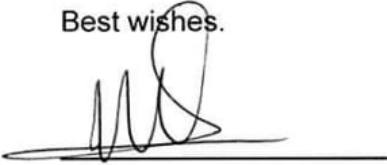
REQUEST FOR PERMISSION TO CONDUCT RESEARCH : BALOYI DG Page 1

Cnr 113 Biccard & 24 Excelsior Street, POLOKWANE, 0700, Private Bag X 9489, Polokwane, 0700
Tel:015 290 7600/ 7702 Fax 086 218 0560

The heartland of Southern Africa-development is about people

- 4 Furthermore, you are expected to produce this letter at Schools/ Offices where you intend conducting your research as an evidence that you are permitted to conduct the research.
- 5 The department appreciates the contribution that you wish to make and wishes you success in your investigation.

Best wishes.



Mashaba KM

DDG: CORPORATE SERVICES

08/11/2022

Date

REQUEST FOR PERMISSION TO CONDUCT RESEARCH : BALOYI DG Page 2

Cnr 113 Biccard & 24 Excelsior Street, POLOKWANE, 0700, Private Bag X 9489, Polokwane, 0700
Tel:015 290 7600/ 7702 Fax 086 218 0560

The heartland of Southern Africa-development is about people



APPENDIX C: PERMISSION LETTER TO CONDUCT RESEARCH IN MOPANI EAST DISTRICT

Enq: Baloyi D.G.

P.O.BOX 81

Email address: dqbaloyi@gmail.com

GIYANI

Cell No. : 0732856296/0605628253

0826

26 October 2022

The manager

Department of Education

Mopani East District

Private Bag x 578

Giyani

0826

Dear Sir

APPLICATION TO CONDUCT RESEARCH IN LIMPOPO: MOPANI DISTRICT

I, Baloyi Dingani Graham, intend undertaking research under the supervision of Prof S.S. Khumalo, an associate professor in the Department of Educational Leadership and Management, for a PH D degree at the University of South Africa. I hereby request permission to conduct research interviews with the Mathematics teachers, Mathematics DHs (HoDs), principals and CA attached to primary schools in the Mopani District.

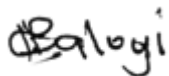
My research topic is: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.**

The outcome of the study will help DHs (HoDs) in improving learners' achievement in Mathematics in primary schools. This study will have no risks for the participants.

There will be no imbursement or incentives for participation in the research. Feedback procedures will include providing copies of the research report to the schools that participated in the study and discussing the findings and recommendations with the participants. I will also send a copy of the report to the Department of Education through the University of South Africa.

The dates and times for interviews that will take place at the schools and will be mutually agreed upon with the participants. I will endeavour to ensure that the research does not interfere with participants' teaching time and obligations.

Yours faithfully



Baloyi D.G.

Student



APPENDIX D: PARTICIPANT INFORMATION SHEET FOR A MATHEMATICS TEACHER

Date: _____

Title: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.**

My name is Baloyi Dingani Graham. The researcher intend undertaking research under the supervision of Professor Khumalo S.S., an associate professor in the Department of Educational Leadership and Management, for a PH D degree at the University of South Africa.

The researcher would like to invite you to participate in the study which is entitled: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.** This study aims to collect important information that could assist all stakeholders concerned to understand the role of DHs in improving learners' achievement in Mathematics in primary schools. You are invited because you are a Mathematics teacher who is responsible for teaching Mathematics in the school and also of being involved in professional development programmes for the subject. I obtained your contact details from your school principal.

The study involves face-to-face semi-structured interviews which will be audio-taped with your consent. The interview sessions will each take 45 to 60 minutes. Participating in this study is voluntary and you are under no obligation to consent to participate. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are assured of complete anonymity, privacy and confidentiality of information that you give during the study. Your name will be allocated a code number or pseudonym and you will be referred in this way in the data,



any publications or any other research reporting methods, such as in conference proceedings. You are free to withdraw at any time if you feel you would like to do so and you will not be bound to provide a reason. There are no potential benefits for participants except that by participating in the study, the findings from the information you provide will assist to improve the performance of learners in Mathematics in your district. The purpose of the study is to explore the role of DHs in improving learners' achievements in Mathematics in primary schools.

There will be no negative consequences for you if you take part in the research project; no potential levels of inconvenience and/or discomfort for the participants; or foreseeable risks of harm or side-effects to potential participants.

All information collected during the study will be treated as confidential. Participant identities and records will be kept confidential. Participants will remain anonymous; their names and addresses will be removed and the interview data will be coded. What the researcher hear and see during the course of the study will not be discussed with anyone. Coding will be used during the gathering of data and the processing of interview notes and transcripts.

The records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. A report of the study may be submitted for publication, but participants' names will not be identifiable because they will remain anonymous.

Hard copies of your responses to the interview questions will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet in his office for future research or academic purposes and all related electronic information will be stored on a password protected computer. Any future use of the stored data will be subject to further Research Ethics Committee review and approval, if applicable.

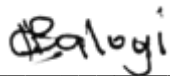
Hard copies will be shredded and electronic copies will be permanently deleted from the hard drive of the computer by using a relevant software programme.

No payment or reward, financial or otherwise, for participating in the study will be offered. Participants will not incur any costs in the study. I has applied for written approval from the Research Ethics Review Committee of the University of South Africa (UNISA) to conduct this study. A copy of the written application letter may be obtained from the researcher.

Should you have any concerns about the way in which the research has been conducted, you may contact my supervisor, Prof .Khumalo S.S. on 084613 4257 or ekhumass@unisa.ac.za

Thank you for taking the time to read this information sheet and for participating in this study.

Yours faithfully



Baloyi D.G.

Student



APPENDIX E: PARTICIPANT INFORMATION SHEET FOR A DEPARTMENTAL HEAD

Date: _____

Title: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.**

My name is Baloyi Dingani Graham. The researcher intend undertaking research under the supervision of Professor Khumalo S.S., an associate professor in the Department of Educational Leadership and Management, for a PH D degree at the University of South Africa.

The researcher would like to invite you to participate in the study which is entitled: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.** This study aims to collect important information that could assist all stakeholders concerned to understand the role of DHs in improving learners' achievement in Mathematics in primary schools. You are invited because you are a Departmental Head (DH) who is responsible for Mathematics department in the school and also of being involved in professional development programmes for the subject. I obtained your contact details from your school principal.

The study involves face-to-face semi-structured interviews which will be audio-taped with your consent. The interview sessions will each take 45 to 60 minutes. Participating in this study is voluntary and you are under no obligation to consent to participate. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are assured of complete anonymity, privacy and confidentiality of information that you give during the study. Your name will be allocated a code number or pseudonym and you will be referred to in this way in the data, any publications or any other research reporting methods, such as in conference proceedings.

You are free to withdraw at any time if you feel you would like to do so and you will not be bound to provide a reason. There are no potential benefits for participants except that by participating in the study the findings from the information you provide will assist to improve the performance of learners in Mathematics in your district. The purpose of the study is to explore the role of DHs in improving learners' achievements in Mathematics in primary schools.

There will be no negative consequences for you if you take part in the research project; no potential levels of inconvenience and/or discomfort for the participants; or foreseeable risks of harm or side-effects to potential participants.

All information collected during the study will be treated as confidential. Participant identities and records will be kept confidential. Participants will remain anonymous; their names and addresses will be removed and the interview data will be coded. What the researcher hear and see during the course of the study will not be discussed with anyone. Coding will be used during the gathering of data and the processing of interview notes and transcripts.

The records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. A report of the study may be submitted for publication, but participants' names will not be identifiable because they will remain anonymous.

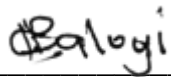
Hard copies of your responses to the interview questions will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet in his office for future research or academic purposes and all related electronic information will be stored on a password protected computer. Any future use of the stored data will be subject to further Research Ethics Committee review and approval, if applicable.

Hard copies will be shredded and electronic copies will be permanently deleted from the hard drive of the computer by using a relevant software programme. No payment or reward, financial or otherwise, for participating in the study will be offered. Participants will not incur any costs in the study. I has applied for written approval from the Research Ethics Review Committee of the UNISA to conduct this study. A copy of the written application letter may be obtained from the researcher.

Should you have any concerns about the way in which the research has been conducted, you may contact my supervisor, Prof .Khumalo S.S. on 084613 4257 or ekhumass@unisa.ac.za

Thank you for taking the time to read this information sheet and for participating in this study.

Yours faithfully



Baloyi D.G.

Student



APPENDIX F: PARTICIPANT INFORMATION SHEET FOR A PRINCIPAL

Date: _____

Title: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.**

My name is Baloyi Dingani Graham. The researcher intend undertaking research under the supervision of Professor Khumalo S.S., an associate professor in the Department of Educational Leadership and Management, for a PH D degree at the University of South Africa.

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The study involves face-to-face semi-structured interviews which will be audio-taped with your consent. The interview sessions will each take 45 to 60 minutes. Participating in this study is voluntary and you are under no obligation to consent to participate. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are assured of complete anonymity, privacy and confidentiality of information that you give during the study. Your name will be allocated a code number or pseudonym and you will be referred to in this way in the data, any publications or any other research reporting methods, such as in conference proceedings. You are free to withdraw at any time if you feel you would like to do so and you will not be bound to provide a reason.

There are no potential benefits for participants except that by participating in the study the findings from the information you provide will assist to improve the performance of learners in Mathematics in your district. The purpose of the study is to explore the role of DHs in improving learners' achievements in Mathematics in primary schools.

There will be no negative consequences for you if you take part in the research project; no potential levels of inconvenience and/or discomfort for the participants; or foreseeable risks of harm or side-effects to potential participants.

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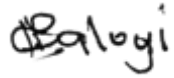
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Should you have any concerns about the way in which the research has been conducted, you may contact my supervisor, Prof. Khumalo S.S. on 084613 4257 or ekhumass@unisa.ac.za

Thank you for taking the time to read this information sheet and for participating in this study.

Yours faithfully



Baloyi D.G.

Student



APPENDIX G: PARTICIPANT INFORMATION SHEET FOR A CA

Date: _____

Title: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.**

My name is Baloyi Dingani Graham. The researcher intend undertaking research under the supervision of Professor Khumalo S.S., an associate professor in the Department of Educational Leadership and Management, for a PH D degree at the University of South Africa.

The researcher would like to invite you to participate in the study which is entitled: **The role of DHs in improving learners' achievement in Mathematics in Limpopo primary schools.** This study aims to collect important information that could assist all stakeholders concerned to understand the role of DHs in improving learners' achievement in Mathematics in primary schools. You are invited because you are a CA for Mathematics department in the circuit and are involved in professional development programmes for the subject. I obtained your contact details from your school principal.

The study involves face-to-face semi-structured interviews which will be audio-taped with your consent. The interview sessions will each take 45 to 60 minutes. Participating in this study is voluntary and you are under no obligation to consent to participate. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are assured of complete anonymity, privacy and confidentiality of information that you give during the study. Your name will be allocated a code number or pseudonym and you will be referred to in this way in the data, any publications or any other research reporting methods, such as in conference proceedings. You are free to withdraw at any time if you feel you would like to do so and you will not be bound to provide a reason. There are no potential benefits for participants except that by participating in the study the findings from the information you provide will assist to Improve the performance of learners in Mathematics in your

district. The purpose of the study is to explore the role of DHs in improving learners' achievements in Mathematics in primary schools.

There will be no negative consequences for you if you take part in the research project; no potential levels of inconvenience and/or discomfort for the participants; or foreseeable risks of harm or side-effects to potential participants.

All information collected during the study will be treated as confidential. Participant identities and records will be kept confidential. Participants will remain anonymous; their names and addresses will be removed and the interview data will be coded. What the researcher hear and see during the course of the study will not be discussed with anyone. Coding will be used during the gathering of data and the processing of interview notes and transcripts.

The records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. A report of the study may be submitted for publication, but participants' names will not be identifiable because they will remain anonymous.

Hard copies of your responses to the interview questions will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet in his office for future research or academic purposes and all related electronic information will be stored on a password protected computer.

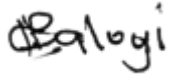
Any future use of the stored data will be subject to further Research Ethics Committee review and approval, if applicable. Hard copies will be shredded and electronic copies will be permanently deleted from the hard drive of the computer by using a relevant software programme.

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Should you have any concerns about the way in which the research has been conducted, you may contact my supervisor, Prof Khumalo S.S. on 084613 4257 or ekhumass@unisa.ac.za

Thank you for taking the time to read this information sheet and for participating in this study.

Yours faithfully



Baloyi D.G.

Student



APPENDIX H: PARTICIPANT CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation. I have read (or had explained to me) and understood the study as explained in the information sheet.

The researcher have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that the researcher am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

The researcher agree to the recording of the interviews to be conducted. I have received a signed copy of the informed consent agreement.

Participant Name & Surname (please print)

Participant Signature

Date

Researcher's Name & Surname

Dingani Graham Baloyi

D Baloyi

20/09/2022

Researcher's signature

Date



APPENDIX I: INTERVIEW QUESTIONS

DHs INTERVIEW QUESTIONS

1. What management duties do you perform as DHs in improving performance in Mathematics?
2. What challenges do you face as DHs when performing your duties in improving performance in Mathematics?
3. What are the strategies that you employ in dealing with challenges encountered during your work of improving performance in Mathematics?
4. Which managerial strategies do you employ as DHs in improving learner performance in Mathematics?
5. Which leadership styles do you use as DHs towards the improvement of learner performance in the Mathematics department?
6. Which preparation did you receive before occupying DHs position?
7. What kind of professional development did you receive as DHs from your CA?
8. What kind of professional development did you receive as DHs from your principal?
9. How do your principal provide support which assist you in performing your Mathematics managerial duties successfully?
10. How do your CA provide support which assist you in performing your Mathematics managerial duties successfully?

PRINCIPALS INTERVIEW QUESTIONS

1. What managerial duties do you perform as a principal in improving learner performance in Mathematics?
2. What challenges do you encounter as a principal when working with DHs towards improving learner performance in Mathematics?
3. How do you, as a principal deal with challenges that you encountered above?
4. Which managerial strategies do, as a principal DHs employ to improve learner performance in Mathematics department?
5. Which leadership styles do you as a principal DHs use towards the improvement of learner performance in Mathematics?
6. Which preparation do you provide to DHs before occupying DHs their position?
7. What kind of professional development do you provide to DHs as the principal?
8. How do you provide support to DHs which assist them in performing Mathematics managerial duties successfully?

CA INTERVIEW QUESTIONS

1. What are your duties in assisting DHs to perform their function of improving learner performance in Mathematics?
2. What challenges do you encounter when performing your duties of assisting DHs in improving learner performance in Mathematics?
3. How do you deal with the challenges you encounter when assisting DHs in performing their function of improving learner performance in Mathematics?
4. Which managerial strategies do you employ to assist DHs in improving learner performance in Mathematics?
5. Which leadership styles do you use to assist DHs towards the improvement of learner performance in Mathematics their department?
6. Which preparation do you provide to DHs before occupying DHs position?
7. What kind of professional development do you provide to DHs as the CA?
8. How do you provide support to DHs which assist them in performing Mathematics managerial duties successful?

MATHEMATICS TEACHER INTERVIEW QUESTIONS

1. What is your role as a Mathematics teacher in improving learners' achievement in your subject?
2. What activities do you expect from DHs which you think will assist in improving learners' achievement in Mathematics?
3. Which challenges do you encountered when working with your DHs that hinder learners' performance in Mathematics?
4. How do your DHs support you towards improving learners' achievement in Mathematics in your school?
5. Which strategies suggested by DHs do you use in improving learners' achievement in the Mathematics?

APPENDIX J: TURNITIN REPORT

COMPLETE FINAL THESIS FOR BALOYI D.G.

ORIGINALITY REPORT

20% SIMILARITY INDEX	18% INTERNET SOURCES	12% PUBLICATIONS	9% STUDENT PAPERS
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PRIMARY SOURCES

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3	repository.up.ac.za Internet Source	1%
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7	scholarworks.waldenu.edu Internet Source	<1%
8	timss2019.org Internet Source	<1%
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APPENDIX K: CONFIRMATION OF PROFESSIONAL EDITING



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10 November 2023

Declaration of editing

**THE ROLE OF DEPARTMENTAL HEADS IN IMPROVING LEARNERS' ACHIEVEMENT IN MATHEMATICS IN
LIMPOPO PRIMARY SCHOOLS
BY
BALOYI DINGANI GRAHAM**

I declare that I have edited and proofread this thesis. My involvement was restricted to language usage and spelling, completeness and consistency and referencing style. I did no structural re-writing of the content.

I am qualified to have done such editing, being in possession of a Bachelor's degree with a major in English, having taught English to matriculation, and having a Certificate in Copy Editing from the University of Cape Town. I have edited more than 500 Masters and Doctoral theses, as well as articles, books and reports.

As the copy editor, I am not responsible for detecting, or removing, passages in the document that closely resemble other texts and could thus be viewed as plagiarism. I am not accountable for any changes made to this document by the author or any other party subsequent to the date of this declaration.

Sincerely,

A handwritten signature in black ink that reads "Baumgardt".

Dr J Baumgardt
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University of Cape Town: Certificate in Copy Editing
University of Cape Town: Certificate in Corporate Coaching



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APPENDIX L: BRIEF TRANSCRIPTS FOR PARTICIPATING DHS, PRINCIPALS, CURRICULUM ADVISOR AND MATHEMATICS

DEPARTMENTAL HEADS INTERVIEW QUESTIONS

DH 1

1. What management duties do you perform as DH in improving performance in Mathematics?

As an expert in the Mathematics subject, my duty is to direct and monitor teaching by providing appropriate support and supervision to teachers in the Mathematics department. My role involves providing motivation to the teachers and acts as role models by establishing good working and interpersonal relationships. I also perform administrative and pedagogical roles to improve learner achievement in Mathematics department. The main duty that I am entrusted with is curriculum implementation guidance in the Mathematics department. My understanding is that curriculum implementation in the school is the benchmark of success for department of education policy. My duty is to see to it that the syllabus is covered as prescribed by the Department. I also have the duty to see that the teachers are comfortable with the Mathematics subject they are teaching. It is my responsibility to check how teachers perform and analyze their performance in the Mathematics subject. I also have the duty to analyze the results and see where there is a need for intervention. My duty is to monitor and coach teachers in Mathematics subject. I attend classroom to check the timetable who is supposed to be in the class. I also replace teachers using relieve timetable when some teachers are absent. I have the duty conduct classroom visits to observe what teachers do and detect possible cracks that required their support. I facilitate teacher professional development in the Mathematics subject as teacher professional development is a fundamental tool to close existing gaps and to ensure efficacy. I orientate new appointed Mathematics teachers and provides teacher professional development enable teachers to acquire new skills.

2. What challenges do you face as DH when performing your duties in improving performance in Mathematics?

One of the challenges that I face as a Mathematics DH is that of workload. I have many duties to execute in the school such as teaching learners, administration, monitoring and supervising teachers. Due to the workload that I have, I do not have

enough time to execute all duties effectively, and hence some of the duties lag behind.

Another challenge that I have is teachers' absenteeism in the school. My challenge is that Mathematics teachers do not come to schools every day to provide lessons to learners, and when they come to school the next day, they do not do catch ups to cover the gap that learners encountered. Due to the absenteeism of teachers, learners do not complete the syllabi and they perform badly in the assessment.

Last challenge I faced while working with teachers at school is teachers' insubordination. Teachers do not cooperate well with me when I do my work. Some teachers do not complete tasks that they are supposed to do and they ill-treat their supervisors. They do not even show respect to me as their Mathematics DH.

3. What are the strategies that you employ in dealing with challenges encountered during your work of improving performance in Mathematics?

In order to combat teacher absenteeism in school, the SMT and I use control measures such as medical certification to recognize sick leave. I supposed to conduct workshops elucidating to teachers the effect of their absenteeism rates on learners' performance. I and SMT also need to develop and implement a code of conduct to regulate teachers' attendance misconducts as well as develop attendance guidelines.

To deal with issue of overload I must plan and prioritize on daily basis tasks that I need to do. I need to manage my time effectively in order to complete all my work given.

DEPARTMENTAL HEADS INTERVIEW QUESTIONS

DH 2

1. What management duties do you perform as DH in improving performance in Mathematics?

As DH I have many duties to perform in the school in order for teaching and learning to move smoothly. My duties include being engage in Mathematics teaching where learners are expected to perform well in the subject. As I am heading Mathematics department, I make sure that department is effective functioning and learners' achievement is improving. My role is to make sure that my department has all relevant resources for both teachers and learners. I also have the role to ensure that teaching and learning take place in the school. I supervise and monitor teachers in my department and ensure that teachers are prepare for lessons presentation all the times. I have the role to promote performance of learners by ensuring that I engage teachers in real teaching and lead them to teach and assess effectively. I also provide guidance to the newly appointed Mathematics teachers in my department. I advise on different teaching approaches, strategies and methods to be used in order to improve learners' achievement. I also lead my Mathematics department in formulating Mathematics subject policy. I have the duty as the Mathematics DH to check on regularly basis that curriculum coverage is done by teachers in Mathematics. Teachers' curriculum coverage is check by I against learners' work done every day in their exercise books. I have the duty to works with Mathematics teachers towards the improvement of curriculum coverage. I also provide assistance to teachers with curriculum coverage related problems in the subject. I have the duty to monitor the following documents are used by teachers in the Mathematics department: planner and tracker, annual teaching plan and assessment plan. I have to check whether teachers use tracker in Mathematics in order to teach what is needed according to the policy. I have the duty to check whether teachers are conducting assessment in the subject and learners are performing excellent in that subject.

2. What challenges do you face as DH when performing your duties in improving performance in Mathematics?

I have notice lack of commitment by teachers as a challenge that affects learner performance in school. Lot of teachers are not committed to teaching Mathematics to their learners in the school. They do not complete the prescribe curriculum. They do not give enough written work to learners. They are not willing to submit their work to me for monitoring. They do not bother themselves whether learners are doing well or not.

The challenge of teachers' absenteeism is problem that affects my managerial role in schools. Mathematics teachers repeatedly do not attend to schools every day to provide lessons to learners. When the teacher is continually absent, learner achievement can be significantly impacted in an undesirable way. Teachers' absenteeism undermines the quality of teaching and learning at schools and the confidence by different stakeholders will be reduce in the school. This means that the more the teacher is absent in the school, the lower his or her learners score in the assessment tasks. Teachers' absenteeism affects the performance of learners in Mathematics and this is a challenge to me as an accounting officer.

Some of teachers do not take instructions from me when I give them. Such teachers make the work of me difficult. Such teachers do not cooperate well with me in the Mathematics department in the school. They are not punctual for the lesson presentation. They are not committed in teaching learners in the school. This is the challenge I encountered when I am supervising the Mathematics department.

The understaffing in the school where I am is working is a challenge that affects the performance of learners in Mathematics. Due to understaffing challenge, I am carrying the workload that hinders me to execute my role that I am expected to carry. The heavy workloads obstruct me from performing my instructional leadership roles of leading teachers towards teaching, learning and assessment. I spend more time in the class teaching, marking and assessing learners due to many subjects allocated to me. I have many plans for executing my roles but I failed to fulfil them due to lack of time. The allocation of teaching subjects to the DHs leave me with shortage of time to carry my instructional leadership roles

3. What are the strategies that you employ in dealing with challenges encountered during your work of improving performance in

Mathematics?

As DH, teacher absenteeism is my first priority to address in order to ensure education quality and learners' learning occur in the school. I am encouraging teachers to come to school every day to teach learners. I also encourage teachers to prepare catch programmes if they were absent due to valid reasons. I also develop tracking system to monitor absenteeism of teachers and communicated to all of them in the school.

To deal with issue of overload I plan and prioritize on daily basis my tasks to be done. I also need to manage my time effectively.

The challenge of shortage of teachers needs to be address so that the issue of workload will be reduce to me. This will help me to be assigned with managerial roles that are supposed to be carry on daily basis. This will also give me chance to lead the curriculum in my department and by doing so, it will assist me to improve the learners' achievement in Mathematics.

DEPARTMENTAL HEADS INTERVIEW QUESTIONS

DH3

1. What management duties do you perform as DH in improving performance in Mathematics?

My duty is to provide the direction for entire Mathematics department. I make sure that learners are given highest quality teaching by teachers in the classroom. I have the role to lead the Mathematics department and teachers in the school. As leader I make sure that Mathematics subject policy is developed which shows how things are submitted in the Mathematics department. I also provide assistance to the teachers who are struggling with teaching Mathematics as leader. I also give guidance to teachers on the recent research about Mathematics development. I also set high standards to be achieved by learners in the Mathematics department. I have the role to check that curriculum coverage is done by teachers in Mathematics. This is done on the regular basis throughout the year and this is conducted by me as the DH. Teachers' curriculum coverage is checked against learners' work done every day in their exercise books. I have the role to work with Mathematics teachers in my department towards the improving of curriculum coverage while teaching learners. Teachers that encountered difficulties with curriculum coverage are assisted by me. I have the duty to monitor the following documents are used by teachers in the Mathematics department: planner and tracker, annual teaching plan and assessment plan. I have to check whether teachers use tracker in Mathematics in order to teach what is needed according to the Mathematics policy. I also have the duty to check whether teachers are conducting assessment in the subject and learners are performing well in that subject. I have the duty to supervise teachers under Mathematics department by observing them while teaching in the classroom. The supervision is done through visiting teachers in their classroom while teaching in order to give the support. I also check the usage of workbooks, and I also check exercise books whether works match with what is in teacher's tracker and planner and lessons that are missed by the teacher.

2. What challenges do you face as DH when performing your duties in improving performance in Mathematics?

As DH, I work with teachers on a daily basis. While working with them, I encounter challenges that hinder progress in the performance of learners. Some of the Mathematics teachers did not submit their work. Some of teachers go to the class without proper preparation. Some of teachers neglect to carry out instructions given to them by me and that is a challenge that I am facing in the school. These teachers do not do the work as expected and this is the sign of insubordination.

I am working with more than six teachers in the Mathematics department. Some of the teachers teach Mathematics with little knowledge because they did not special with at tertiary institutions. It is a challenge to work with teachers without adequate subject knowledge and this is caused by shortage of teachers who specialized with Mathematics.

There are many roles that I am supposed to do but because of scarcity of time i do not manage. I do not have time to track and support teachers in terms of curriculum coverage. Monitoring of teachers during class-visits is not thoroughly done because it needs lot of time to complete the process. My position of DH requires much time to execute all my duties such as teaching, monitoring, controlling, evaluating, assessing, etc.

I have many roles to fulfil as DH such as teaching, monitoring, supervising, supporting, administration and many more. These roles are too numerous to be completed by one person because the DH is managing and leading all learning areas in Mathematics in the intersen phase.

I am working with different teachers where some of them behave well while some misbehave. The teachers who misbehave at school show the signs of ill-discipline and this is a challenge that hinders improvement in the school. Some of the teachers that are ill-disciplined do not show respect to me and they do not submit the work when required. They show negative attitude towards me when doing my job.

I have many tasks to supervise in the school because I am the only departmental head for intersen and I am controlling all the subjects in the two phases. Our school enrolment allows us to have one intersen DH. Due to that I expect to support from the school leader and his deputy principal but i do not get it. This is too much work make me to be stressful and i do not execute my duties properly.

3. What are the strategies that you employ in dealing with challenges encountered during your work of improving performance in Mathematics?

I am supposed to organise workshops in order to develop teachers in my department. Teachers need to be work shopped so that they need to have content knowledge of the subject that they are teaching.

The best way is to express my own feelings to the ill-discipline teachers so that they must know that what they are doing is undesirable. I will try to build strong professional relationships with the teachers who misbehave in the Mathematics department so that it will be simple to eradicate this behave. I also need to find the best way of dealing with this intolerable behave.

The SMT must try to give support to me because I have many duties to do at school. Because for me to be effective in the school I need to be given the work which is reasonable to do and this will assist in the improvement of learner performance in the school. Senior teachers may be co-opted to assist with the managerial duties and lead some of the subjects in the school. I think this will reduce my burden and will also give me time to execute my duties.

DEPARTMENTAL HEADS INTERVIEW QUESTIONS

DH 04

1. What management duties do you perform as DH in improving performance in Mathematics?

My role is to motivate and supervise teachers under her department to improve teaching and learning of Mathematics. I give instructions and directions in the meeting to teachers under my Mathematics department. As leader I influence my teachers to teach in order to improve the quality of learner performance in the school. I have the role to ensure that teaching and learning of Mathematics in all classes takes place on daily basis. I give support and guidance to teachers in the Mathematics department with the aim of improving learner performance in the school. I have the role to play in equipping teachers under my department with professional materials and resources. I also have the role to promote professional growth and to encourage teachers to attend workshops and in-service trainings in Mathematics. This will assist them to be knowledgeable about the teaching and learning way of Mathematics in the school. My role is to lead in the development of subject policy in my department. I make sure that teachers are honouring their classes and being prepared for lessons presentation on daily basis. My duty is to conduct class observation with the aim of giving support to teachers.

2. What challenges do you face as DH when performing your duties in improving performance in Mathematics?

Workload, Teachers' absenteeism and late coming by teachers are challenges that I encountered while working in the school. These challenges impede us to improve the performance of learners in the school.

3. What are the strategies that you employ in dealing with challenges encountered during your work of improving performance in Mathematics?

I as the Mathematics DH and teachers must create our own devices and put measures in place to monitor as well as to control absenteeism and late coming of teachers in their Mathematics departments. By doing this, the issue of absenteeism

and late coming will be solve and the performance of learners will be improved. We also need to develop a school policy to control late coming and absenteeism. This will ensure that teaching and learning time lost is solved.

DEPARTMENTAL HEADS INTERVIEW QUESTIONS

DH 05

1. What management duties do you perform as DH in improving performance in Mathematics?

My management duty at my school is to supervise teachers who are teaching Mathematics. I am making sure teachers are having all relevant learning teaching support materials in Mathematics department. I also make sure that all learners have Mathematics textbooks and exercise books. My role is to make sure that effective teaching and learning take place in Mathematics department. I do this by checking that teachers are attending classes according to the time tables daily. I do follow ups whether they are prepared to teach and they have well prepared lesson plans for that day. I also make sure that I control exercise books for learners to check if teachers are giving them work to write on daily basis. I also check if teacher control their books and give them feedbacks. My management duty is to make sure that learners are given informal and formal assessments in Mathematics. In the formal assessment tasks, I make sure that all processes of moderation take place such as pre and post moderation. During submission of portfolio files for Mathematics in the district for moderation, I have the role to control files in the school before submitting them to the district. I also check if teachers have entered marks correctly in mark sheets and SA-SAMS. My management duty is to analyze the performance of learners in Mathematics and initiate intervention strategies in order to improve in the subject. I need to make sure that Mathematics department is functional. This can be seen by having subjects meeting time and again. I am making sure that teachers work as team and cooperate with one another. I assist newly appointed Mathematics on how to present lessons effectively to learners in the class. In conclusion, all what I am managing in Mathematics department, must be reported to my supervisor (principal). My role is to provide support to teachers for strategies to be employed in the teaching space and the improvement of the subject matter. I also provide monitoring and evaluation of the teaching and learning teaching support materials that can improve teaching and learning for a particular subject. I am also accountable for reporting to the deputy principal and principal about the different issues and encounters occurring in the school. I also answerable for monotonous jobs in my Mathematics department, such as conducting administrative work, examining and teaching in the school. I am a

curriculum leader in my school where I am leading the teaching and learning of Mathematics in my department.

2. What challenges do you face as DH when performing your duties in improving performance in Mathematics?

I have many duties to execute in Mathematics department and they hinder my progress. These duties create workload that is heavy to me and this is a challenge to the Mathematics department. It is not easy to conduct class-visits in order to render support to very teacher in my Mathematics department due to workload. Such heavy workloads impede me from carrying out my instructional leadership roles of teaching, learning, assessment and leading my department.

I am working with many teachers in my department and some of them are not showing respect to me. They do not even boarder themselves to carry instructions when given and this is a challenge that I encountered when working with them.

Working with teachers sometime is difficult because some of them won't comply as expected. When the department of education and teachers' unions have differences about certain matter, it is difficult for teachers to submit required documents to me. When I find out what is the problem, they say that their unions instructed them not to submit until further notice. This is also a challenge that we face when working with teachers in school.

3. What are the strategies that you employ in dealing with challenges encountered during your work of improving performance in Mathematics?

Issue of workload, I try to work extra hours to finish my job. When there is need for delegation, I delegate some of duties to my teachers in order to complete my tasks on time.

In each working situation, there are people who show negative behave. In my Mathematics department I am encouraging my teachers to work as team and respect each other in order to achieve best anticipated results. I also tell them that everyone is important and no one is special in our department.

For the department and unions differences, I am telling my teachers that we are here at the school for the purpose. The differences between our employer and unions must

not make our learners suffer. We need to do our best that will assist our learners to improve their performance in our school. I am encouraging them to submit the required documents on time.

DEPARTMENTAL HEAD 6

1. What management duties do you perform as DH in improving performance in Mathematics?

DH6

My main management duties that relate to improving performance in Mathematics are numerous. Firstly, my duty is to manage the curriculum. When managing the curriculum, I have to control lesson planning by checking and monitoring teachers' files. I have to check whether teachers' lesson planning is in line with the CAPS requirements.

I also have the management duty of convening subject committee meetings. During these meetings it is where I facilitate discussions teachers to discover challenges that teachers encounter when conducting their routine activities. This is where I also provide information related to the subject including unpacking of ATPs, developing assessment programmes and planning improving strategies of the subject.

I also engage in conducting class visits. This class visits are planned and conducted as per planned class visits programme. These class visits are aimed at monitoring and assessing the manner in which teachers conduct their lesson presentation to discover whether it is in line with prepared lesson plans as required by the CAPS policy. This is where I provide support to teachers who have challenges in lesson presentation.

My other management duty is that of moderating SBAs and markings. In the Mathematics subject as in all other subjects, SBAs are not allowed to be administered before they have been moderated by DHs. During the moderation of SBAs, I as the CAPS policy including the fact that questions are graded in terms of Bloom's taxonomy.

My other duty involves inviting curriculum advisors to visit the school to support teachers in the subject. In most cases, I invite curriculum advisors to support teachers in lesson planning, assessment and lesson presentation. I have come to realize that this is important in improving teacher performance in the subject.

Lastly, my management duty involves conducting school- initiated workshops, which is an integral part of teacher professional development. As a DH, I have to make sure that all staff within the Mathematics department performs at their level best. If do not

perform as expected, my duty is to develop them through workshops. My opinion is that ongoing teachers' workshops will bring improvement on their performance.

2. What challenges do you face as DH when performing your duties in improving performance in Mathematics?

My main challenge that I face as a DH when performing my duties is the constant excuses by teachers to attend subject meetings. Most teachers sign the invitation in the communication book but later send an sms to give apologies for failure to attend the meetings. The worrying fact is that after the meeting, you will see the teachers who are supposed to have attended the meeting loitering around. My conclusion is that these teachers are lazy and that is why they do not attend meetings. This challenge hassled to a lack of implementation for the majority of activities planned for the Mathematics department.

Another challenge that I faced as a DH is the lack of preparation for teaching and learning by teachers. Some teachers within the department do not conduct proper lesson preparations. Some use photocopied lesson plans while others develop lesson plans that are not in line with the CAPS policy. This according to me has led to poor presentation by teachers.

I also face the challenge of lack of resources that include teaching and learning resources. These include lack as charts, markers, mathematical instruments. The reason for the lack of these teaching and learning resources emanates from the lack of on the SGB. The SGB fails to budget for teaching learning support materials for the Mathematics department while prioritising other areas. As the Mathematics DH, I also face the challenge of lack of support from the principal. The principal does not often have a focus on the curriculum implementation, but always focus on the governance area of the school. He is always worried about maintenance projects and fails to listen the inputs about improving curriculum implementation. This has led to low morale amongst teachers in all subjects, leading to poor performance. I believe that to improve performance, the principal should focus more on supporting DHs and teachers in teaching and learning which would improve performance. In most cases when DHS present inputs on what the school needs to do to improve performance, the principal seems not to care.

Inadequate support from the DBE is also another challenge that I face as Mathematics

DH. The DBE does not focus on school specific challenges, but rely on general workshops or training that include all schools. As a school, we have a challenge of poor lesson presentation which the DBE does not have time to address. We have requested the DBE to send curriculum advisors to visit the school to address some of the challenges but it is always in vain. The lack of support by the DBE is continuing poor performance in the school.

3. What are the strategies that you employ in dealing with challenges encountered during your work of improving performance in Mathematics?

In dealing with the challenge of constant excuses to attend subject meetings by teachers, I will enforce compliance to attend subject meetings. I will put it down as policy that every staff member within the Mathematics department is compelled to attend subject meetings without fail. I will put it clear that failure to attend subject meetings will be followed by accountability session where staff members will account in writing to explain reasons for their failure to attend meetings. The written account will be handed to the principal for them to account.

In dealing with the lack of preparations by teachers for teaching and learning, I will also hold accountability sessions with teachers. Teachers will be invited on one-on-one accountability session to explain about their failure to prepare lessons for teaching and learning. The one-on-one accountability session will be followed by a written explanation that will be handed to the principal for them to account.

In dealing with the lack of resources for teaching and learning, I will make a special request to the SGB to budget for Mathematics resources. I will request the principal to make the presentation on my behalf to the SGB meeting. After the SGB meeting, I will make follow-ups with the principal.

In dealing with the lack of support by the principal, I will invite the principal to attend Mathematics subject committee meetings. This will open the principal's perceptions about the plight of the Mathematics department and the lack of resources that the department is experiencing. This will fuel the principal to provide the necessary support in terms of providing resources.

In dealing with the inadequate support by the DBE, I will liaise with the principal to write a letter to the circuit manager complaining about the poor support that the school

receive from the DBE. In the letter I will specifically request the DBE to send curriculum advisors to service the school.

TRANSCRIPTS FOR PRINCIPALS

1. What managerial duties do you perform as a principal in improving learner performance in Mathematics?

PRINCIPAL 1

I have managerial role to make sure that curriculum is manage effectively. My duty is to evaluate the achievement of learners through checking teachers and learners work on a daily basis. I make sure that departmental heads (DHs) monitor the work of teachers and learners. I also ensure that class- visits are conducted in the school and meaningful feedbacks are given to teachers by departmental heads after the visits. My obligation is to assist the DH and teachers on developing targets for evaluating teachers and learners' success in Mathematics. I also make sure that teachers are following the curriculum policies such as annual teaching plan, assessment programmes and Mathematics policies. I also have the role to motivate teachers to attend Mathematics trainings that are conducted by curriculum advisors and enrol with tertiary institutions in the subject.

My role is to monitor all assessment activities of the school. To check if the subject heads are moderating their subjects. I also monitor if the annual teaching plans are followed when developing tasks. I have the duty to check if teachers are marking correctly and entering the correct marks in the mark sheets. I also ensure that exam timetable is followed. I'm responsible for the management and administration of curriculum deliverance. As the member of SMT is my responsibility to conduct moderation, audit of written work, class visit, development of assessment plan, time tabling, development of SIP, analysis of results, target setting, etc.

2. What challenges do you encounter as a principal when working with DH towards improving learner performance in Mathematics?

Departmental heads are not doing their job as expected, For example, they are not consistent with regard to the implementation of agreed plans. The issue of shadow marking is still a serious problem because they do not thoroughly check the work. They do not monitor if teachers under their supervision attend classes according to the timetable.

3. How do you, as a principal deal with challenges that you encountered above?

We have developed a period register for all classes in the intersen phase. I request reports for teacher class attendance from DHs every fortnight to ensure that they do their work properly, for example, covering the curriculum. I sample learners' answer sheet to check if teachers are not doing shadow marking. I also check if teachers are developing tasks of the acceptable standard and suitable for the particular grade.

PRINCIPAL 2

1. What managerial duties do you perform as a principal in improving learner performance in Mathematics?

My managerial duty is to make sure that curriculum is delivered in the school. This can be manifested by the performance of learners in all subjects including Mathematics. My duty is to allocate teachers Mathematics according to their specialisation in order to deliver the best results when teaching. I make sure that there is correct time allocation in the time table for Mathematics. I also ensure that teaching and learning take place at school. My role is to encourage all teachers including the DHs to plan their work and implement these plans in order to make sure that learners perform better in all subjects. I also monitor teachers through working with School Management Team (SMT) members that they are teaching learners on daily basis. I do my best to motivate teachers to assess learners when teaching them in order to check their level of understanding. I monitor that formal assessment is done by teachers in Mathematics department. I make sure that moderation process take place in Mathematics. I entrust this process to the Mathematics DH and monitoring evidence must be in place all the times to ensure that monitoring is happening at school. I also provide annual teaching plans for each subject including Mathematics to DHs in order to give their teachers in their departments.

2. What challenges do you encounter as a principal when working with DH towards improving learner performance in Mathematics?

The challenge I encounter is lack of subject meetings in the department of Mathematics. The DH and teachers don't meet to discuss different Mathematics matters in order to improve the performance of learners in Mathematics department. In the school there is no commitment in executing the curriculum matters by DH and this is a sign of resistance that is shown by him because as the principal I have discuss all curriculum issues with him.

3. How do you, as a principal deal with challenges that you encountered above?

I am organizing a meeting of School Management Team (SMT) in order to encourage them to meet regularly with their teachers. To avoid encountering challenges when working, planning is of utmost important. I tell the Mathematics DH to supply teachers

with curriculum management plan where all of them will signed for it for implementation. This curriculum management plan will be containing the following: Mathematics activities to be done, departmental meetings to be held and teacher professional development programmes to be conducted. I encourage the Mathematics DH to have regular meetings with his teachers to discuss all issues to be done pertaining Mathematics. The DH is encouraged by me to distribute Mathematics materials to each Mathematics teacher such as Annually Teaching Planner and Trackers (ATPs), annual assessment plans and textbooks. The DH must be knowledgeable about all topics that are in the Mathematics materials and try to unpack them to the teachers for better understanding. The Mathematics DH and his teachers must discuss all dates and activities that will take place during the year and all the tasks (informal and formal) to given to learners. In order to improve the learners' achievement, the Mathematics DH must continuously have accountability sessions with the deputy principal and also his teachers. Assessment monitoring tools or reports must submit to me fortnightly.

PRINCIPAL 3

1. What managerial duties do you perform as a principal in improving learner performance in Mathematics?

I have the duty supervise the teaching and learning in all subjects including Mathematics where the DH manages teachers and learners. I am also having the role to see that teachers teach and learners learn and are progressing in all subjects in order to pass to the next grades at the end of the year. My managerial role is to mentor the DH and teachers in the school in order to improve performance in all subjects. I spent more time mentoring the DH and teachers on the good teaching practice that may take place in the classroom that will assist learners to do better in their education. I also encourage teachers to discuss the problems that they encountered while they are teaching learners in the classroom situation. I share with them the ways that they may use to address problems concern. I systematically link the school to the outside mathematical frameworks such Amesa and Math Olympiads where the learners are exposed to different mathematical applications. This duty also gives me the provision to outsource relevant Mathematics personnel and facilitators to assist learners. Using my supervisory duties, I check on the content, application and assessment of Mathematics at the school. This duty helps to standardize the department operations in line with the curriculum expectations and this also leads to proper allocation of subjects.

2. What challenges do you encounter as a principal when working with DH towards improving learner performance in Mathematics?

Sometimes the DH gives a challenge of resistance. Resistance comes because my duties as a principal pose a threat to the DH's comfort zone. No DHs enjoy it when I have to supervise her and system. Recruitment of DHs in cases where DHs were not specialized in a Mathematics that they were tasked with monitoring is a problem because they are lacking subject knowledge

3. How do you, as a principal deal with challenges that you encountered above?

Dealing with challenges

The challenges involved need me as a principal to be an authoritarian in order for the DH and the Mathematics department to meet the set goals and targets

PRINCIPAL 4

1. What managerial duties do you perform as a principal in improving learner performance in Mathematics?

I have the duty to monitor that teaching and learning is taking place in the school. This is done by making sure that teachers are going to class, being prepared to teach learners and learners are coming school every day. I delegate other roles to the departmental heads and deputy principal when it comes to controlling teachers' pace setters, assessment programmes, curriculum coverage and many more. I remain accountable to all delegated duties and departmental heads and deputy principal must give reports on the delegated duties. I make sure that learning teaching support materials are available in all subjects and teachers are advised to use them effectively. It is a task of the DH to see that all the basic resources in teaching Mathematics are available, resources such as adequate teaching aids, textbooks (stationery). As I am an intermediate and senior phase Mathematics teacher, I assist the DH, teachers and learners with different methods of solving mathematical problems in the school. I also encourage teachers to work as team and advise them to share information in to bring positive changes in school.

I must be convinced that the DH and Mathematics teachers are up to scratch regarding the content knowledge, teaching skills and be always prepared to teach learners. The DH must have a proper schedule for controlling the work including conducting class visits.

2. What challenges do you encounter as a principal when working with DH towards improving learner performance in Mathematics?

The lack of infrastructure in the school is a challenge as the result classes are overcrowded with learners due to shortage of classes. It is difficult for the DH and teachers to teach in the overcrowded classes. Which means that not all learners are given their attention that they are supposed to get from teachers in the overcrowded classes.

The DH is not doing all his roles successfully because he is not committed. As the principal, I need to do follow up to make that the DH supervises and conducts class visits to teachers. Monitoring of teachers work is not done properly and when I inquire

to the DH, he said that he didn't finish the work because of many tasks that is allocated to him. Sometimes the DH and teachers are going to class unprepared, not controlling work of the learners, no follow-ups to underperforming learners and always giving silly excuses for poor performance.

The DH lacks cooperation when it comes to doing his duties. The DH shows unwillingness to work when given duties to him. He doesn't accept to execute his duties when delegated to him. He indicates that he has many duties to do. He doesn't even monitor teachers' work or supervise them regularly. These shows that he is not cooperative. In order to achieve goals set in the school, there must cooperation amongst SMT and teachers.

3. How do you, as a principal deal with challenges that you encountered above?

In order to address the challenge of shortage infrastructure, DBE should be taken on task to improve the working condition of teachers and learners in order overcome the issue of overcrowded classes. At the mean time because this will take long, teachers need to strategize to sort the issue of overcrowded. Teachers need to classify their learners according to their abilities and make sure that no learner is left behind.

I keep on motivating the DH to follow the programme of monitoring teachers' work in order to make sure that they improve their teaching and learners' achievement in Mathematics. The DH must have plan of action to do all his roles all the time. The DH needs to work extra hours in order to finish all his tasks that he is supposed to do. I encourage the DH to conduct class visit and give feedback to teachers as form of supporting them. I must invite curriculum advisors to provide support to the DH and give assistance to teachers. In conclusion, I must keep on giving support to the DH, encouragement and motivation are of paramount importance.

The principal must explain the SMT including DHs that in order to achieve the goals set in the school, they need to work as team. He emphasizes that the DH needs to cooperate well with the SMT by executing the duties allocated to him. He must do all

duties delegated to him willingly in order to improve the performance of learners in the school.

PRINCIPAL 5

1. What managerial duties do you perform as a principal in improving learner performance in Mathematics?

Firstly, I call regular staff meetings with DHs. In these meetings, I encourage them to raise their concerns, challenges, and successes when it comes to teaching and managing Mathematics as the subject, they supervise teachers. To address their challenges, I invite curriculum advisors and outsource people who are knowledgeable in Mathematics to help my DHs in the areas such as teaching the subject as well as monitoring the subject well. This helps them to develop and monitor the teachers that they supervise. This also helps them to supervise teachers with confidence. I also encourage DHs to hold regular subject meetings with teachers to update them on new things and the changes that take place in the subject. The subject meetings also help them to share skills and knowledge that can assist teachers in teaching their learners effectively. During SMT meetings DHs are reminded to pre-moderate teachers' formal assessment tasks before learners write the tasks and to do post-moderation after correcting the scripts of learners. The moderation of work ensures that teachers set quality work following various cognitive levels. They also ensure that teachers perform item analyses after each and every test to identify the topics that challenge learners and to teach them again. Furthermore, DHs conduct audits of written work based on the ATPs every two weeks to make sure that teachers give more work to the learners.

2. What challenges do you encounter as a principal when working with DH towards improving learner performance in Mathematics?

Some DHs are not committed to their work. They do not honestly check audits of written work as they expected to do and this makes teachers not perform teaching and learning effectively. You could find that teachers give less work to the learners and the DHs do not address the matter with them. This makes teachers downgrade the standard of teaching and learning as a result the performance of learners is affected negatively. DHs also do not check the implementation of the ATPs, planners, and trackers to Mathematics as a subject. This makes teachers skip some topics because they know that DHs would not check. When the DHs hold subject meetings with teachers are not assertive or firm when addressing some issues as a result teachers

do not value the matter seriously and also do not implement them. Sometimes, teachers request teaching resources such as shapes, compasses, and meter sticks but they do not use them. When I check with DHs they seem not to be aware of the matter which means that they do not monitor teachers during learning and teaching.

3. How do you, as a principal deal with challenges that you encountered above?

On the failure by DHs to audit the written work of learners, as the principal, I randomly sample two or three classes to check whether audit of written work is done correctly. If I find that it was incorrectly done, I call the specific DH privately and show him or her my findings or the number of written works. This helps to reduce dishonesty by DHs when checking the written work of learners. To address the inappropriate implementation of Annual teaching plans, and planners and trackers, I regularly call DHs during the meetings to ensure that they check the implementation of the documents. Sometimes, I make sure that DHs are retrained on how to monitor the documents and develop their teachers on how to use the documents. During SMT meetings I talk with DHs to be assertive when talking to the teachers. They are also reminded to deal with issues of teachers professionally. For example, DHs should call teachers who do not comply in their offices to communicate with them and tell them the consequences of insubordination. Lastly, the DHs are told to check if teachers use the resources during teaching and learning effectively, to reduce the problem of keeping the resources at school without using them.

PRINCIPAL 6

1. What managerial duties do you perform as a principal in improving learner performance in Mathematics?

My management duties at school are to supervise DHs and teachers who are teaching different subjects. I make sure that

DHs and teachers are having all relevant learning teaching support materials in different departments. I also make sure that all learners have textbooks and exercise books. My roles are to make sure that effective teaching and learning take place in school. I do this by checking that DHs and teachers are attending classes according to the time tables daily. I do follow ups whether they are prepared to teach and they have well prepared lesson plans for that day. I also make sure that they control exercise books for learners to check if teachers are giving them work to write on daily basis. I also check if DHs and teachers control their books and give them feedbacks. My management duty is to make sure that learners are given informal and formal assessments in school. In the formal assessment tasks, I make sure that all processes of moderation take place such as pre and post moderation. During submission of portfolio files in the district for moderation, DHs have the role to control files in the school before submitting them to the district. They also check if teachers have entered marks correctly in mark sheets and SA-SAMS. DHs management duty is to analyse the performance of learners and initiate intervention strategies in order to improve in the subject. They need to make sure that all subject departments are functional. This can be seen by having subjects meeting time and again. I make sure that DHs and teachers work as team and cooperate with one another. I assist newly appointed DHs and teachers on how to present lessons effectively to learners in the class. In conclusion, all what they are managing in their department, must be reported to the supervisor (principal).

2. What challenges do you encounter as a principal when working with DH towards improving learner performance in Mathematics?

The difficulties in school that impend DHs to enhance learner performance are many as indicated below.

The absence of a collaborative relationship among school stakeholders, especially colleagues within the subject department, impede learner academic achievement in in

school. Lack of positive relationships among school stakeholders, such as between teachers and their supervisors, can have detrimental effects on effective teaching and learning inside schools. Consequently, this can hinder any potential improvements in learner performance. Lack of communication between teachers, departmental heads and principals within the educational institution is a challenge. Absence of effective communication within the subject department would hinder any potential improvement in student performance inside the educational institution.

The DHs who possess inadequate subject expertise in different subjects presents a significant obstacle in terms of offering assistance to educators. According to my observation certain DHs lack sufficient expertise due to their supervision of subjects without appropriate qualifications or specialization. In conclusion, DHs who possess inadequate topic knowledge in a certain subject would be unable to offer academic and material assistance within the department. There is a perspective that suggests that this has the potential to hinder the academic progress of students.

The issue of teacher absenteeism poses a significant problem for everyone involved in efforts to enhance student performance within educational institutions. According my observation, teacher absenteeism has been identified as a significant barrier to the successful delivery of education in schools. According to my point of view, teachers frequently have absences for various causes, including as familial obligations, illness, and associated circumstances. My dissatisfaction is that there is lack of effort made by absent teachers to make up for missed curriculum content upon their return to school. The absence of teachers hinders the advancement of students in the specific subject they are instructing, since they fail to allocate sufficient time to address any gaps in curriculum coverage. This make other teacher who are in working additional hours in order to provide relief for teachers who are absent from work.

The presence of high workloads among school stakeholders may impede their ability to effectively enhance learner achievement in Mathematics. DHs are responsible for a multitude of tasks within the educational institution, encompassing the instruction of students, administrative chores, as well as the oversight and guidance of other educators. DHs are inability to fulfil some responsibilities due to their perceived unmanageability. Further concerns over DHs workload, insufficient time prevents them

from efficiently fulfilling all their jobs, resulting in certain responsibilities falling behind schedule. Furthermore, several DHs that excessive workloads hinder their ability to fulfil their responsibilities in instructional leadership, which encompass tasks such as teaching, facilitating learning, conducting assessments, and directing their respective departments.

One of the issues faced in the execution of their managerial responsibilities in schools is the identified lack of commitment among school stakeholders, particularly departmental heads (DHs) and teachers, who hold the responsibility for overseeing the curriculum. My concerns regarding the lack of commitment demonstrated by DHs, as evidenced by their hesitancy to organize subject meetings, insufficient frequency of class visits, ineffective supervision of teachers, and inadequate monitoring and evaluation practices within schools. Additionally, teachers were also noted to display a lack of commitment through irregular class attendance and inadequate lesson planning. I have observed DHs exhibit a lack of cooperation in fulfilling their responsibilities within the subject departments, particularly by resisting the organization of meetings.

3. How do you, as a principal deal with challenges that you encountered above?

I apply leave mechanism as a strategic approach to mitigate teachers' absenteeism. I employ control methods, such as requiring medical certification to validate sick absence. All DHs and teachers who are absent from the school must complete and submit leave forms.

I request DHs to prioritization some of the tasks to address the workload and time constraints faced in the school. To address the matter of workload and time constraints, DHs should implement daily planning and prioritization strategies for their responsibilities.

I engage with teacher perpetrators in direct communication to address instances of teachers' insubordination. This is the most effective approach to address teachers' insubordination through engaging them in a discussion.

The utilization of DH appointments as an effective strategy for addressing deficiencies in subject knowledge among DHs in the field of Mathematics. DHs should be appointed according to their specialisation and appointments should be based on the specific educational requirements of the schools.

CURRICULUM ADVISOR INTERVIEW QUESTIONS

1. What are your duties in assisting DHs to perform their function of improving learner performance in Mathematics?

I ensure that the following curriculum documents/LTSM are available and evenly distributed to Mathematics teachers and learners:

- CAPS and CAPS AMENDMENTS
- ATPs
- Subject policy
- Textbooks
- DBE workbooks (GET Band)

I also ensure that document such as mediation of CAPS, CAPS AMENDMENTS and ATPs are in place. I ensure that the school time table is CAPS compliant (i.e., 6 hours per week in IP and 4,5 hours in SP). I ensure that national and schools' assessment policies are implemented in Mathematics periods in schools. My duty is to develop curriculum coverage instruments and SBA moderation instruments for the DHs. I conduct a workshop on the usage of DBE workbooks and curriculum coverage/SBA moderation instruments. I also ensure that DHs have audit instruments for informal/formal tasks. I also ensure that DHs have updated curriculum resource files. My duty is to capacitate DHs on monitoring and supporting teachers. I capacitate DHs on moderation processes and classroom visits empowerment. I also capacitate DHs on tracking learner performance.

2. What challenges do you encounter when performing your duties of assisting DHs in improving in Mathematics?

The challenge of the availability of curriculum documents hinders me and DHs to perform our duties as expected in schools. We do not have enough curriculum documents in our circuit to be districted to teachers at schools. If the curriculum documents are not available, it is challenge because it affects curriculum delivery in schools.

Mathematics DHs and teachers do not have Curriculum resource file at schools. Some of their curriculum files are not up to date. It is difficult to manage or teach Mathematics in schools when curriculum files are not available.

When I visit schools to provide support to teachers and DHs, I found out that there is no evidence of teachers that they have been supported by the DH. DHs are not producing evidence to show that monitoring is conducted at schools. No evidence of audit of learners' audit of written and moderation of formal tasks produce by DHs at schools.

Some of DHs are supervising Mathematics without majoring with it at tertiary institutions. This is a challenge because they did not specialise with Mathematics and they are not subject specialist in the subject. It is difficult for them to manage Mathematics teachers. When they need to be supported during challenges in Mathematics, they do not get assistance.

DHs who are full time teachers with minimal time for supporting or monitoring their teachers' work. This is a challenge because they do not able to render support fully to their teachers at schools due more work that they have.

DHs lack of leadership and management skills in schools. They not provide leadership to their Mathematics teachers in their department in schools. Teachers at schools do things as they wish, no control done by their DH. This challenge makes learners perform badly in the subject.

3. How do you deal with the challenges you encounter when assisting DHs in performing their function of improving learner performance in Mathematics?

Providing on-site support to the DH on the identified challenges.

Encourage DHs to plan and prepare their work thoroughly.

Encourage DHs to consult other Mathematics educators whenever they encounter problems when teaching some topics.

Encourage DHs to form school subject committees and hold subject meetings, in order to share good practices and develop each other.

4. Which managerial strategies do you employ to assist DHs in improving learner performance in Mathematics

DHs should make sure that curriculum management file is up to date. The curriculum management file should be prepared from the first day of each academic and kept up to date. All curriculum related documents such CAPS, APTs and subject policy should be kept in this file. Templates for curriculum coverage, audit of informal and formal tasks should be kept in the file. DHs should establish subject committees and ensure that each member has the subject policy. The subject committees should meet timeously to discuss different issues concerning Mathematics and learner performance. During this subject committees, teachers should meet and share information on different intervention strategies to be used in the classroom when teaching learners. DHs should unpack and discussed the contents of the subject policy. DHs and teachers should conduct class visits in schools. During class visits, DHs should give developmental feedbacks to teachers. Class visits should be done to develop teachers not focusing on faults seeking. DHs should conduct pre and post moderation for formal task in Mathematics before and after tasks administered to learners. Moderate formal tasks to ensure that the tasks are fair, valid and in alignment with the assessment policy. Use assessment results to improve teaching. DHs should be exemplar and set pace for the educators that they are supporting.

5. Which leadership styles do you use to assist DHs towards the improvement of learner performance in Mathematics?

Coaching leadership style is used by me during listening to the DH's challenges, note them down, recognize the strong and weak points in order to motivate him/her. I give constructive feedback to the DHs to fix the challenges encountered.

I also use affiliative leadership style to build a healthy relationship with the DHs, create an effective collaboration in order to motivate the DHs to work effectively no matter what conditions are.

I also use pacesetter leadership style to illustrate high standards for performance of which the DHs should follow and do that in their schools to achieve better results in Mathematics department.

I use authoritarian leadership style because this leadership style is applied in order to meet submission dates or to ensure that assessments circulars/policies are implemented.

6. Which preparations do you provide to DHs before occupying DH position?

Orientation workshop is the only preparation that I have done to my Mathematics DHs. I orientate them on CAPS and other curriculum related documents. I capacitate them on how to check content and curriculum coverage. I also capacitate them on how to manage and moderate SBA at school level. They are also given induction on how to conduct audit informal, analyses of results and to track learner performance in Mathematics.

7. What kind of professional development do you provide to DHs as the curriculum advisor?

Before DHs start with their duties after appointed to the new position, induction workshop is done for them. Orientation and induction of newly appointed DHs is organised by the district office. They are workshop on their new roles and responsibilities. We also ensure that DHs understand their Job descriptions and execute their duties efficiently. They also capacitated on the curriculum and leadership roles when performing their duties at schools.

During workshops and training, DHs and teachers are developed on how to monitor teachers and learners work. I also develop them by giving constructive and developmental feedbacks during workshops. I provide development through conducting content workshops to address the identified content gap. I as curriculum

advisor workshop them on the usage of ATPs, assisting them on how to handle different topics in the classroom when teaching learners. I also capacitate DHs on how to check if the administered informal tasks address prescribed topics and the sub-topics (Concepts and skills). During workshop and training I encourage them to further their studies in Mathematics and remain students of their own subjects. I also encourage DHs to become members of AMESA and participate in Mathematics related programmes, e.g. Maths Olympiad, etc.

8. How do you provide support to DHs which assist them in performing Mathematics managerial duties successful?

I provide support through conducting content workshops to address the identified content gap. This is done at the beginning of each term, where Mathematics DHs and teachers are called together to attend the workshop. The duration of the workshop is one day. I as curriculum advisor workshop them on the usage of ATPs, assisting them on how to handle different topics in the classroom when teaching learners. I also capacitate DHs on how to check if the administered informal tasks address prescribed topics and the sub-topics (Concepts and skills).

I also provide support through moderating their work (teachers' moderated work at school level) at District level. This done during CASS once per term, where teachers are requested to submit their portfolios and learners' portfolios at the circuit for moderation. Here I check whether formal tasks are set according to the ATPs and cognitive levels that are needed to be follow according the Mathematics policy. I also check if the marking was done according to the marking rubric or not. Finally, I approved for good work or disapproved for the work not meeting the requirements, then feedback send to the teachers to rectify their errors.

I also provide support to DHs and teachers during school visits that focus on teacher development. I sometimes visit teachers at schools when there is a need because of the shortage of curriculum advisors in Mathematics, I cannot able to visit schools timeously. During my school visits, I check the curriculum coverage and audit of written work given to learners.

I also provide support to DHs and teachers during subject meetings that are conducted in the circuit office. Mathematics DHs and teachers are requested to attend subject meeting to capacitate them on the development of standardized formal tasks. The subject meetings are conducted between 12H00 to 14H00. Teachers with challenges are also assist during subject meetings.

MATHEMATICS TEACHERS INTERVIEWS 1

1. What is your role as mathematics teachers in improving learners' achievement in your subject?

- I practice mathematics regularly in order to learn various methods of teaching the subject.
- I also attend cluster meetings and workshops that develop us in the subject.
- Furthermore, I share knowledge with my colleagues and other teachers from other schools who teach mathematics. In turn, I also share the methods or steps of solving mathematical problems as well as teaching strategies. This helps me to acquire in-depth knowledge of the subject and skills because I also learn many ways of teaching the subject from them. The more we discuss various ways of solving mathematical problems and teaching strategies the more I understand mathematics better. During teaching and learning, I always involve my learners to answer the questions on the chalkboard. This motivates other learners to work very hard as a result learners' performance in mathematics is improved.

2. What activities do you expect from DH that you think will assist in improving learners' achievement in Mathematics?

- In the beginning of the year, I expect my DH to call us in the meeting to check if we do have all the teaching resources needed in Mathematics. These teaching resources include Annual teaching plans, learners' books, and assessment programs. I also expect him to give us the yearly program so that we know when to meet and the activities that we will do during the year. This helps us to get prepared mentally and to arrange paperwork in advance unlike if we are told when we are supposed to implement the activity.
- During the year we expect him to invite us to the subject meetings. This would help us to share the challenges that we encounter in the subject and to come out with possible solutions.
- We also expect the DH to give us support during the year. It is very frustrating to teach the subject without someone who gives support when you encounter problems in the subject.

3. What challenges are encountered when working with your DH and also hindering the progress?

- Lack of support academically, socially, and materially can impede the performance of learners. For example, a DH who is not approachable is a problem because when you encounter a problem with the subject it becomes difficult to report it to him or her. Consequently, the problem would continue without a solution as a result the desire and interest to teach the subject would diminish. In terms of support academically, it is good to be led by a DH who has a sound knowledge of the subject because he/ she would give support on the issues of the subject in case teachers need assistance. The DH who is capable finds it easy to notice when the teacher struggles more especially when she/ he checks or moderates the teacher's work. In terms of materials, the DH should always make sure that teachers do have mathematical resources so that they can teach the subject without struggle.

4. How do your DH support you towards improving learners' achievement in Mathematics in your school?

- After attending a workshop, he calls us in the meeting to share the knowledge with us. He also does the same when the workshops are attended by other teachers. At most he invites us to subject meetings and allows us to voice out our challenges. This helps us to share our problems and, in the end, we come up with a solution.
- When he moderates our work, he immediately gives the necessary support when he discovers some challenges.

MATHEMATICS TEACHER INTERVIEW QUESTIONS 2

1. What is your role as a Mathematics teacher in improving learners' achievement in your subject?

My role is to instill the love of the subject by telling and showing learners how simple Mathematics is. I also tell them the importance and advantage of learning Mathematics that it helps when applying in tertiary institutions and again there are better opportunities.

2. What activities do you expect from DH which you think will assist in improving learners' achievement in Mathematics?

The DH should come up with strategies of awarding learners who got higher marks. The DH should also provide assistance to teachers in the Mathematics department. It is the responsibility of the DH to ensure there is an improvement of performance in the Mathematics department.

3. Which challenges do you encountered when working with your DH that hinder learners' performance in Mathematics?

Lack of support from my DH is a challenge that impede learner performance in the school. The DH should also provide support to teachers and learners in school.

4. How do your DH support you towards improving learners' achievement in Mathematics in your school?

By awarding learners every quarter after the results, in order to motivate and improve the results.

MATHEMATICS TEACHER INTERVIEW QUESTIONS 3

1. What is your role as a Mathematics teacher in improving learners' achievement in your subject?

My role is to motivate learners in the school. This is done because not every learner can grasp the concept of Mathematics fast, some will definitely fall behind so therefore it is my responsibility as a teacher to identify the area where learners are struggling and focus on the area for improvement. My other role is to write down the lesson plans for the subject to know if whether I have reached my lesson outcome / objective or not. I also have role to attend subject workshop to gain more Knowledge about the subject so that you can transfer it to the learners

2. What activities do you expect from DH which you think will assist in improving learners' achievement in Mathematics?

Developing time table and organizing extra lesson for learners who are in need. My DH should provide relevant resource to all teachers to assist us to provide effective teaching in the school.

3. Which challenges do you encountered when working with your DH that hinder learners' performance in Mathematics?

Lack of support subject knowledge, if the DH is not equipped enough with the subject knowledge, it will be a problem because as an educator sometimes you will face challenges or problems which will need extra help for the DH but if they don't have knowledge about it simple means that both of you will be failing the learners

4. How do your DH support you towards improving learners' achievement in Mathematics in your school?

By always arranging meetings or workshop with other mathematics educators where we sit and share our knowledge and also different strategies of teaching mathematics, challenges that they encounter and how they overcome those challenge

Providing all the necessary resources or teaching aid that we will need while teaching the subject

MATHEMATICS TEACHER INTERVIEW QUESTIONS 4

1. What is your role as a Mathematics teacher in improving learners' achievement in your subject?

Ensure that the learning environment is good. All necessary learning and teaching aids are available. Also ensure collaborative and student-centred environment is created, where learners will be given opportunity to participate, ask questions and answer questions. As a teacher I must also ensure that the maximum percentage of time in my class all learners are engaged in the content, rather than spending time on individually by name, after they have answered, I must give clarifications where necessary before moving to the next question. Mathematics language should be always in use so that they will be able to apply them in new situations. Before introducing a new concept make sure that everyone understood what you were teaching them, you can do this by getting learners to write more standard tasks and I will make sure that mathematical terms and word sums are being used. Give special attention to learners with difficulties.

2. What activities do you expect from DH which you think will assist in improving learners' achievement in Mathematics?

Head of departments supervise the teaching and learning. Ensuring that learners are being taught and assessed accordingly, and all feedback are given on time. And subject meetings are held continuously so that we can discuss the challenges encountered in the classroom so that they can be able to intervene and give the necessary support and ongoing professional guidance. Foster teacher/student relationships and provide moral support when required. And also provide us with the ATP's and policy documents.

3. Which challenges do you encountered when working with your DH that hinder learners' performance in Mathematics?

The most challenge that we encounter as mathematics teachers is that our HODs expect different things from what our curriculum advisors has taught us during our workshops.

4. How do your DH support you towards improving learners' achievement in Mathematics in your school?

Ensuring that all efforts are made by both learners and teachers to ensure quality teaching and learning takes place. Foster teacher/student relationships and provide moral support when required. Make interventions on learners with difficulties, make sure that all suggested strategies are being implemented and also involve parents.

MATHEMATICS TEACHER INTERVIEW QUESTIONS 5

1. What is your role as mathematics teachers in improving learners' achievement in your subject?

- Practices makes perfect, regular practicing the various strategies for teaching mathematics that I think learners easily understands and masters.
- My role is to prepare lesson plans as per grade level. Explaining mathematical concepts in easy understandable terms to learners. Building strong relationship with learners.
- My other role to involve learners in the lesson which helps them to use the trial-and-error method to learn. This motivates them to participate more and wants more problems to master the content.
- My other role is to collaborate with other teacher to share the best practice of teaching mathematics. This helps he get more knowledge on the subject and the skill of teaching it.
- Involving parents, some of the learners easily forget about their homework. When parents are involved in the education of their children, and they ensure that learning continues also at home.

2. What activities do you expect from DH that you think will assist in improving learners' achievement in mathematics?

- The first two days before the school reopens the DH must hold the subject meeting to check with the teacher if they have the necessary materials for teaching Mathematics. The DH must provide the following resources: annual teaching plan, programme of assessments, policy documents, learners book and teachers guide. The DH should also provide the number of activities to be given to learners.
- Every quarter she should invite the meeting to review on the progress that has been made on the quarter. This would be information sharing where we can discuss about the challenge face and how they can be overcome in the next quarters.

- The DH must continually support us during the year, ask to see learners' books in order to check for progress and also check for informal class tests. Upon checking she should give the necessary feedback, give support and encourage me where possible.

3. What challenges are encountered when working with your DH and also hindering the progress?

- Lack of subject knowledge, absenteeism of teachers, lack of resources, teachers not specialising in subject they are monitoring
- The railed time in giving feedback when there is monitoring at times hinders learning. For example, giving formal tasks to learners in time.
- Lack of resources impend teaching and learning. Learners do not have the necessary resources for learning as a result it limits teaching and learning time as a teacher is expected to provide copies to learner which is time consuming more especially if the teacher does not have time in between the periods. Resources must be in place for meaningful lessons to be carried out. The DH should make sure that the school provides the teacher with the necessary resources for effective teaching and learning.
- Lack of good relations with the DH. An unapproachable at times makes it not easy to share the challenges that I encounter with the subject and which makes it difficult to report. When problems persist without solutions it means learners will have to move to the next grade without having the necessary support. As a teacher, my moral and interest in the subject is diminished.

4. How do your DH support you towards improving learners' achievement in Mathematics in your school?

- The DH moderates the formal assessments and the class activities. There are a number of activities to be administered to learner per week, upon checking if my work meets the requirements, she gives the necessary support. Coming with suggestions on how I could meet my targets.

- There are meeting that are held for the subject mostly after she has attended a workshop to share the information. Should the other teacher attend the workshops the same strategy is use, where an information session is conducted.
- During the meetings we discuss about that challenges that we encounter in classes and when teaching. We help one another by coming with ways on how best we can help our learners and our way of teaching.

MATHEMATICS TEACHER INTERVIEW QUESTIONS 6

1. What is your role as a Mathematics teacher in improving learners' achievement in your subject?

My role is to help learners achieve their goal by having high expectations of all learners regardless of their previous academic performance. I also have role to create learning environments that reinforce the view that learners can master academic subjects, to increase their sense of self- efficacy that promotes academic achievement. Seeking out, discovering, and praising any effort of all learners make toward learning, particularly those who are failing or underachieving. I also have role to assess the learning styles of my learners, keeping in mind that being different is not inferior. This information can be used to gradually incorporate learning and processing strategies that will help the child develop the skills needed to succeed in school. Encouraging learners to ask questions when they don't understand something or need further clarification, and helping learners understand that taking notes and studying course material is the way to achieve academic success.

2. What activities do you expect from DH which you think will assist in improving learners' achievement in Mathematics?

They should help staff to achieve constructive working relationships with pupils; establish clear expectations and constructive working relationships among staff involved with the subject, including through team working and mutual support; devolving responsibilities and delegating tasks, as appropriate. They must recognize the role of parents as motivators of learners because involving parents in the education of their children is an important function of motivating learners, and is beneficial to help learners perform to the best of their ability. They must provide the necessary guidance and support to both educators and parents to collaboratively motivate learners.

3. Which challenges do you encountered when working with your DH that hinder learners' performance in Mathematics?

The inadequate funds to run some different activities such as academic issues examples; teaching and learning materials, building facilities and lack of discipline

which leads to poor learners' academic performance. And also, Poor relationship between teachers and DH leading to poor communication between them.

4. How do your DH support you towards improving learners' achievement in Mathematics in your school?

By involving the teacher in decision making in terms of school subject policies, workshops and in-service training, motivation, by providing teaching and learning materials, involving parents in decision making and monitoring learners behavior