Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools

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Declaration

I hereby declare that the work submitted here is the result of my own investigations and that all the sources I have used or quoted have been acknowledged by means of complete references. I further declare that the work is submitted for the first time at this university towards a PhD in Education degree and it has never been submitted to any other university in order to obtain a degree.

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Dedication

To my late grandmother Adelaide ‘Mapinki Thibalira,

my late father Ranthooa Ezekiel Lisene, and my late mother Mateboho Valeria Lisene

for raising me up and guiding me with love and affection.

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Abstract

Successful leadership is one of the strongholds of a high-quality education system. Instructional leadership is an important factor affecting classroom activities because principals ensure that all decisions target the enhancement of instruction. However, principals are no longer sole instructional leaders because they cannot effectively monitor and support instruction. Therefore, decision-making in schools is the responsibility of many people hence, a distributed perspective rather than an individualistic view of instructional leadership is necessary. It is against this context that subject departments have become the centre of interest. However, the significance of HoDs as instructional leaders has not been fully acknowledged in practice and research for secondary schools. This study recognises this gap in scholarship and therefore, explores the perspectives and practices of heads of science departments, aimed at improving instruction.

This mixed-methods research of a convergent parallel design is based on the distributed instructional leadership (DIL) framework which is a product of two complementary concepts, namely the instructional leadership model and the distributed leadership theory. Instructional leadership models highlight the leaders' functions while the distributed leadership philosophy acknowledges the contribution of all members towards leadership. Data were collected from a multi-stage concurrent nested sample of 67 schools through a questionnaire, interviews and document analysis. Responses from the questionnaire were analysed through statistical analysis software (SAS) whereas qualitative data were thematically analysed.

Descriptive data reveal that sampled HoDs had an above-average engagement with instructional leadership. However, these HoDs were most active in having high expectations about their department’s performance (M=4.6) and least active in assessing teachers’ professional development (M=2.64). The HoDs who held permanent positions were also more actively engaged with leadership (M=3.31-4.03) than their counterparts who were temporarily employed (M=3.20-3.87)) and they had significant differences linked to providing materials (p=0.01, F=7.05) and supervising instruction (p=0.02, F=5.36). Qualitative data disclose that selected HoDs knew instructional leadership even though they neglected some subjects due to a lack of content knowledge, large workloads, and lack of confidence, among other challenges. The recommendation is that the leadership responsibility needs to be distributed beyond the HoDs to include leaders for each subject to promote effective instruction in all the areas within the science department.

Keywords: curriculum implementation, distributed instructional leadership, heads of departments, integrated curriculum, Principal's Instructional Management Rating Scale*,* science departments, secondary school education.

Abbreviations and acronyms

ANOVA:	Analysis of variance
CAP:	Curriculum and assessment policy
CASS:	Continuous assessment
CPL:	Continuous professional learning
DIL:	Distributed instructional leadership
DoE:	Department of Education
ECoL:	Examinations Council of Lesotho
HoD:	Head of department
HoDs:	Heads of departments
HS:	High school
IBEC:	Integrated basic education curriculum
ICT:	Information and communications technology
LBECP:	Lesotho Basic Education Curriculum policy
MoET:	Ministry of education and training
MMR:	Mixed-methods research
MOOCs:	Massive open online courses
NCDC:	National Curriculum Development Centre
OECD:	Organisation of Economic Cooperation and Development
PCK:	Pedagogical content knowledge
PIMRS:	Principals' instructional leadership rating scale
SAS:	Statistical analysis software
ST:	Science and technology

UK: United Kingdom

UNESCO: United Nations Educational, Scientific and Cultural Organisation

USA: United States of America

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Section 1: Introduction and orientation of study

1.1 Introduction

Leadership is a relatively new subject, the emergence of which started in the twentieth century as a speciality that is associated with, but different from, management (Ngara, 2013). Even though leadership may be a modern subject, the practice of leadership and the significance of successful leadership are phenomena that occurred as far back as the start of human civilization when people started to collaborate (Kolzow, 2014; Ngara, 2013). People who work together have always regarded leaders to be crucial to positive organisational and societal outcomes but the concept of leadership has recently gained popularity as the contemporary style of dealing with workers as well as institutions (Iqbal, Anwar & Haider, 2015; Koçak, 2019). The recent increment in the competitiveness of the world as well as the survival requirements of the 21st century have necessitated leadership to be more successful in enhancing organisational performance and enticing new clientele (Kaur & Norman, 2020; Koçak, 2019; Nanjundeswaraswamy & Swamy, 2014). Consequently, it is essential to gather more evidence on effective leadership practices that have greater potential to influence job satisfaction and worker efficiency as a way of contributing to the description of leadership.

The concept of leadership is dynamic and multi-dimensional and hence difficult to define in a manner that encompasses all of its characteristics (Landis, Hill & Harvey, 2014; Suffian, Norhayati & Mohammad, 2014; Sethuraman & Suresh, 2014.) However, literature has established some fundamental principles of leadership such as the potential of leadership to impact the deeds of the team members aimed at achieving specific goals under certain circumstances (Iqbal *et al*., 2015; Suffian *et al*., 2014). Leadership is therefore concerned with persuading, explaining, identifying, affirming and renewing the values of the team (Marzano, Waters & McNulty, 2005). Some of the values instilled by effective leadership are self-confidence, enthusiasm, collaboration, cooperation and whole-team achievement, among others (Sharma & Jain, 2013). This means that the importance of leadership manifests in the ability of leaders to empower their followers to understand and perceive their work environment (Zahed-Babelan *et al*., 2019). Leadership success can also be achieved through the integration of traditional socio-cultural values into the contemporary tenets of the

achievement of success (Kaur & Noman, 2020). The current study explored how instructional leadership was practised as a product of varying contextual circumstances of Lesotho secondary schools.

Schools are organisations consisting of many people collaborating towards the achievement of educational goals and as such, they are considered as a basis for the evaluation of instructional performance. Consequently, schools require effective leadership to increase academic performance (Amakhukwu, Stanley & Ololube, 2015; Morsidi *et al*., 2015; Printy, 2010). Effective school leadership recently increased its value to major education reforms and the improvement of educational results (Landis *et al*., 2014; Morsidi *et al*., 2015). Writers in the area of educational leadership and classroom practice are positive that school leaders can be ranked among the most effective instruments for the improvement of learning outcomes, particularly in underperforming schools (Australia, Department of Education/DoE, 2022; Bin Hassan, Ahmad & Boon, 2019; Hou, Cui & Zhang, 2019; Shaked, 2022). The research on school leadership places the attention of various practitioners mostly on improving instruction.

This focus of researchers resulted in the Effective School Movement in the USA between the 1960s and 1980s. This is the era in which the development of the concept, that is now termed 'instructional leadership' was pioneered (Bellibaş, Kilinç & Polatcan, 2021; Chikwanda, Masaiti & Banda, 2020; Lachlan-Hache, 2017). The birth of instructional leadership and increasing demands of accountability, therefore, necessitated school leadership practice to move from a haphazard form of management to focus on the core business of the institution, namely instruction (Munje, Tsakeni & Jita, 2020; Ahmad, 2018; McBrayer *et al*., 2020). This shift of the leadership focus towards instructional activities has resulted in significant improvement in school learning outcomes (Bellibaş & Liu, 2018; Munna, 2021; Townsend, 2019; Zahed-Babelan *et al*., 2019). The period, beginning in the 1980s, has since marked the era when every school leader felt the need to practise instructional leadership to enhance their school performance.

Since that time, instructional leadership has remained an efficient model for the achievement of positive learning outcomes (Dania & Adriani, 2021; Wolfe, Knudsen, & Mahaffey, 2023). The capability of instructional leaders to improve instructional

practice can be attributed to their ability to sustain a constructive atmosphere for learning (Abdulaziz, *et al*., 2021; Demirdag, 2021; Leithwood, Harris & Hopkins, 2019; Mora-Ruano, Schurig & Wittman, 2021). Li, Chan and Hu (2023) add that the improvement brought by instructional leaders through classroom teachers is sustainable and long-lasting. Consequently, instructional leadership has been ranked second among the most important factors influencing student outcomes, following classroom instruction (Lachlan-Hache, 2017; Leithwood *et al*., 2019; Thornell, 2022). This means that while the impact of instructional leadership on academic outcomes may be indirect, it is powerful because it can improve student learning outcomes by improving the teaching practice which in turn has a more direct effect on instruction (Leithwood *et al*., 2019; Li *et al*., 2023; Townsend, 2019). This realisation has renewed research interest in issues of leadership related to the success of instructional activities (Day & Sammons, 2013; Hallinger & Wang, 2015). It is, therefore, important to study leadership resources, practices, and situations about classroom practice as a way of contributing to the conceptualisation of instructional leadership.

Many authors have since offered influential contributions towards the construction of the concept of instructional leadership over the years. However, Geleta (2015) and Hallinger (2005) point out that it is not easy to offer a perfect description of instructional leadership, owing to the wide range of differences between the schools. For instance, the schools vary greatly in their contexts, and hence their requirements for improvement also fluctuate. However, most of the ways of conceptualising instructional leadership outlined by the literature have been traditionally linked to the successful management of teaching and learning by the school leader (Ahmad, 2018; Bin Hassan *et al*., 2019; Chikwanda *et al*., 2020; Hou *et al*., 2019; Lachlan-Hache, 2017; Shaked, 2022). Hou *et al*. (2019) also emphasise that focusing on instruction requires the leaders to place special attention on the professional development of the teachers. The implication of this is that teacher learning and student learning are intertwined and equally important goals of instructional leadership. Consequently, instructional leadership is a practice that promotes meaningful classroom practice by enhancing the learning of both teachers and students.

On the one hand, some researchers have a 'narrow' standpoint towards instructional leadership in that they focus on the activities that are directly linked to classroom practice (Geleta, 2015). This notion places the leaders as the sole providers of

instructional leadership and facilitators of change aimed at improving school outcomes and hence as the stronghold of academic achievement (Hall & Hord, 1986; Kaur & Noman, 2020; Leithwood, 2016; Mampane, 2017). The writers who depict principals as the only instructional leaders emphasise that a school leader is ultimately accountable for improving the achievement of students (Abdulaziz *et al*., 2021; Macaso & Vicera, 2019; Townsend, 2019). For instance, some authors conceptualise instructional leadership as the idea of the leaders focusing their efforts on teachers' practices that have a more direct link with the enhancement of student learning (Ahmad, 2018; Manaseh, 2016; McBrayer *et al*., 2020; Shaked, 2022). Amakyi (2021) emphasises that one of the positional duties of the school leader is to determine the level and context at which the teachers and students are expected to perform. Bellibaş and Liu (2018) also posit that principals have a fundamental and important contribution towards the development of a conducive learning environment regardless of their schools and their characteristics. This view of instructional leadership is limited in that it addresses only the noticeable practices of the leader instead of all the factors related to student learning, other staff members, and the school contexts.

On the other hand, there are those scholars who opine that principals are a necessary but inadequate source of instructional leadership in schools (Dania & Adriani, 2021; Geleta, 2015; Machumu & Kaitila, 2014; Mampane, 2017; Mokoena & Machaisa, 2018). These authors highlight a 'broader' perspective of instructional leadership by focusing on all aspects of leadership aimed at the enhancement of student outcomes. They recognise the collaborations of all members of the institution and other constituents of the school context aimed at improving the learning outcomes of both the teachers and the students (Lachlan-Hache, 2017; Mestry, 2017). The advantage of a broader standpoint of instructional leadership lies in its potential to enable other people to be involved in leadership, thus increasing its efficacy (Southworth, 2002). However, Leithwood *et al*.'s (2004) definition, which views instructional leadership as a way of emphasising that the main goal of an educational institution is to improve instructional activities, was adopted for this study. This definition seems to be generic enough to enable the interaction of various materials and human resources towards teaching and learning.

The principals' inadequacy in instructional leadership has been linked to the increasingly complex educational climate that further complicates their responsibilities

(Zahed-Babelan *et al*., 2019). These complications, paired with the time limitations, hinder the principals' aptitude to uphold a balance between administrative and instructional tasks. As a result, principals are likely to dedicate more time to their administrative duties than they do towards classroom practice and as such, they may not be able to successfully assume their instructional leadership responsibility (Chikwanda *et al*., 2020; Geleta, 2015; Mokoena & Machaisa, 2018).

For instance, the Ghanaian high school principals in Amakyi's (2021) study were more active in performing instructional leadership practices related to the communication of school aims and less engaged with supervision of the curriculum and development of a positive environment. This means that the principals in this study focused less attention on what Leithwood (1993) and Marzano *et al.* (2005) regard as "first-order changes", including, among others, curricular and instructional design changes which form the basis of instructional leadership. These are the changes that are linked to daily classroom activities and the solutions that are derived from the experiences of all the individuals concerned with teaching and learning.

When it comes to curricular reforms, principals have been classified mostly as means of stability and strength instead of being sources of reform (Zahed-Babelan *et al*., 2019). This is partly due to limited interaction among principals, teachers, students, parents and the community at large (Islam, Karmaker & Ashim, 2019). This lack of interaction is believed to be related to the principals' inability to perform instructional leadership activities such as monitoring instruction through instructional supervision and providing instructional resources, among others (Ampofo, 2019; Chikwanda *et al*., 2020). The practices that were mostly sanctioned by the principals in terms of time allocation included monitoring of instructional planning and classroom observation. The principals' failure to focus on instruction as school leaders renders them inadequate instructional leadership providers because their administrative position has placed them further away from classroom activity.

These school principals on their own are therefore not always able to effectively encourage and assist teachers and learners as expected. Even the few principals who achieved great instructional leadership success are believed to achieve that through the involvement of other leaders and/or teachers in their practice. For instance, the Vietnamese primary school principals in Nguyên, Hallinger and Chen's (2018) study

were reportedly practising instructional leadership at an exceptionally high rate. These authors indicate that the principals in their study did not necessarily pay attention to the cues of the policy nor did they get properly inducted into their responsibilities. As a result, the principals' high PIMRS scores were reportedly unexpected and mostly incidental without collaboration from other leaders within the school system (Sun & Leithwood, 2015). Principals achieve greater success through the assistance of other leaders, followers and other contextual factors.

Sustainable improvement of classroom activities requires that we no longer view an instructional leader as a heroic individual with certain charismatic traits that enhance instruction (Leithwood *et al*., 2019). Instead, we need to change our view of instructional leadership from a top-down form to a more multi-directional perspective that involves collaborations with other people (Malinga, Jita & Bada, 2022; Mosoge & Mataboge, 2021). Consequently, instructional leadership has evolved from being viewed as the responsibility of a single individual within the school management team, to being considered to be a joint practice (Doherty, 2021; Islam *et al*., 2019; Jita and Mokhele, 2013; Sahlin, 2022). It is against this background that the concept of a subject department recently became the centre of interest in research on instructional leadership.

Peacock's study (2014) reveals that the concept of a subject department has been part of the school structure since the beginning of the previous century with evidence of studies dealing with subject departments being traced back to 1910. The subject departments were formed to enhance the performance of secondary schools because research suggests that they are the pivot around which instructional leadership practice revolves (Munje *et al*., 2020; Sengai, 2021; Smith, Mestry & Bambie, 2013). However, the instructional leadership practices of HoDs related to student outcomes do not match these prospects of research. There is also some critique against the organisation of subject departments that it depends on the assumption that the grouping of individuals who appear to be on the same level of authority guarantees automatic agreements (Visscher & Witziers, 2004). Different views of the members of the same department consequently hinder departmental growth and lead to more questions than answers related to the credibility of the departmental organisation. As such the HoDs for science in a South African study were unable to effectively execute their function as instructional leadership frontrunners (Malinga & Jita, 2020). This

implies that, just like the principals, the HoDs may be inadequate sources of instructional leadership when they work in isolation, hence the need for a collaborative approach to instructional leadership.

The subject departments have been established as platforms for schools to determine a common vision and decide on strategies for achieving it, to improve instruction (Peacock, 2014; Visscher & Witziers, 2004). A subject department in secondary schools can be defined as a variety of entities in which the members function intellectually, meaningfully, and socially because they have been specifically resourced both symbolically and materialistically (Peacock, 2014; Moor *et al*., 2006). Leithwood (2016) adds that subject departments are smaller organisations that are placed closer to the classrooms to increase their impact on instruction. These subject departments have therefore recently become the centre of interest both in research and in practice.

Successful subject departments are acknowledged as a fundamental part of school improvement initiatives. This means that the efficacy of instruction can be realised through the deployment of intermediate school supervisors such as department leaders (Tlali & Matete, 2021). It also means that the participation of more experienced professionals in the learning of other educators requires recognition by the education systems (Malinga *et al*., 2022). The positive effects of subject departments can be associated with their influence on educational success which has proved to be more consistent and more significant than the impact of the school or region as a whole (Leithwood, 2016). This is partly because classroom teachers, including heads of departments, are often members of subject associations and movements responsible for their continuous professional learning related to the subject in question.

The heads of departments (HoDs) are often experienced teachers with an extra accountability aspect of overseeing the activities of other teachers within a particular subject department (Mampane, 2017; Lesotho, Ministry of Education and Training/MoET, 2010). HoDs are more successful in their practice of instructional leadership because they are experts and practitioners of content and pedagogy in the subject matter in their departments (Barton, 2013; Ghavifekr & Ibrahim, 2014; Munna, 2021). As such, they have the potential to provide expert advice and create a positive subject-specific climate for instruction. Consequently, HoDs are seen to be

strategically positioned and hence better equipped for instructional leadership because as intermediate leaders, they occupy formal positions at the third level of the school leadership hierarchy (Du Plessis & Eberlein, 2018; Harris & Spillane, 2008; Mampane, 2017; Smith *et al*., 2013). HoDs are, therefore, vested with the accountability of ensuring the instructional success of their departments.

This means that HoDs are supposed to be the centre around which instructional leadership practice revolves in a school (Islam *et al*., 2019; Smith *et al*., 2013). For instance, the results of a study of HoDs in Kuwait demonstrated a significant relationship between the learning outcomes and the HoDs' instructional leadership practice (Alsaleh, 2019). A Kenyan study also yielded a significant relationship between science HoDs' planning capabilities and student achievements (Cheruiyot, Ngeno & Kibett, 2019). This is particularly true for situations where the education system is undergoing major curriculum change because the schools will require HoDs as important sources of instructional leadership and support to teachers (Peacock, 2014). The HoDs also provide the main connection between the principal and the teachers and as such, they comprise an important element in the school leadership system for the distribution of the leadership power and responsibilities in schools.

In Lesotho schools, the HoDs are mandated by the regulations that guide the country's education system to drive the school towards the attainment of its educational goals (Tlali & Matete, 2021). It is, therefore, a matter of policy for Lesotho HoDs to enhance teaching and learning. These HoDs are responsible for performing instructional supervision, educational planning, teaching, assessment of both teachers and learners and in-service training, among other duties (MoET, 1995). Some African studies also highlight that adequately skilled HoDs have the potential to promote policy and curriculum implementation among teachers when they too are teachers of the same subject (Cheruiyot *et al*., 2019; Mampane, 2017; Sengai, 2021). This is because HoDs are in a better position to understand the implementation process and its challenges. After all, they also experience them. This function of the HoDs is also expressed by Munje *et al*. (2020) who emphasise that curriculum implementation heavily depends on the way the leadership responsibilities are distributed in schools.

The HoDs and other teacher leaders are described as change agents because they have the potential to model good practice. They also encourage and support their

teachers in terms of expertise and resources, thus mobilising them to develop confidence in their participation in the change process (Doherty, 2021). In cases where these HoDs are unable to offer direct support to their teachers, they solicit external assistance by encouraging and organising collaboration among teachers within and beyond their school borders (Sahlin, 2022; Sengai, 2021; Thornell, 2022). Efficient HoDs also achieve their instructional leadership goals by ensuring good relations among department members (Leithwood, 2016; Ogina, 2017; Seobi & Wood, 2016). HoDs also ensure excellence and covering of teaching syllabi by evaluating lesson plans and students' work and record books, among other documents (Urio, 2012). These are some of the strategies that have been found to significantly impact the instructional leadership practices of HoDs in various contexts.

The duties of HoDs as leaders who also teach are met by a variety of challenges that hinder their instructional leadership success both globally and locally. These challenges are aggravated by high demands coming from a variety of angles, including from the politicians, school boards, principals, deputy principals, teachers, students and members of the community, as well as from the HoDs themselves (Islam *et al*., 2019; Tapala, Fuller & Mentz, 2021). For instance, some principals who claimed to practice distributed leadership (mainly in the UK and the USA) used HoDs as tentacles that helped them in their endeavours, rather than allowing HoDs the necessary autonomy to be innovative in their departments (Leithwood, 2016). The responsibility of the HoDs is also complicated by the demands of their job which involves both the supervision and the delivery of curricular activities.

Studies conducted in the Organisation of Economic Cooperation and Development (OECD) countries established that HoDs were not adequately trained and did not possess sufficient expertise and experience in leading other teachers (Schleicher, 2012). Studies of HoDs conducted in the USA and Bangladesh also highlight this point but add that most of the leadership abilities demonstrated by these HoDs emanated from their experiences and intuition rather than teacher education (Islam *et al*., 2019; Zepeda & Kruskamp, 2007). Some South African HoDs experienced low levels of both self-confidence and confidence related to their practice (Ogina, 2017; Smith *et al*., 2013). This is because they have not been adequately trained and do not possess sufficient experience in leading people.

Some HoDs in a South African study were not competent enough regarding the subject matter, including their major subjects (Smith *et al*., 2013). These HoDs reported that such feelings compelled them to construct their duties other than the tasks which are expected of them by school authorities (Zepeda & Kruskamp, 2007). The Lesotho HoDs were also reported to experience a lack of training, lack of instructional leadership skills, large workloads, ambiguous roles, low motivation, and resistance from teachers, among other challenges (Tlali & Matete, 2020). This shows that the HoDs globally face a variety of challenges related to their leadership role.

The challenging experiences of the HoDs are more pronounced in the case of a science department which is a federal type of department. Federal or confederate departments consist of two or more subjects, unlike unitary departments which consist of only one subject (Du Plessis & Eberlein, 2018). Science itself is a multi-discipline subject consisting of biology, chemistry, and physics. Depending on schools and/or countries, other subjects, such as computer education, mathematics, and home economics, among others, are often included, thus widening the spectrum of subjects in the science department (Malinga, Jita & Bada, 2021). The current structure of a science department where all the natural science disciplines (Biology, Chemistry and Physics) are grouped into one department has increased the complexity of the HoDs' responsibility to provide instructional leadership for science (Du Plessis & Eberlein, 2018; Malinga *et al*., 2021). As a result, the science HoDs are likely to have inadequate pedagogical content knowledge in some of the science disciplines.

This means that the HoDs' ability to mentor other teachers then becomes questionable. For instance, the HoDs who partook in a South African study were reportedly focused their guidance on science disciplines that are within their subject majors (Malinga & Jita, 2020). As a result, some teachers ended up not supporting their HoDs' leadership attempts, particularly those related to classroom observation and the employment of new members of the department. Some South African science HoDs seemed to be unable to make a clear distinction between instructional leadership practices and curriculum management functions. They also did not have enough time allocated for instructional leadership. Consequently, these HoDs performed their management tasks more willingly than their instructional leadership responsibilities (Malinga *et al*., 2021). The educational policies that change from time to time with minimal consistency, coupled with a lack of support, also cause HoDs to

function under duress (Du Plessis & Eberlein, 2018). The HoDs thus experience challenges that require to be addressed to enhance their leadership performance.

1.2 Background and Rationale

The Lesotho education system is characterised by an affiliation between the government and churches. According to a UNESCO (2006) report, in Lesotho, churches continue to own and control most schools, while the government guides the schools and offers them financial support. However, the duties and responsibilities of each party between the government and the churches, have not been clarified and, therefore, have remained ambiguous over the years. This ambiguity of roles has a ripple effect in schools whereby accountability issues are not resolved. This point can be demonstrated by the responsibility for appointing school leaders which remains with the churches, thus resulting in leaders who are not necessarily controlled by the government (UNESCO, 2006). The lack of government control over the school leaders makes it difficult for government policies to be effectively enforced at school level. For instance, the implementation of the financial policy by some secondary school principals in Lesotho has been problematic and highly diversified (Motsamai, Jacobs & De Wet, 2011). The lack of effective implementation of various policies has negatively influenced the quality of instruction delivered in schools.

Another factor that influences instructional activity in Lesotho is the curriculum which is always changing. Lesotho as a country has seen several changes in the curriculum since 1966 when British colonial rule ended. One of the most recent and important post-colonial era reforms has been the Curriculum and Assessment Policy/CAP of 2009 (Raselimo & Mahao, 2015). This policy focuses on increasing the accessibility, relevance, efficiency, and quality of basic education (MoET, 2009). The policy advocates for an integrative approach to assessment and classroom instruction with an addition of the values of democracy and continuity. The integration strategy is advantageous in that it addresses the subject content holistically to enhance understanding (MoET, 2021). This means that a concept is dealt with in one place instead of dealing with one concept in different subjects.

As a consequence of the CAP, the National Curriculum Development Centre (NCDC) developed the new Integrated Basic Education Curriculum (IBEC) in 2013. This

curriculum organises the traditional subjects into literacy (Sesotho and English) and numeracy learning windows at the foundation phase (Grades R to 3) as well as varying learning areas for Grades 4 to 8 (NCDC, 2013). For example, natural sciences, agriculture, home economics, technology, geography, life skills, and health and physical education constitute the Science and Technology (ST) learning area (MoET, 2009). This implies that a teacher who is allocated the ST learning area is expected to teach all these subjects in an integrated manner. This organisational factor appears to be problematic because since its introduction, the implementation of CAP and subsequently, the IBEC, has been characterised by a variety of challenges. “The CAP was faced with implementation, contextual and resource-based challenges which translated into misinterpretations and misrepresentations of the policy intentions” (MoET, 2021:iii).

This has recently resulted in the development of the new Lesotho Basic Education Curriculum Policy (LBECP) of 2021 which intends to address the challenging aspects of the previous policy. Unlike the CAP, the new policy advocates for curriculum integration only at the foundation phase whereby the content has been arranged into learning areas, namely literacy, numeracy, life skills, and environment. The new Lesotho Basic Education Curriculum Policy has dismantled the learning areas back into traditional subjects for the intermediate phase of primary schools and the Grade 8 level of secondary schools even though it is yet to be translated into a curriculum.

Low quality and a lack of relevance of educational activities have been identified as some of the most crucial factors that lead to low completion rates of secondary schooling, globally (UNESCO, 2021). A general anxiety among stakeholders has also been reported regarding the value of educational outcomes at the secondary school level in Lesotho which has been gradually deteriorating over the years (UNESCO, 2006). The report from the Lesotho government also shares similar sentiments but emphasises that poor leadership practices form part of the contributing factors towards the major problems encountered at the secondary school level (MoET, 2006). These school leaders are unable to visualise the future and hence they fail to plan for the necessary development strategies for their institutions. A study conducted in South African secondary schools also highlights that the scarcity of good instructional practices in education can be linked to the absence of a focus on instructional leadership (Seobi & Wood, 2016). This discrepancy calls for principals to engage the

HoDs, as immediate leadership at their disposal, in assisting them in carrying out instructional leadership roles.

However, the integration of the HoDs into the distribution structures of the instructional leadership practice does not necessarily guarantee that schools will achieve complete academic success. For instance, Seobi and Wood (2016) discovered that HoDs were not strategically placed to contribute to instructional leadership in some schools in South Africa. Malinga *et al*., (2022) also add that South African science HoDs provided sub-standard instructional leadership to some teachers such as the natural science teachers. This study, therefore, argues that appropriately placed and adequately competent HoDs are capable of assisting Lesotho in its execution of the current curriculum as it progresses to the secondary school level.

The science departments in Lesotho secondary schools have a federal type of organisation whereby most of them consist of an amalgam of mathematics and natural science disciplines. The newly introduced Integrated Basic Education Curriculum/IBEC has added even more subjects to the natural sciences to form the science and technology learning area, particularly in Grade 8. This means that the Grade 8 science programme, which consisted of biology, chemistry and physics, has now incorporated physical geography, agriculture, home economics, technology, life skills as well as health and physical education. This situation has further complicated the work in the science departments in Lesotho secondary schools.

The struggles faced by HoDs for science therefore call for very strong leadership in a quest to overcome the challenges that are normally encountered at the initial phases of implementing any innovation (Hall & Hord, 1986). The standpoint of this study, therefore, is that placing the HoDs at the centre of the distribution and decentralisation of power can be beneficial to school improvement plans. The HoDs have the potential to increase the success of curriculum and assessment policies such as the CAP, which resulted in the establishment of a new program that introduced the integration of subjects in Grade 8. This may only be achieved if the HoDs are afforded sufficient material and professional support, among other strategies, to facilitate effective sharing of their instructional leadership content with other school leaders and the rest of the teachers.

1.3 Context of the Study

Lesotho is undergoing one of its major educational reforms which manifests as a new structure of a schooling system of basic education. This new structure has resulted in the extension of basic education from a total of seven to eleven years of compulsory schooling. The first eight years have been allocated for free primary schooling (Grades R to 7) and three years are for secondary schooling (Grades 8 to 10). Grades 11 and 12 form the senior secondary level of schooling and therefore these grades are not compulsory even though the most recent curriculum policy of 2021, namely the Lesotho Basic Education Curriculum Policy (LBECP), proposes a change that will result in free and compulsory schooling across all the grades (MoET, 2021). The mode of assessment has also changed because continuous assessment (CASS) has been adopted throughout the basic education level to compliment terminal assessment (MoET, 2021). The continuous aspect of the assessment manifests in day-to-day pieces of assessment in the form of tests, including practical tests, projects, and portfolios, among others.

The current Integrated Basic Education Curriculum/IBEC was piloted in Grade 8 for selected secondary schools at the beginning of 2017. The rollout of this curriculum was expected to commence in all secondary schools in 2018 as has been the case in primary schools whereby the pilot stage lasted for one academic year. However, the piloting process continued into 2018 for Grades 8 and 9 for the same set of schools. The actual introduction of the Grade 8 syllabi in all schools became a reality in 2019. This means that the pilot stage of the Grade 8 took a longer time than expected and this posed an advantage of an extended period for the education sector in the country to learn from it. The current research, therefore, investigated the functions and standpoints of the science HoDs related to instructional leadership at Lesotho's secondary level of education where this innovation is undergoing the implementation process.

1.4 Problem Statement

The idea of instructional leadership has inspired researchers to conceptualise the school leaders' practices with the main focus on creating an environment that has the potential to promote factors with direct and significant influence on the success of a

school (Hallinger & Wang, 2015). These conceptualisations demonstrate a positive perception related to instructional leadership, thus further increasing the popularity of instructional leadership inquiry in recent years at a global level (Australia, DoE, 2022; Bin Hassan *et al*., 2019; Hou *et al*., 2019; Shaked, 2022). However, this kind of research requires to be strengthened through the application of a variety of frameworks and methodologies, to facilitate the better generation of knowledge on the subject in varying contexts (Hallinger, 2011; Hallinger *et al*., 2017).

For instance, Hallinger *et al*.'s (2017) Malaysian study reveals that survey methods and simple analyses dominated the instructional leadership research. These writers, therefore, propose the utilisation of high-order data analysis strategies for quantitative research as well as the application of mixed methods for richer data. Another Malaysian study also posits that all the current leadership models were developed and practised in Western countries and as such they may not be applicable in a Malaysian context (James, Talin & Bikar, 2022). The authors, therefore, propose that leadership models must be tailored for various circumstances through the employment of qualitative designs of research (James *et al*., 2022). Consequently, this study wishes to add to the construction of ideas that describe the framework of instructional leadership through mixed-methods research in the context of a developing country.

The assertion that instructional leadership is considered to be among the most significant innovations aimed at improving education in secondary schools renders it a subject of research interest (Gurley *et al*., 2016). Practically, this thinking also means that current school leaders across the social divide should embrace an instructional leadership approach. However, global and local studies have associated secondary schools with poor instructional leadership (Leithwood, 2016; Mokoena & Machaisa, 2018; Schleicher, 2012; Seobi & Wood, 2016). For instance, one USA study and a South Africa study report that secondary school leaders could not efficiently distinguish between managerial activities and instructional leadership practices (Gedik & Bellibaş 2015; Malinga *et al*., 2021). Some studies also show that secondary schools compete against each other instead of encouraging leadership collaborations, thus impeding initiatives for promoting strong instructional leadership during times of change, in particular (Geleta, 2015; Halverson & Clifford, 2013; Kim, Crellin & Glandorf, 2023; Leithwood, 2016; Macann, 2020).

As a result, secondary schools show significant signs of resistance to curricular change (Leithwood, 2016; Mokoena & Machaisa, 2018; Schleicher, 2012; Seobi & Wood, 2016). Some of the challenges surrounding instructional leadership in secondary schools are a lack of leader preparation and continuous professional development, large workloads stretching between leadership and classroom instruction roles, few leadership positions, limited resources, poor stakeholder involvement and a demotivating work environment (Kim *et al*., 2023; Feyisa & Edosa, 2023; Tapala, van Niekerk & Mentz, 2020). The focus of this study lies in the importance of instructional leadership to promote performance in secondary schools, yet these schools are still not taking complete advantage of the concept of instructional leadership.

Lesotho secondary schools are not an exception when it comes to instructional leadership challenges. According to the Lesotho government's report presented during a conference held between the 18th and 26th of June, 2006 in Singapore, some of the significant problems faced by the education system include poor leadership and insufficient competence of the leaders (MoET, 2006). School leadership in Lesotho lacks in terms of monitoring, evaluation, and planning of educational activities (MoET, 2021; Motsamai, Jacobs & De Wet, 2011). The main explanation originates from the lack of distribution of leadership responsibilities in secondary schools (Lethole, 2017). The newly introduced career and salary structure for teachers indicates a minimum of five years teaching experience with a Bachelor’s degree in education as a pre-requisite for promotion into departmental leadership (MoET, 2019). This criterion is also problematic when it is not linked to any form of prior leadership training.

Mokoqo (2013) also posit that the ultimate manifestation of the downfalls of the Lesotho education system has always been poor results in national examinations of secondary schools, in particular. The literature from studies conducted globally confirm that the lack of effective leadership in secondary schools results in low rates of both student performance and successful completion of courses, (Leithwood, 2016; Lesotho, Examinations Council of Lesotho/ECoL, 2020; Tsakeni & Jita, 2017; UNESCO, 2021).

Leithwood (2016:117) also augments that HoDs are "an underutilised if not untapped source of instructional leadership". This means that although the subject departments

are recognised as professionally valuable groups of teachers and supporting personnel, the existing studies do not adequately showcase departmental leadership and the principles of departmental leadership are not clear (Peacock, 2014; Visscher & Witziers, 2004). The significance of HoDs as instructional leaders has also not been fully acknowledged, both in practice and in research, particularly for secondary schools (Leithwood, 2016; Morsidi *et al*., 2015; Urio, 2012). These prospects call for more research to shed light on effective ways of engaging HoDs for distributed instructional leadership as an approach to improving learning outcomes.

The lack of research on HoDs' instructional leadership also seems to prevail in Lesotho, because only a few studies related to the role of HoDs could be found. The current study recognises this gap in scholarship and therefore starts from the premise that research on the role of HoDs in the development of educational sustainability is both necessary and urgent. This kind of research contributes to scholarship in this area and it is particularly important in the context of developing countries where national development stands to benefit greatly from radical educational improvements.

The reason for selecting science as a subject for this study is two-fold: Firstly, in the strict sense of the concept, the science department is regarded as a multi-disciplinary department because it comprises the three natural science disciplines, namely Physics, Biology, and Chemistry. A multi-disciplinary or federal department such as the science department is confronted by a greater challenge than simple departments owing to its conglomerate constitution that complicates the process of appointing its leader (Du Plessis & Eberlein, 2018; Malinga *et al*., 2021). It is consequently more complicated to lead such a multi-faceted department because the HoDs are required to be competent in the content of all the subjects under their supervision (Malinga & Jita, 2020). Nonetheless, the current system of secondary-level teacher education does not accommodate this situation because teachers major in one or two subjects.

Secondly, there is a mismatch between the importance vested in science as a subject and the level of performance in this subject. For instance. A Kenyan study describes that the performance in science was unexpectedly lower than other subjects (Cheruiyot *et al*., 2019). This is also the case in Lesotho where the national science and mathematics examinations results were poorer than the results of other core subjects, namely Sesotho and English (ECoL, 2020). This corroborates Jita's (2010)

opinion that the science department, which houses these subjects urgently requires improvement regarding its academic results and development of skills. This research, consequently, contributes to the body of knowledge that describes the impact of the HoDs' instructional leadership on the teaching and learning of science.

The introduction of the new Integrated Basic Education Curriculum that contains the Grade 8 Science and Technology learning area has resulted in more subjects in the natural sciences department, thus making the situation more complicated for the HoDs for science. Moreover, the innovations in policy, requirements, and training generally had a limited impact on the science department in particular as it were also the case with Jita's (2010) study. This phenomenon has been demonstrated by the rate at which educational policies change. For instance, it has already been articulated in the earlier parts of this section that in Lesotho, the CAP has already been reformed and replaced by the LBECP, even before its roll-out could be completed. This research believes that placing HoDs at the centre of the distribution and decentralisation of power and accountability can be beneficial to school improvement plans and policy implementation strategies. The current study therefore explored the instruction-related activities of the Lesotho HoDs for science during the era of policy reform.

1.5 The Research Aims and Objectives

1.5.1 Main aim

The current study explores the perspectives and practices of heads of science departments in Lesotho secondary schools regarding their instructional leadership roles and responsibilities.

1.5.2 Objectives

The objectives of the study are to:

a) Document and describe the beliefs, views, attitudes, and knowledge of HoDs for science in selected Lesotho secondary schools related to instructional leadership.

b) Describe how HoDs for science in a sample of secondary schools in Lesotho implement their instructional leadership practices.

c) Construct a theoretically sound explanation to make sense of and account for the empirical findings on the perspectives and practices of the HoDs for science on instructional leadership within the context of Lesotho.

1.6 Research Questions

1.6.1 Main question

The main question addressed in this articles-based study is: How can the perspectives and practices of HoDs for science on instructional leadership in Lesotho secondary schools be explained?

1.6.2 Sub-questions

The sub-questions related to the main question are:

a) What are the views, beliefs, attitudes, and knowledge of selected secondary school HoDs for science regarding instructional leadership in Lesotho?

b) How are the instructional leadership practices of HoDs for science implemented in a sample of Lesotho secondary schools?

c) How can we explain and make sense of the instructional leadership perspectives and practices of HoDs for science in the secondary schools of Lesotho?

1.7 Literature Review and Framework

The phenomenon of the distributed form of instructional leadership has recently dominated educational research aiming to demonstrate empirical data related to the efficacy of school leadership (Gunter, Hall & Bragg, 2013). As a result, research indicates that the pathway leading towards the greatest impact of school leadership has both the instructional and the distributed dimensions. This means that on one hand, the leadership efforts have to be focused on enhancing instructional activities instead of administrative aspects of the school (Ahmad, 2018; McBrayer *et al*., 2020; Shaked, 2022). On the other hand, school leadership has to be effectively distributed

rather than individualised (Geleta, 2015; Leithwood *et al*., 2019; Mokoena & Machaisa, 2018). The ability of distributed instructional leadership to assist researchers in making sense of the secondary level school leadership was therefore the point of departure for the current study. Consequently, the current study is framed within the instructional leadership model and the distributed leadership theory.

Instructional leadership is a multi-faceted phenomenon that originated from research focusing on the factors influencing the efficacy of schools including the activities, processes, and functions (Australia, DoE, 2022; Murphy *et al*., 1983). However, Townsend (2019) observes that this research did not consider the school situation and /or the leader's traits until 1982 when Bossert, Dwyer, Rowan, and Lee established the Far West Lab model. This model pioneered research on the effect of prevailing circumstances on the learning process.

1.7.1 Principals' Instructional Management Rating Scale/PIMRS model

The PIMRS model was then developed as an extension of the Far West Lab model (Hallinger & Murphy, 1985). Bossert *et al.'s* (1982) model identified the factors that affect and are affected by the leader's instructional leadership practice, without necessarily highlighting the leadership practices, as was the case with the PIMRS model. This implies that the strength of the PIMRS model lies in its ability to identify the actions of the leaders related to the improvement of classroom practice, hence its application in this study. The PIMRS model was developed to assist the principals in understanding what instructional leadership requires them to do in terms of interconnecting their practice to instructional success (Hallinger, 2011). This principle enabled this study to explore what the Lesotho HoDs do to improve student achievement in the subjects under their jurisdiction.

The following points summarise the three reasons for using PIMRS in the current study. Firstly, the PIMRS model is among the most thoroughly investigated and well-developed frameworks of instructional leadership (Leithwood *et al.,* 2004). As such, the PIMRS model is supported by evidence that illustrates high levels of reliability and validity (Hallinger, 2011). This renders the PIMRS model among the most popular models from the 1980s which is still efficient and appropriate to be used by most quantitative researchers, particularly novice researchers (Hallinger, 2011; Townsend,

2019). This study required a reputable and effective framework that is also easy to use, hence the choice of the PIMRS.

Secondly, the PIMRS model was used because of its potential to enable the investigation of a variety of school situations. This is mainly because the PIMRS model describes how contextual differences can impact instructional leadership (Hallinger & Murphy, 1986a). The PIMRS maintains the original idea of the Far West Lab model that emphasises the complexity of the environments under which instructional leadership is enacted (Townsend, 2019). This allowed the sampling of schools from various backgrounds for the current study's data collection. It also allowed this study to sample HoDs instead of principals to widen the spectrum of diversity and complication.

Thirdly, the model is relevant to the current study because of the critique against it that its expectations of secondary school principals are too ambitious. According to Day and Sammons (2013), the practicality of the assumption that principals are knowledgeable in all subjects is questionable. As a result, the success of a school cannot depend entirely on the principals (Lee, Hallinger, & Walker, 2012). For instance, both a Nigerian study and a Turkish study found that principals placed most of their attention on the dimension of "setting school goals" and paid the least attention to the dimension of "creating a conducive environment" (Bada, Ariffin & Nordin, 2020; Bellibaş *et al*., 2015). An extreme case of this problem was a case of a South African study in which several principals did not acknowledge instructional improvement as their main responsibility (Mestry, 2017). Consequently, the existing research assumes that HoDs are in a better position to be experts in their departments and therefore the model may yield higher scores when used on HoDs.

The PIMRS is a two-fold model consisting of what the leaders do (practices of leading) and how they do it (procedures of leading). According to Koçak (2019), a leader's responsibility entails the following: a) The development of goals, b) The identification of approaches required to achieve those goals and eventually, c) The employment of strategies and instruments to attain the goals. The PIMRS concept is explained through its principles namely, a) goals/undertakings (practices, behaviours and policies), b) approaches/functions and c) strategies and instruments/structural

processes (Murphy *et al*., 1983). These three principles outline the PIMRS road map of a successful school.

The model (see Figure 1) encompasses three major scopes of undertakings, namely describing the school goal, controlling instructional schedules, and creating a conducive atmosphere for teaching and learning (Bada *et al*., 2020; Geleta, 2015; Grissom, Egalite & Lindsay, 2021; Hallinger & Wang, 2015). According to Townsend (2019), the aspect of creating a positive environment covers broader and deeper content than the first two areas. However, this study proposes that the second dimension related to the control of instructional activities should have the most significant and direct impact on instructional improvement. These three major components of the instructional leadership practices are subdivided into eleven functions as demonstrated by the original model represented by Figure 1. These functions include developing and aligning the school vision, promoting professional learning, coordinating the curricular activities, promoting leadership practice in their followers and monitoring the classroom practice (Chikwanda *et al*., 2020; Dermidag, 2021; Kaur & Noman, 2020). Each one of these functions can be achieved through a specific set of strategies and resources that constitute the school's context.

The PIMRS model proposes a series of structural processes through which the functions of instructional leadership can be realised, thus constituting the school regulations. These processes include dissemination of information, decision-making, handling of conflicts, management of team dynamics, implementation of reforms, and interaction with the situation of the school (Chikwanda *et al*., 2020; Kaur & Noman, 2020; Australia, DoE, 2022). However, more recent studies have added the aspect of the distribution of leadership roles as one of the most crucial strategies of successful instructional leadership (Diamond & Spillane, 2016; Jita & Mokhele, 2013; Liu, Bellibaş & Gűműş, 2020; Göker, 2018). Even though the PIMRS is a concept centred on school principals, it was employed in the current study because the principles described herewith also apply to the HoDs' instructional leadership.

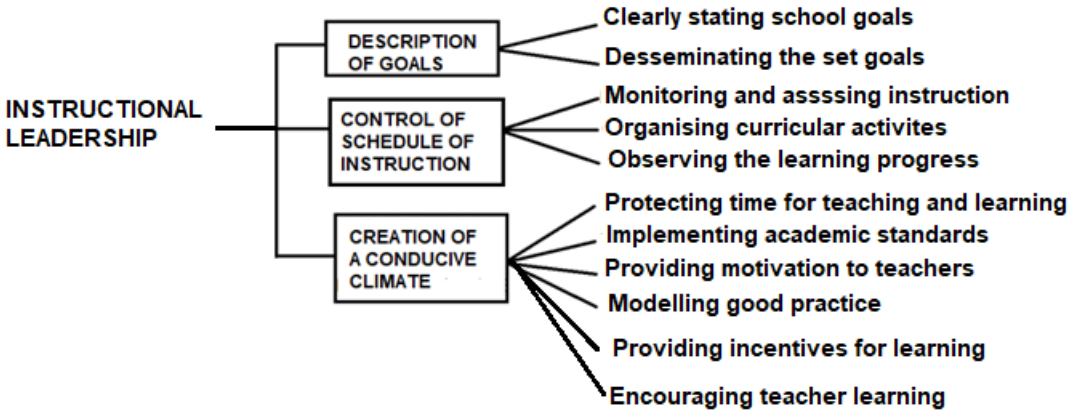

Figure 1: The PIMRS model.
Source: Adapted from Hallinger and Murphy (1985:221).

Akram, Kiran and İlğan (2017) established and validated a new model, namely the instructional leadership questionnaire (ILQ) to describe how the leaders of schools perceived their instructional leadership behaviours. They compared a variety of instructional leadership models and identified seven characteristics of school leaders that appeared most frequently among those models. Akram *et al*. (2017) compared the works of Hallinger and Murphy, Sergiovanni, Weber, and Whitaker, among others, published in 1985, 1984, 1987 and 1997, respectively. The behaviours that the ILQ highlights are 1. Supply of resources, 2. Modelling of good practice, 3. Provision of professional learning, 4. Protection of instructional time, 5. Monitoring of progress, 6. Provision of feedback, and 7. Coordinating the curriculum.

Akram *et al.'s* (2017) model of instructional leadership has been used to modify the PIMRS for this study to enable the exploration of HoDs as middle managers of instructional leadership. The decision to integrate the two models was based on the standpoint that dimensions highlighted in Akram *et al*.'s model are closer to the role of the HoDs than some of the behaviours highlighted in the PIMRS. For instance, the first dimension of practices in the PIMRS, namely, developing the school goals, may be more inclined to the principals' role than the HoD function which is specific to a department. Some studies also highlight that school principals focus more of their devotion on development of goals than the other two dimensions that are more directly linked to classroom practice (Bada *et al*., 2020; Bellibaş *et al*., 2015). This may be why the ILQ also does not include this category. The model employed in this study has fewer (eight instead of eleven) functions than the original PIMRS (see Figure 3) but more practices than the ILQ (eight instead of seven). However, Akram *et al*.'s (2017)

model of instructional leadership could not be used as the main framework in this study, because, even though it is based on empirical evidence and an extensive review of literature, it is a relatively new model which requires more extensive research application and feedback.

1.7.2 Distributed Leadership Theory

The ILQ was not the only model incorporated into the main framework of this study, namely the PIMRS but the extant study also employed the model of distributed leadership proposed by Spillane, Halverson and Diamond (2004). The distributed leadership model was preferred for its emphasis on the interactions and interdependency of the leadership activity itself, rather than on independent leaders and the way they think and behave (Dampson, Havor & Laryea, 2018; Doherty, 2021; Lin, 2022; Safi, Shinwari & Ramatzai, 2022; Sahlin, 2022; Shava & Tlou, 2018; Sol, 2021). Spillane and his counterparts developed a concept that emphasises the 'how' (capabilities/attributes) of the collective social group behaviour, rather than the 'what' (practices) of individuals (Australia, DoE, 2022; Leithwood *et al*., 2019; Spillane *et al*., 2001). Spillane (2005) underscores that what matters more than the distribution of leadership itself, is how effectively the leadership is distributed throughout the organisation. This aspect deals with how the contributions of personnel in different leadership positions are incorporated into leadership practices (de Jong *et al*., 2021; Harris, 2013; Safi *et al*., 2022). This model, therefore, has the advantage of bringing other participating stakeholders into the leadership practice, thus decentralising educational governance (Shava & Tlou, 2018). As a result, the leadership practice is extended across individuals, groups of people, and organisations.

The distributed viewpoint of leadership was also employed for its potential to be a contemporary and vital conceptual frame for the reconfiguration and re-conceptualisation of school leadership (Jumbo & Hongde, 2020). Distributed leadership has been popularly employed as a conceptual lens through which inquiries, generally related to the leading and managing of schools, could be viewed for decades (Diamond & Spillane, 2016; Hickey, Flaherty & Mannix McNamara, 2022; Sol, 2021; Shava & Tlou, 2018). That is, a distributed leadership perspective has the potential to be applied to studies that focus on theory development, empirical evidence, and

institutional advancement (Diamond & Spillane, 2016; Shava & Tlou, 2018). The current study is, therefore, one of the studies that contribute more empirical data that could be beneficial for the enhancement of the theory that relates to the distribution of leadership functions.

The distributed version of the leadership practice was also employed in the current study due to its potential to enable researchers to evaluate leadership transformations and demonstrate other strategies for leadership (Harris & Spillane, 2008). The developments in leadership necessitate research to resonate with the need for leaders to place most of their attention on 21st-century skills and more flexible practices instead of old-fashioned abilities and conformity to formal positions of management (Corrigan & Merry, 2022). These 21st-century skills allow leaders to adapt their practice accordingly by being communicative, innovative, and collaborative, among other skills. One way by which leaders can demonstrate non-compliance to hierarchical authority is by shifting from a top-down form of leadership to a more distributed form of leading (Mosoge & Mataboge, 2021). This principle of distributed leadership allowed the researcher in the present investigation to discover the leadership strategies and understandings of HoDs within the structures of the school outside the principal role.

Despite its strengths, distributed leadership has been critiqued for the inadequacy of empirical data that supports its positive impact on the improvement of instruction (Spillane, 2005). This may be due to the lack of studies that attempt to pronounce it and assign some form of magnitude to it (de Jong *et al*., 2021) However, Spillane (2005) and Gunter *et al*. (2013) had already disputed such critiques when they emphasised that it is crucial to develop the theory of distributed leadership before attempting to determine the connection between a distributive view of leadership and other variables. These researchers also contend that one of the critical features of effective research lies in its descriptive powers related to daily school practice. Shava and Tlou (2018) are also of the positive opinion that attempting to define distributed leadership could potentially misrepresent its complicated nature and exclude the possible additions that would otherwise build it up.

The critiques of distributed leadership believe that its lack of a fixed definition attracts a variety of connotations and associations with other practices (Shava & Tlou, 2018). Nonetheless, distributed leadership may intersect with, but not be equated to other

leadership concepts, including shared leadership, team leadership, collaborative leadership, extended leadership, and democratic leadership, among others (Harris, 2013; Lachlan-Hache, 2017; Shava & Tlou, 2018; Spillane, 2005). Harris and Spillane (2008) state that the expressions used to refer to distributed leadership are actually made possible by the concept of distributed leadership. The researcher in the current inquiry mitigated the confusion related to such terminology by consistently using the phrase "distributed leadership" to explain the practices of HoDs.

The illustration of distributed leadership in Figure 2 portrays the three-way exchanges between leaders/HoDs, their followers, and their school context.

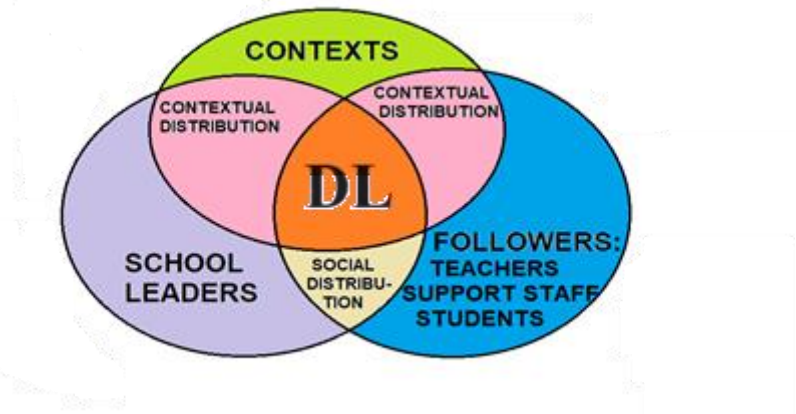

Figure 2: Distributed leadership (DL) model.
Source: Adapted from Spillane *et al*. (2004:11).

According to de Jong *et al*. (2021) as well as Halverson and Clifford (2013), there are two major forms of leadership distribution, namely social distribution and contextual distribution. Social distribution addresses how various people get involved in leadership, while contextual distribution deals with the effects of resources on the efficacy of instructional leadership. This implies that the interaction between the principals and the other employees constitutes the social part of leadership distribution, on one hand. On the other hand, the interactions between the school personnel and the learning environment demonstrate the contextual part of distribution.

Even though distributed leadership acknowledges the interactions of human resources, a study conducted in the UK established that social distribution does not mean delegating other people to do leadership functions (Solly, 2018). Solly's (2018) study instead suggests that social distribution is involved with the development of

leadership capacity through the empowerment of others. The theory of distributed leadership emphasises collaboration between school leaders of different levels of authority: those who occupy official leadership positions and those who are not necessarily recognised as leaders, as well as their subordinates (Doherty, 2021; Sahlin, 2022; Sol, 2021; Spillane, 2004). This implies that leaders have to involve all stakeholders in the making of decisions in their schools instead of making decisions and expecting others to implement them.

The contextual distribution practice of the HoDs as instructional leaders involves their ability to interpret and implement existing contexts rather than being passive recipients of the circumstances (Leithwood *et al*., 2019; Spillane *et al*., 2002). This type of distribution depends on the school's contextual issues meant to promote curriculum consistency within a school. The aspects of the context may be situated, professional, material, external or legal (Braun *et al*., 2011). Examples of such school contexts often include the proprietorship, school size, leadership strategies, resources, and socio-cultural aspects (Diamond & Spillane, 2016; Halverson & Clifford, 2013; Lee *et al*., 2012). Leithwood (2021:1) also considers a leader's ability to make sense of the "cultures, norms, values and expectations of student families" to be among the most crucial aspects of distributed instructional leadership. The contextual factors in the current study are constituted by the circumstances that characterise leadership in the sampled schools.

The school contexts significantly influence the choice of instructional practices as well as how those selected practices can be effectively implemented (Leithwood *et al*., 2019). This principle provides researchers with a cohesive frame to simultaneously investigate the school leaders and their followers, as well as their cognitive standpoints and work situations in respective schools (Diamond & Spillane, 2016). The distributed viewpoint in the current study, therefore, facilitated the exploration of the enactment of leadership as the product of the interactions between the heads of science departments and their teachers under different school contexts in Lesotho.

The social distribution of instructional leadership can be achieved through three key approaches, namely collaborative, collective and coordinated distribution (Spillane & Diamond, 2007). The collaborative strategy is achieved by several individuals involved in an activity at the same time. The collective approach allows several people to

concurrently perform different leadership tasks. The coordinated approach enables the enactment of leadership roles at different times, but in a sequential manner that ensures that the leadership practice is systematically relayed from one leader to the next.

A recent study by de Jong and colleagues (2021) has attempted to describe how distributed leadership could be measured in a social context. Their research has also resulted in the development of three strategies for distributing the leadership practice namely, collective, relational and dynamic approaches. This classification describes the collective approach as the measure of the density of the leadership network whereby the number of individuals who share ideas is the key factor. The relational approach is the degree to which the interactions between individuals are reciprocal or two-way, thus showing little or no compliance to hierarchy. The dynamic approach measures the point of concentration of the interaction; whether it is centred on one source or multiple sources. This classification does not dispute Spillane and colleagues' proposal but rather strengthens it.

One of the strongholds of distributed leadership states that the subject matter is critical to leadership as part of the dimensions of the school context. According to a distributed perspective, instruction is a complicated and multi-dimensional phenomenon, hence the need to establish a link between leadership and classroom practice (Diamond & Spillane, 2016; Spillane *et al*., 2001). Instructional success emanates from collaborations that occur within and across the boundaries of subjects and/or programmes. For instance, Lee *et al*. (2012) encourage teachers and leaders to share their expertise or even switch positions for improved instructional leadership. Teachers of different grades can also achieve better results if they work together in teaching science.

Distributed leadership also manifests within the context of legitimate and authoritative cues from policies and other legal documents (Diamond & Spillane, 2016; Leithwood, 2021). These forms of communication directly impact the kind of directives that will influence and be affected by the teachers in their corresponding classrooms. According to Halverson, Kelly and Shaw (2014), communities expect schools and the education systems to provide opportunities and economic advantages for their members. Consequently, policies that are meant to promote instructional activities are

the vehicles through which these expectations are conveyed. This is particularly important for the secondary schools in Lesotho, which are currently experiencing a major curriculum reform. This study consequently explored the incorporation of the new Integrated Basic Education Curriculum into the instructional leadership practice within the science departments.

1.7.3 Distributed instructional leadership

Distributed instructional leadership (DIL) is deeply rooted in the ability of distributed leadership theory to provide a detailed account of the involvement of various people and all the requirements for attaining and maintaining educational improvements (Halverson & Clifford, 2013; Gedik & Bellibaş, 2015). Collaboration between the leaders and other stakeholders who directly influence learning outcomes increases the number of personnel accountable for instruction thus, enhancing the efficacy of leadership (Printy, 2010). Such leaders share knowledge and materials to improve their leadership practice, thus increasing the institution's potential to be effectively autonomous (Schleicher, 2012). This discussion demonstrates that DIL is of grave importance when it comes to educational development for student learning.

The previous discussions of this section have introduced the two frames on which the current study was based, namely the instructional leadership framework and the distributed leadership theory. Instructional leadership focuses on classroom activities that are meant to support student learning (Ahmad, 2018; Bin Hassan *et al*., 2019; Chikwanda *et al*., 2020; Hou *et al*., 2019; Shaked, 2022). Research has also illustrated that this focus on instruction can only be effective for improving student outcomes when it is distributed, hence the concept of distributed instructional leadership/DIL (Malinga *et al*., 2022; Mosoge & Mataboge, 2021). These two frameworks are therefore preferred when they are used together rather than in isolation because they complement each other.

According to Shava and Tlou (2018:280), "distributed leadership is rather a vague concept" even though it is the most popular among related terms that refer to leadership by many people. These authors cite the numerous sense-makings that are attached to distributed leadership as the root of its ambiguity. Seemingly, none of the forms of leadership is strong enough to be used in isolation. Consequently, Bakkali (2020) opines that it has become necessary and urgent to base both education

research and practice on theoretical lenses that are products of integrating two or more leadership models.

Day and Sammons's (2016) research is one of the studies that attempted to integrate leadership frameworks. These authors organised some of the concepts covered by the instructional leadership model and distributed leadership theory into one model, called the framework of successful school leadership. The importance of their model to this study lies in its potential to converge the two frameworks employed in this study into one model representing distributed instructional leadership. Day and Sammons' (2016) model explains the concept of DIL exhibited in the form of practices effected by a variety of leaders. By the same token, the researcher in the current study organised the principles of distributed leadership and instructional leadership into one model of distributed instructional leadership, as depicted in Figure 3.

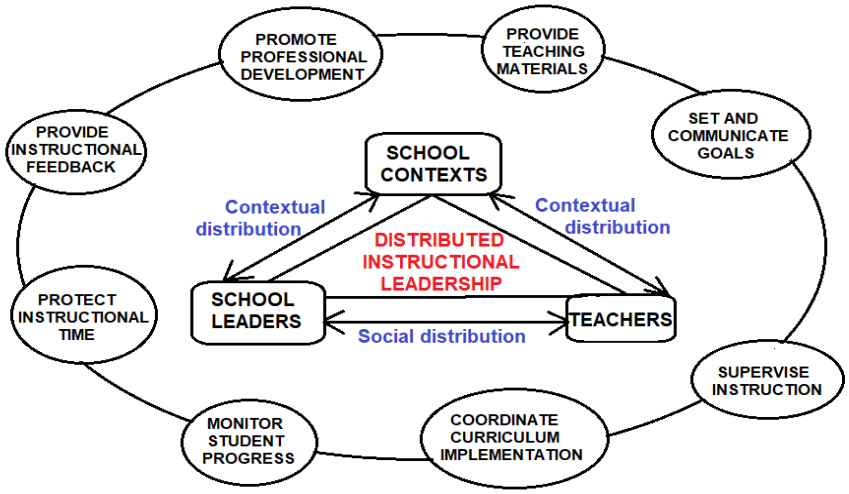

Figure 3: The framework of distributed instructional leadership (personal communication).
Source: Integrated from ideas of Hallinger and Murphy (1985), Spillane *et al*. (2004), Akram *et al*. (2017) and Day and Sammons (2016).

Figure 3 illustrates that the distribution of instructional leadership can be dispersed both socially and contextually (arrow lines) among leaders, teachers and contexts in schools (the vertices of the triangle). The outermost outline of the diagram represents the DIL practices which translated into the eight constructs of the questionnaire items employed in the current study. The eight practices or constructs include procurement of instructional resources, monitoring of learning, and provision of instructional feedback (Chikwanda *et al*., 2020; Dermidag, 2021; Kaur & Noman, 2020). These practices are a result of interactions between different people and materials

constituting the context of schools to create a positive climate for teaching and learning (Halverson & Clifford, 2013). Figure 3 forms the basis of the data analyses for this study.

1.8 Significance of the Study

The main contribution of the present study lies in its addition of knowledge to both research and practice on instructional leadership that targets the enhancement of educational outcomes both locally and globally. The current study contributes to the creation of an understanding that aspires to improve the functions of the stakeholders of the education system such as the government officials, school board members, teacher education institutions, teachers, and the researcher in this study, among others. The policymakers form part of the government officials who stand to benefit from the conclusions of this study by obtaining feedback on the current policies, the ripple effect of which may be the improvement of future policies. The pre- and in-service trainers may also benefit because the study can potentially conscientise them of the emergent training needs of the HoDs in secondary schools. The school management bodies may also gain information on the characteristics that they may pursue when they select HoDs and classroom teachers for their schools. They may also obtain knowledge of the criteria that they need to follow to monitor and evaluate the leadership performance in their schools for purposes of accountability. The experiences gained from this study may build on my perspectives as a former and potential future head of the department for science to promote my development into a better teacher trainer, considering the educational needs of the HoDs, in particular.

The efficacy of instructional leadership is deemed to be among the determinants of the differences encountered by schools in terms of student outcomes (Amakhukwu *et al*., 2015; Day & Sammons, 2013; Geleta, 2015; Manaseh, 2016; Morsidi *et al*., 2015; Setwong & Prasertcharoensuk, 2013). However, the majority of research supporting this view was based not only on leadership by principals but also on evidence from primary schools (Leithwood, 2016). This implies that there is a distinctively low number of research studies on secondary school-level instructional leadership by heads of departments. This is also true for Lesotho where several studies were carried out to investigate the leadership of only the principals mainly in primary schools (e.g.

Mokoqo, 2013; Motsamai *et al*., 2011; Sefeane, 2013). Consequently, the present study intended to examine the instructional leadership of heads of departments at the secondary level of schooling. This helps to supplement available information concerning distributed instructional leadership of HoDs in secondary schools, thus minimising the prevailing gap in the focus of educational leadership research.

Some of the school leaders may not be competent in terms of pedagogy as well as in terms of management of material and human resources, even though they have a teaching qualification (Schleicher, 2012). For instance, in Manaseh's (2016) study on primary school principals in Tanzania, none of the participants understood the concept of instructional leadership. It was, therefore, one of the goals that the participants of this study and the non-participants who may read the research report, would be sensitised about some of the principles of instructional leadership. It is, therefore, the researcher's assumption that they may get some ideas from this study which might even inspire them to engage in further reading and research related to instructional leadership.

Mixed-methods research approach is not very common among school leadership studies based on PIMRS worldwide (Hallinger, *et al*., 2017). For instance, a literature review of 120 PIMRS studies conducted in Malaysia yielded 2.5% of studies that had used mixed-methods research with the rest of the studies having employed quantitative methods (Hallinger *et al*., 2017). Leithwood's (2016) literature review of 42 articles from the UK, USA, Canada, Australia, and New Zealand was dominated by studies that employed qualitative methods (69%) whereby only 14% of the studies used mixed-methods. A significant number of local studies on leadership have also followed a qualitative approach. For instance, Mokoqo's (2013) and Sefeane's (2013) research employed case study designs. According to Harris (2009) focusing on either quantitative or qualitative approaches compromises either the depth or the breadth of the phenomenon under study. The study, therefore, contributes to addressing the methodological gap in instructional leadership research through the employment of a mixed-methods research approach.

Many of the studies carried out in Lesotho tend to focus on specific districts, thus creating a sampling gap. For instance, Motsamai *et al*. (2011) focused on the Mafeteng district, while Letsatsi (2008) and Sefeane (2013) focused on the Leribe and Botha-

Bothe districts, respectively. The present study consequently covered a wider scope and population by selecting the sample from all the districts to facilitate a better representation of the target population and hence a fair generalisation of results.

1.9 Research Methodology

1.9.1 Introduction

The current study explores the instructional leadership perspectives and practices of heads of science departments in Lesotho secondary schools. The basic composition of science departments in Lesotho is constituted by multiple subjects, including the natural science disciplines (biology, chemistry and physics) and mathematics in most schools. Depending on the size of the school, more subjects may be incorporated into the department. For instance, when the school roll is low, the school is allocated fewer heads of departments. Consequently, the smaller schools have fewer but more diverse departments covering many subjects.

This section outlines the research methodology employed to explore how teachers in different contexts within the science department viewed and carried out their instructional leadership practice to improve teaching and learning. Firstly, the research approach, paradigm, design and process are discussed. Secondly, a description of the current study's population and how the study sample was selected is presented. Thirdly, the discussion in this chapter outlines the methods employed for data collection, presentation and analysis for different phases of the inquiry. The fourth stage discusses how the extant study attempted to achieve a more valid and reliable inquiry in terms of its instruments and strategies of data collection, as well as recording and reporting of the findings. This stage also includes a summary of the strategies that were exercised throughout the study to address the issues that were considered to ensure that the study was conducted ethically. Lastly, the limitations of the present study are outlined.

1.9.2 Research approach

This section of the methodological chapter describes the type of research that shapes the current study. First of all, the current study is an applied type rather than a basic type of research. Secondly, the extant study is a mixed-methods inquiry.

The use of applied research as the fundamental way of exploring societal issues has recently risen. This is because applied research purports to provide information towards improving service delivery and policy statements, among other issues, both at micro and macro levels. According to Given (2008), applied research deals with useful knowledge pertaining to everyday life because it concerns the body of knowledge that addresses existing social issues within countries or organisations. This principle is applicable in this study that addresses the daily practice of the science HoDs and their perspectives towards their role in an attempt to draw conclusions that would contribute some insights into the field of instructional leadership. Applied research is also flexible, versatile, and easy to use in different contexts, including in the field of education (Given, 2008). This principle of applied research is useful for this study which focused on a variety of school contexts to accommodate the differences that result from the contextual variations.

The world is constantly changing so much that it has brought us to the realisation that we may not necessarily view phenomena from only one angle. This implies that the use of one research method may be inadequate to evaluate some constructs and this may necessitate a combination of research methods (Olasinde & Ojebuyi, 2017). The last four decades have seen deliberations among scholars regarding research methods and paradigms which produced a third method of study, currently called mixed-methods research (Norman & Lincoln, 2013). Consequently, mixed methods research approaches have recently increased their prominence, particularly in social and behavioural sciences such as education, hence their application for this study.

Mixed methods research can be traced back to the 1950s when it was mentioned in psychology and multiple matrices. The use of mixed methods proceeded into the 1970s when quantitative and qualitative approaches were merged, until the late 1990s when mixed methods became a distinctive research method (Creswell, 2009). During this time, many terms have been used to describe this research method. For instance, integration, synthesising, multi-methods, mixed methodology, as well as quantitative

and qualitative methods, are among the terms that have been used. However, recently researchers resorted to continue use of the term "mixed-methods research" (Norman & Lincoln, 2013; Creswell, 2009; Morgan & Plano Clark, 2008). This means that mixed methods research has the newest history among the research approaches (McKim, 2017). Making sense of mixed methods research requires clarification of its components first, namely quantitative research and qualitative research.

Quantitative research is used to test neutral philosophies through the investigation of how specific variables interrelate (Creswell & Creswell, 2018). This implies that data is collected, analysed, and represented as numbers rather than as narratives, thus focusing on the breadth of the concepts under study (Given, 2008). Qualitative inquiry refers to the method of research whereby the inquirer seeks to explore and understand the sense-making of a social or human issue in depth, either by individuals or entities of people (Creswell & Creswell, 2018). Quantitative and qualitative research methods are not completely dichotomous in that they represent the two extremes of a single continuous spectrum. This means that for any research, the methods can be more quantitatively than qualitatively inclined, or vice versa. Mixed-methods research (MMR) is therefore located somewhere in the middle of this continuing spectrum because it comprises aspects from both quantitative and qualitative methods (Creswell, 2014; Schoonenboom & Johnson, 2017).

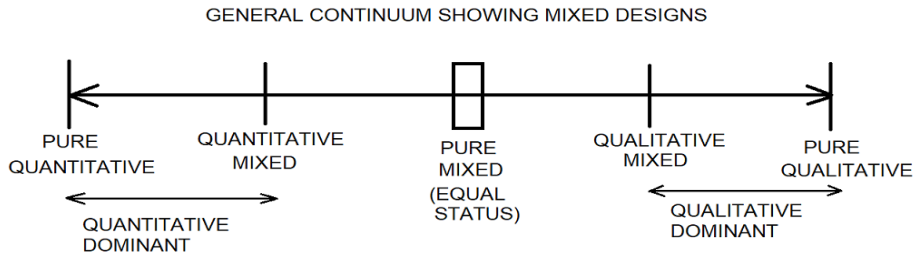

Figure 4: Demonstration of research approaches.
Source: Adapted from Johnson (2014).

Mixed-methods research is the blending of both qualitative and quantitative components of research in one piece of work. This implies that the methodological inclinations can be successfully employed together in one project, being one or a series of inquiries that constitute a specific research project (Cohen, Manion & Morrison, 2018; Creswell & Creswell, 2018; Schoonenboom & Johnson, 2017). The fundamental principle behind mixed methods research is that converging the two

approaches of research affords us with a more far-reaching comprehension than what can be achieved through either a quantitative or qualitative approach in solitude (Almalki 2016; Creswell & Creswell, 2018; Curry & Nunez-Smith, 2015; McKim, 2017; Norman & Lincoln, 2013). Therefore, a mixed-methods approach was essential for effectively responding to the diverse nature of the research questions in the current study requiring not only a broad but also a deep analysis model.

An interactive or equal status approach of MMR was employed in this study. This means that the priority of the inquiry was evenly distributed between the two approaches in that the survey and the interviews were conducted in a complementary rather than a supplementary manner as has been suggested by Cohen *et al*. (2018) and Johnson (2014). An amalgam of quantitative and qualitative methods was mostly conducted during the interpretation and discussion of the results to effect the mixing of the methods.

Triangulation is believed to potentially assist researchers in their attempts to complement, develop further, and expand upon data from one source, thus rendering the research more valid and trustworthy (Cohen *et al*, 2007; Plano Clark & Creswell, 2008). As a result, this investigation employed MMR to achieve triangulation of the research methods, theories, samples and data. However, methodological triangulation is mostly emphasised in this study because it is the most popular among the methods of triangulation, owing to its greater importance in terms of validity and reliability.

Nonetheless, there is critique raised against the triangulation of research methods that it may not essentially result in an increased degree of validity or reduced rate of prejudice or subjectivity (Curry & Nunez-Smith, 2015). This is because different methods of data collection that result in the convergence of findings may have had similar limitations in the first place. That is, if the origins of data from both research methods are already biased in some way, then they may falsely lead to data that is consistent. This study mitigated this critique through the employment of a combination of strategies for increasing validity to compensate for the limitations of triangulation. The mitigation to this limitation was approached through careful sampling for the interview stage, as well as adequate control of confounding variables in the analysis of the questionnaire (see sampling and data collection sections).

Using mixed methods allows researchers to interpret the phenomenon under study in terms of its essence and extent (Curry & Nunez-Smith, 2015). The essence of the phenomenon under study refers to a deep and meticulous account of the behaviours of HoDs for science. The extent of the concept involves the potential of the research conclusions about the sample used in the investigation to be extended to the rest of the population of Lesotho HoDs. The mixed methods approach focuses on the circumstances and the procedures of instructional leadership within the Lesotho science departments at the secondary school level and their impact thereof (Curry & Nunez-Smith, 2015). This would complement the pool of existing knowledge on distributed instructional leadership.

The major weakness of MMR relates to its high demands of time and expertise necessary for the analysis of both statistical and textual data (Almalki, 2016; Hallinger & Wang, 2015; Norman & Lincoln, 2013). The time factor mitigation was addressed by employing a less time-consuming convergent parallel design. Expertise was sourced from other people in terms of reviews and assistance with statistical data analysis. For instance, the University of the Free State's Department of Mathematics and Statistics analysed the quantitative data and some people have reviewed this study over time.

1.9.3 Research paradigm

The current study is based on the pragmatic paradigm of research. Pragmatism assumes that the purpose of research and gaps that exist in a certain field of study are the determinants of the choice of a research method (Olasinde & Ojebuyi, 2017; Schoonenboom & Johnson, 2017). Pragmatism also supports the complementary effect that the quantitative approach and the qualitative designs have on each other's strong points (Curry & Nunez-Smith, 2015; Norman & Lincoln, 2013). A pragmatic view of research, therefore, allows the researcher to simultaneously employ a variety of approaches to data collection and analysis, perspectives, as well as conventions. This is because according to Mertens (2005), pragmatists argue that reality may not be discovered by depending entirely on one approach. This principle of multiple approaches allowed the current study to use several sources of data and varying techniques of data collection to describe the perspectives and practices related to the instructional leadership of HoDs for science.

Abduction is among the most significant principles of a pragmatic viewpoint applicable to the existing study. This is the principle that describes the potential of a pragmatist to interrelate theories to collected data, thus promoting the transferability of knowledge (Morgan & Plano Clack, 2008). This has allowed the results in this report to be explained based on more than one theoretical frame, namely instructional and distributed leadership theories. The abduction principle also allows the research findings of this study to be applied to other local and global contexts not covered in the study, by inferring knowledge reflected in the data.

The philosophy of pragmatism understands knowledge construction as a phenomenon rooted in the reality of our experiences and future possibilities and allows the evaluation of how this knowledge is applied in authentic situations (Cohen *et al*., 2011; Creswell, 2009). Consequently, pragmatists propose a shift from metaphysics that emphasizes the existence of a single version of the truth (Creswell & Creswell, 2018). Cohen *et al*. (2011) emphasise the possibility of one or more realities which may be personal or neutral, as well as science-orientated or not. The truth may be viewed as a result of deeds, circumstances and concerns instead of already existing situations (Creswell & Creswell, 2018; Mertens, 2005). This implies that the actions and views among members of societies are the foundation for the creation of a series of truths, and as such these truths are prone to constant transformation, adaptability and fluidity (Given, 2008). It also means that the truth can be viewed as an ongoing concept that people reveal and experience with time. As such, reality is a fluctuating concept which depends on how it is interpreted and applied for a particular purpose.

The view of multiple truths is important for this study which investigated the interplay of leaders, their followers and their respective situations for successful leadership in a variety of science departments. The principle of pragmatism enabled the present study to report on the issues related to problem-solving strategies and coping mechanisms employed by HoDs for science in their daily practice of instructional leadership. It also allowed this inquiry to focus on how its specific research problems can be addressed rather than focusing on the generics of the conventional research methods.

Nonetheless, the standpoint that reality can be viewed as a changeable and relative concept has exposed pragmatism to critique, particularly from the epistemological and empirical perspectives. Given (2008) posits that the critiques of pragmatism consider

it as a philosophy that does not meet most of the criteria set for epistemologies, owing to its potential to contradict the majority of the characteristics of empiricism. However, Given (2008) also opines that the failure of a pragmatist viewpoint to have one truth that is regarded as a demonstration of reality means that pragmatism is more suitable for classification as an ontology rather than an epistemology. This implies that pragmatism has the potential to be a very solid and extremely educational ontological concept, thus making it difficult to critique from an epistemological point of view. Consequently, the current study has mitigated this critique by employing pragmatism from an ontological standpoint (the reality of human nature) rather than from an epistemological (knowledge and its construction) point of view to enable the examination of the variations in reality of the science departments in Lesotho secondary schools.

1.9.4 Research design and process

The present research employed a convergent parallel design whereby the qualitative data were assembled and analysed independently from that of the quantitative data. Creswell (2009) also refers to this design as concurrent triangulation, owing to its simultaneous data analysis of the two types of data. This design was applied by interviewing the HoDs during the time that the distribution of questionnaires in schools was also performed as Creswell and Creswell (2018) suggest. This means that in some schools, the HoDs were first interviewed and then provided with the questionnaire forms that they could later fill out and send back electronically. However, the discussion and explanation of both sets of data were performed concurrently to enable the research aims to be addressed more comprehensively (Creswell, 2014; Creswell & Creswell, 2018; Schoonenboom & Johnson, 2017). This research design was employed for its potential to be more time-effective than the other two designs of mixed-methods research, which are sequential in nature, as well as for its relative ease of application (Creswell, 2009; Norman & Lincoln, 2013; Schoonenboom & Johnson, 2017). This was done to mitigate the critical concerns raised by doctorate students as reported by Norman and Lincoln (2013) namely, time and monetary restrictions.

Besides being critiqued for its potential to be time-consuming and expensive, mixed-methods research is also disadvantageous in that it may reveal inconsistencies that are difficult to deal with when the researcher compares findings from analyses of two

varied sets of data (Creswell & Plano Clark, 2007). This inquiry, therefore, mitigated this challenge by consulting the raw data for answers, deriving new interpretations from the inconsistencies, as well as suggesting further research to address the inconsistencies, among other strategies, as proposed by Creswell and Plano Clark (2007).

The results of the extant study were presented and described before they could be interpreted and discussed. The questionnaire and interview/document results were independently presented at first, and then these two forms of data were combined under common themes during the interpretation stage in the discussion component of the report as suggested by Creswell (2014). Quantitative data is presented in tables and/or graphs of numerical values supported by a textual description of the results.

1.9.5 Population and sampling

The targeted population in the current study was the cohort of heads of science departments from 243 secondary schools in Lesotho that had registered for the national examinations according to the Examinations Council of Lesotho/ECoL (2017). Schools rather than individual HoDs were chosen as sample units because according to Johnson and Christenson (2014), it is easier to obtain the characteristics of the schools for purposive sampling than to access the properties of individual school employees. Science teachers from the selected schools were also interviewed to enhance triangulation of results as suggested by Plano Clark & Creswell (2008).

Simple random cluster sampling was conducted using Random.org's (2021) random number generator to select a total of 101 schools (with one science HoD per school as the assumption) from the ten districts of Lesotho. Random sampling was preferred for its potential to stimulate the precision, proficiency, validity, and reliability necessary for the generalisability of the conclusions from quantitative data to the whole population (Igwenagu 2016; Mathers, Fox & Hunn 2009). Cluster sampling was employed in this study to select schools rather than their individual teachers because schools exist as natural and easily accessible groups of teachers. This means that individual teachers are difficult to find because their information may be classified. The cluster sampling employed was the one-stage type because once a school was selected its HoD for science was automatically incorporated into the sample if they consented to participation. This is because each secondary school in Lesotho has a

single HoD for science. As a result, the selection of 101 schools produced an equal number of sampled science HoDs for the collection of quantitative data regarding the HoDs' perspectives and practices related to instructional leadership.

Another sample of 12 schools was selected through stratified purposive sampling for collecting qualitative data related to instructional leadership practices and perspectives of science HoDs as proposed by Given (2008) as well as Tashakkori and Teddlie (2010). These 12 schools were chosen as a subset of the 101 schools sampled for quantitative data to allow the two sets of data to be collected independently. This means that the type of MMR sampling used was a concurrent nested sampling method (Johnson, 2014). The nested nature of the mixed sample implies that the schools sampled in the qualitative phase were a sub-sample of the schools selected for the quantitative phase to enable the use of some of the schools for both the qualitative and quantitative phases of the study. The concurrent character of the mixed sample implies that data from both samples were assembled around the same period.

The strata were based on the location and the piloting status of the school. Six of the departments were from schools in urban areas while the other six were from rural areas. Half of the schools were pilot schools for the new Grade 8 Science and Technology syllabus while the other half were non-piloting schools. The sample size of 12 HoDs was large enough to accommodate the respondents who might have wanted to opt out of participating in the study while maintaining an adequate size of the sample that could enhance data saturation. This is because Tashakkori and Teddlie (2010) posit that unsaturated data poses a disadvantage related to theory construction. After all, such data will not provide sufficient evidence to support the new theories.

Purposive sampling was preferred on the basis that it requires neither a specific theoretical foundation nor a certain number of study participants (Etikan, Musa & Akassim, 2016). The utilisation of stratified purposive sampling in this study served to enhance the comparison of closely related cases whilst ensuring variation of contexts. This property of stratified purposive sampling is suitable for capturing all possibilities during qualitative data collection (Seale *et al*., 2007; Tashakkori & Teddlie, 2010; Tolmie, Muijs & McAteer, 2011). This is because stratified purposive sampling is

considered to be judgemental and deliberate in nature (Etikan *et al*., 2016). For instance, urban schools are deemed to be closely related in terms of location and types of students, while they differ in terms of specific situations such as availability of teaching resources. This means that the choice of schools was based on preferred properties that could add valuable information in response to the research questions.

The sample included all the districts of the country to enhance the sample's ability to represent the study population. This is because the schools in one district are believed to share almost similar characteristics. After all, they fall under the same district administration and as such their practices may not differ much (Igwenagu, 2016). All the schools in each district were included in the pool of schools up for selection and none of the schools were included in more than one district.

However, the original sample size described was not reflected well in the final sample: some of the schools (totalling 12) did not have HoDs for science and most of them were government-owned schools and/or junior secondary schools. The absence of HoDs for science in some schools, coupled with reduced questionnaire response rates resulted in the final sample of 67 schools.

The HoDs from four of these 67 sampled schools were invited for the collection of qualitative data and then asked to select one of their teachers who was teaching the Grade 8 Science and Technology syllabus to participate in the interviews. This was done to ensure that the study was reliable through triangulation of the results from different sources of data as suggested by Plano Clark and Creswell (2008). This means that four HoDs and four teachers were interviewed.

The present study employed both types of sample, namely probability sample for quantitative data collection and non-probability sample for qualitative data collection. Unlike non-probability samples, probability samples allow every individual in the population a proportionate and specified possibility of inclusion in the sample. Probability sampling also enables the inference of information about the study population, even though this endeavour may not be free of limitations due to sample error (Igwenagu, 2016; Johnson, 2014; Wright, 2014). However, the sampling error caused by probability sampling can be calculated and thus reported.

Non-probability sampling is subjective and hence presents some challenges (Etikan *et al*., 2016; Wright, 2014). The challenges that may result from the application of non-

probability samples include the inability to generalise the findings generated from them to the rest of the population. However, it is still applicable in cases where the units of the population are not expected to have the same opportunity to be sampled and when the population is too large to apply random sampling. Non-probability sampling was also included in this study because Jackson (2009) highlights its advantages as a simpler and more cost-effective method of sampling.

The final quantitative sample in the current study was dominated by church schools (65.67%) and schools located in the urban areas of the country (74.63%). The rest of the schools were owned by the government (26.87%) or the community (7.46%) and located in the rural areas of the country (25.37%). Most of the science departments from these schools (72.31%) were composed of 10 or fewer teachers while some departments (27.69%) consisted of more than 10 members. Most of the selected departments (59.38%) consisted of three subjects, namely Physical Science, Life Sciences, and Mathematics. Fewer departments (25%, 9.38%, 4.69% and 1.56%) had four, two, five and six subjects in their departments, respectively.

The final sample also consisted of more male (56.72%) than female (43.28%) HoDs. Most of these HoDs (67.69%) were aged 40 and above while some (32.31%) were below 40 years of age. There was not a big difference between the numbers of HoDs with working experience of 10 or more years (52.38%) and HoDs with less than 10 years of experience (47.62%) in the sample. More than two-thirds of selected HoDs (71.63%) held permanent leadership positions in their schools while less than a third of them (28.37%) were employed temporarily. Moreover, 69.7% of the HoDs from participating schools taught two subjects while the rest taught either one or three subjects. Similar proportions (1:1) of HoDs taught 25 or fewer periods per week and more than 25 periods per week.

The qualitative sample of the study consisted of four schools identified through pseudonyms: Pelo High Schools/HS, Monti HS, Mohai HS and Khetho HS. Each school contributed two participants holding the positions of head of the science department and a teacher who taught science and technology learning area at Grade 8 at that time. The HoD’s pseudonyms were Ms Maki, Mr Thabi, Ms Skop and Mr Santos, while their teachers' pseudonyms were Ms Ntha, Ms Lebo, Mr Juvi and Mr Maru, respectively. Half of the schools (Mohai HS and Khetho HS) were from the

highlands while the other half (Pelo HS and Monti HS) were in the lowlands of the country. Half of the schools (Monti HS and Mohai HS) were pilot schools for the new curriculum, while the other two schools were non-pilot schools.

The demographic details of the HoDs who formed the qualitative sample are outlined in the next paragraph to lay a foundation for the explanation of their results at a later stage. However, the characteristics of the Grade 8 teachers are not displayed because this information was collected through the questionnaire which the teachers did not fill out as they were not part of the descriptive analysis model employed in the study.

The interviewed HoDs were two females and two males aged between 30 and 49 years. These HoDs had a teaching workload of 26 to 35 periods per week. Ms Maki and Mr Thabi were more experienced (10-19 years) in terms of leadership than Ms Skop and Mr Santos who had less than 10 years of leadership experience. Ms Maki's department was the largest with the number of teachers in the range of 11-15 while Mr Santos had the fewest teachers (1-5) in his department. Ms Maki was also the most qualified HoD holding a Master of Education degree while Mr Santos and Ms Skop held a Bachelor of Education and Mr Thabi held a Diploma in Science Education. Ms Maki had one teaching subject (Mathematics) while the rest of the HoDs taught two subjects, one of which was a natural science subject. Ms Maki, Ms Skop, Mr Santos and Mr Thabi majored in Mathematics and Geography, Chemistry and Geography, Mathematics and Chemistry as well as Mathematics and Physics, respectively.

1.9.6 Data collection

Three modes of data collection were applied in the current study, namely a questionnaire, an interview protocol, and a document analysis protocol. This was done to ensure dependable and effective data collection through triangulation (Plano Clark & Creswell, 2008). Observations of the departmental meeting were ultimately not conducted even though they were included in the original design of the present study. The decision to remove the observations from the list of research tools in this study was based on the findings of the pilot study and the preliminary results of the main study. The pilot results revealed that the departmental meetings were not convened in schools for unspecified reasons. Nevertheless, the data collection duration of this study coincided with the COVID-19 pandemic era which presented a variety of restrictions that hindered the possibility of physical meetings.

A quantitative questionnaire was used as part of the mixture of methods in this examination to cover a broader population of HoDs in the form of a survey because Cohen *et al*. (2018) assert that this method of data collection enhances the generalisability of the conclusions drawn from the resulting findings. The survey was cross-sectional because it was conducted in only one phase, rather than over a long period, owing to the limitations of time allocated for the completion of the programme of study. A survey design in quantitative studies has the advantage of being time and cost-effective (Creswell, 2014) as well as promoting the correlation of variables in the data analysis stage (Creswell & Creswell, 2018).

The pen-and-paper descriptive type of survey design was employed in the current study to focus only on the elucidation of the targeted variables. The questionnaire items were two-fold: The first section of the survey instrument demanded the demographics of the participants such as age, type of school and workload, among others. This demographic data such as illustrate the profiles of the participants to determine the representativeness of the study sample and also to enable both intra- and inter-study comparisons (Hammer, 2011). The second part was based on the dimensions of the instructional leadership practices illustrated by Hallinger and Murphy's (1985) PIMRS as well as Akram *et al.*'s (2017) ILQ.

The dimensions of instructional leadership practice in the questionnaire were organised into 40 closed-ended items measured through a 5-point Likert scale. This scale ranged from "1" which signifies 'almost never' to "5" which denotes 'almost always' in response to the question addressing the degree of the HoD's agreement or disagreement with the indicated function.

The 40 questionnaire items were organised into eight main constructs and five sub-constructs for each scale. The eight main constructs were a) Provision of resources, b) Development and communication of goals, c) Supervision of classroom practice, d) Coordination of curriculum implementation, e) Observation of student progress, f) Protection of time for teaching and learning, g) Formally reporting on instruction, and h) Promotion of continuous professional teacher learning. For instance, in the construct of provision of resources, they were asked to rate their provision of guidance to their teachers on the use of teaching resources.

All the HoDs from selected schools were requested to fill in the questionnaires to report on their leadership practices and perspectives. This means that the questionnaires were self-completion forms and they were also self-administered by the study researcher. The participants were allowed to choose between either filling the forms immediately while the researcher was still present or afterwards. Immediate completion of the forms could serve the purpose of facilitating the consultations where the participants could ask for help where necessary even though it also presented a potential hazard of answering the questions under pressure. Completing the questionnaire forms at a later stage has the advantage of enabling the HoDs to answer the questions at their own convenient time and pace even though it implies that the researcher has to collect the forms once completed in the case where the participants do not agree to send them electronically.

The questionnaire employed in the present study was a constricted form of the PIMRS because its original instrument consisted of 50 items. The original number of the questionnaire items was reduced to 40 which is the number of items in the ILQ. This strategy was employed to decrease the length and volume of the instrument as proposed by Igwenagu (2016). This was an attempt to encourage the participants to complete the questionnaire forms with more cooperation than they would have if the tool had been long. Igwenagu (2016) argues against Cohen *et al*.'s (2007) warning that a shorter tool may not guarantee a higher response rate by emphasising that the shorter the tool, the more manageable it becomes.

Semi-structured interviews, based on the frameworks of instructional and distributed leadership, were employed to collect qualitative data. The models of instructional leadership and distributed leadership were included in the interview questions because Leithwood *et al*. (2004) assert that they are the original ideas that are founded on extensive research. These two theoretical models were preferred together because they complement each other to cover a larger base of concepts than either of the two individual models on its own. For instance, both the HoDs and the teachers commented on their satisfaction regarding their involvement in the decision-making processes at department and/or school level.

According to Given (2008), the interview method of data collection is arguably the most popular approach in the field of education on which this study is based, hence its

application for this study. Its popularity originates from its potential to be a formidable research instrument that is also versatile in application for the collection of data on how the respondents themselves interpret phenomena (Cohen *et al*., 2018). HoDs from four of the 67 selected schools were interviewed individually during face-to-face interactions to prompt their perspectives regarding instructional leadership practice and to solicit a deeper understanding of how the leadership practice is conducted. The interviews also allow the researcher to follow a framework that addresses major themes from the frameworks of the study instead of particular questions and to be flexible in dealing with emerging issues during the conversation (McDonald & Headlam, 1986). The four science teachers were also individually interviewed to allow triangulation of data from different sources.

The interview protocol employed in the current study comprised semi-structured and open-ended questions. An open-ended interview protocol has the advantage of allowing the respondents to express themselves freely and honestly, hence revealing crucial information that is sometimes unexpected (Cohen *et al*., 2007; Creswell, 2014). The interviews were also advantageous in terms of allowing the interviewer to gather background information from the respondents and regulate the questioning process. The participants were asked to choose the language in which they preferred to be interviewed (Sesotho/home language or English/foreign language).

All the interviews were voice-recorded with the individual teacher's permission and written notes were also made during the interview meetings. Recording the interviews made it possible to concentrate on the task of asking the questions without having to take too many notes, thus improving the validity and credibility of the study. Recorders are used by researchers to represent dialogue and interaction with the necessary accuracy, which is an important aspect of in-depth interviews. Recording equipment also allows the researcher to access the tones of the respondents as well as their points of emphasis during an interview (Given, 2008). Audiotaping is the most popular way of gathering information about both the spoken and unspoken forms of communication expressed by respondents of a qualitative study. Digital audio recorders were preferred for this study because Given (2008) asserts that they have the potential to produce recordings of great value in the frequency that matches the sound generated by people. These audio recordings offer more opportunities for detailed information than the field notes even though they offer fewer opportunities for

details than video recordings. However, voice records were still preferred over video records for this study because voice records are easier to analyse and are less evasive as they create minimum interruption during the process of data collection.

Interviews, although they are a useful method of data collection, are not without challenges. Some of the challenges resulting from interviews include the fact that the respondents may feel intimidated by the researcher (Creswell, 2014). The respondents may feel as if they have to behave and respond to the questions in a certain "expected" way instead of responding in their natural way. However, interviews were still preferred for this study because their strengths outweighed their weaknesses. This bias caused by the investigator's presence was minimised by avoiding leading questions and passing my own opinion as the interviewer during questioning.

Documentary data were also included in the content analysis. The policies that guide the role of HoDs, departmental books containing meeting minutes, and teachers' preparation books were among the documents which were identified to be important sources of content to be analysed after the interviews. The documents were also expected to shed more light on some of the practices that may have not been reflected elsewhere in the other methods of data collection namely, questionnaires and interviews. Another advantage of using documents as sources of data is the fact that they allow the inquirer to gather information in the vocabulary of the respondents. In addition, the documents offered me as the inquirer a more convenient source of data which was easily accessible with minimum interference that could result from the researcher's presence (Creswell, 2014). The documents were also effective in terms of time and costs because they already existed as textual information and as such they did not require to be transcribed, which could have been more time-consuming and expensive.

1.9.7 Data analysis

Computer software programs for quantitative data analysis have been used for a long time. However, these programs have recently gained popularity among qualitative data analysts to assist them in the organisation, categorisation, and location of pieces of text and images within a variety of databases (Given, 2008).

Descriptive analysis formed part of the statistical summary of the data in this study whereby mathematical operations were applied to big loads of raw data to compress them into smaller consumable values. The responses from the HoDs' instructional leadership questionnaires were analysed to get the descriptive results of the participants of the current study. The descriptive analyses were conducted using statistical analysis software/SAS (2013) with the help of the University of the Free State's Department of Mathematics and Statistics. The mean and standard deviation were also computed as measurements of central tendency and variability, respectively.

Descriptive data is advantageous in assisting researchers in obtaining non-parametric statistics to enable them to describe, summarise, and explain the results for effective communication and reporting (Creswell, 2014; Johnson & Christensen, 2014). Descriptive results also enabled the researcher in the present study to portray quantitative data concisely and efficiently. This type of data enhances textual descriptions to deliver a different perspective of evidence which does not overwhelm the research consumers owing (Given, 2008). The researcher in the current study which includes both quantitative and qualitative data, therefore, took advantage of this characteristic nature of descriptive statistics to enhance the presentation of the results. This implies that the numerical and graphical representations of data were used to enhance the text-based data because the numbers can improve understanding of the words, and vice versa.

Pearson's correlation coefficients were determined to identify features which influence the HoDs' leadership practices as proposed by Morsidi *et al*. (2015). According to Given (2008), these values are used to define the direct relationship between two factors. As a result, a correlation coefficient is used to demonstrate the size and orientation of a linear bivariate interrelation. The values of the size of the relationship in this study were read from negative one (-1) to positive one (+1), whereby zero is indicative of an extreme case of the complete absence of a connection. The value of one (1) is the other extreme case which demonstrates a perfect association between a specified pair of variables. The direction of the connection refers to how the values of the variables change about each other. For instance, a positive connection indicates direct proportionality between the variables, which means that when one variable increases the other one also increases or vice versa. A negative correlation

demonstrates an inverse correlation whereby the variables change in opposite directions. This computation of correlations enabled the researcher of the study to establish the type of link that existed between various constructs of instructional leadership as the variables of the analysis model.

The qualitative information was ultimately analysed by the researcher of the present study even though the original plan was to employ NVivo for the transcribing, coding and thematic analysis of this data. The original plan was changed due to the challenges with the software accessibility from the university that resulted from the COVID-19 restrictions. The data analysis began during data collection, rather than after all data had been collected to avoid bulkiness of data. This analysis was administered according to the following general pattern: Firstly, the data were organised and prepared by transcribing the interview audio recordings. According to Du Plessis and Eberlein (2018), data transcription serves to assist researchers in writing down important parts of the text as well as the body language and paralanguage from the voice recordings. The interview responses that were presented in the Sesotho language were also translated to English language by the researcher of the study after they were transcribed.

Secondly, content or thematic analysis was employed on the transcribed data to identify the key topics in which the discussions could be organised. According to Given (2008), content analysis refers to the process of systematically evaluating information with the aim of identifying the underlying trends objectively. This means that themes and trends identified through content analysis can be either explicitly stated in the analysed information or it may also be implied. This form of data analysis was, therefore, employed in this study to detect both spoken and unspoken communications for a more detailed account of the HoDs' instructional leadership of the science department. This stage began with data coding followed by the formulation and labelling of categories of data to translate the answers and respondent demographics to groups of related issues. At this stage of data analysis, bracketing and phenomenological reduction were exercised. This was done to protect the study from the researcher's own opinion to maintain only what the respondents wanted to report, rather than the researcher's sense-making of what they meant. This strategy is peculiar to qualitative researchers because it assists them in avoiding presupposing, assuming, theorising the responses received or being biased towards them. The

researchers bracket or ignore their own experiences during the coding of data to avoid using them to view and explain the importance of the concepts as they are communicated (Given, 2008). Lusting is also a strategy employed in the present study whereby the researcher listened to the recording of data over and over, from beginning to end, whilst reviewing the transcripts. This exercise provided the researcher with a complete picture of the interviews, the ripple effect of which was to promote the discovery of new understanding and differing themes.

Content analysis of the documents was employed to corroborate the information obtained through the other instruments namely, the questionnaire and the interviews. As Given (2008) attests, content analysis does not apply to transcribed data only but can also be applied to official documents including organisational policies. This exercise was conducted to address the research question that dealt with the practices of the HoDs to establish the relationship, if any, between the government policy statements and the records of daily practice at the departmental level, school level, and ultimately national level by way of inference. This is mainly because unlike in quantitative content analysis whereby we can describe what the HoDs do, qualitative content analysis of the documents and transcriptions can enable us to describe how they do what they do.

The last stage of the analysis involved the interpretation of the themes and descriptions in an attempt to make sense of the data to allow new insights to be developed and understood from the study. Thematic interpretation allows researchers to relate their results to the relevant literature and the findings of other studies on a similar concept (Given, 2008). All these stages of data analysis were conducted with the purpose that the data collected in this study could be organised, accounted for, and explained for a better understanding of instructional leadership from the respondent HoDs' viewpoint and their respective school contexts.

1.9.8 Validity and reliability

Ideals of validity and reliability are crucial necessities for both qualitative and quantitative research (Creswell & Creswell, 2018; Cohen *et al*., 2018). Nonetheless, Cohen *et al*. (2007) also confer that the jeopardy to the reliability and validity of an investigation may not be fully eradicated but its impact can be mitigated throughout the research processes. For instance, quantitative research always has an inherent

degree of error originating from its nature. Qualitative research results are also biased to a certain extent due to the subjectivity of the respondents, among other reasons. This implies that this study cannot claim to have been able to attain complete research validity and reliability; rather, some attempts to maximise their probability were made.

According to Cohen *et al*. (2007), validity has been defined as necessarily the illustration that a research tool is serving its purpose of measuring the construct it is meant for, even though the definition has recently taken many forms. However, Given (2008) argues that this definition is more applicable to quantitative studies due to their positivist outlook. Creswell (2014) emphasises that validity bears different meanings for quantitative research and qualitative inquiry. For instance, for the quantitative phase of this study, validity involved the ability of specific research tools to lead to significant and applicable conclusions while in the qualitative part, it provided a variety of means of checking how accurate the findings are through the usage of specific processes.

Given (2008) and Cohen *et al*. (2007) elaborate on this point by indicating that qualitative studies are guided by varying standpoints and research approaches, leading to diversification of how validity is made sense of and understood. The aims and procedures followed in individual qualitative studies are the ones which determine the targeted form of validity. Consequently, the current study focused its attention on construct validity for both its quantitative and qualitative phases because Jackson (2009) asserts that it is regarded as the most important form of validity.

Construct validity is a measure of the ability of the data collection tool to evaluate the concept that it claims to evaluate (Jackson, 2009). This means that this type of validity determines whether the way the inquirer articulates the concept in question is comparable with the way the rest of the researchers in that field understand that concept (Cohen *et al*., 2007). Construct validity also refers to the extent of the researcher's interpretation of the qualitative data matching the interpretation of the respondents. However, this does not mean that the inconsistencies in interpretation have to be ignored. The different interpretations of distributed instructional leadership in this study were acknowledged and thus reported for the development of new knowledge.

Johnson (2014) acknowledges the importance of what is referred to as multiple validities. This is described as the ability of the study to address all relevant forms of validity related to distinct and mixed phases (Creswell, 2014). The principle of multiple validities is important for the current study, in particular, because this is a manifold research which requires addressing issues of validity throughout its phases. Consequently, the validity of quantitative data was enhanced by strategically selecting the suitable sample, research instruments and data analysis methods. This means that the current study ensured validity in its survey by employing well-researched instruments and methods for data collection as suggested by Given (2008). Then the results obtained from these instruments were compared with the results from previous studies which used the same instrument and for which the construct validity has been documented as proposed by Jackson (2009).

In the qualitative stage, validity was maximised by being honest as well as by ensuring the collection of rich and deep data, among other strategies supported by Creswell (2014). For instance, the researcher in the present study was honest in the reporting of the findings by demonstrating an array of interpretations and contradictory results. The researcher also collected rich and deep data through interviews and content analysis of work documents and relevant policies.

The genres of validity which were addressed in the mixed phase of this study included validity of conversion and validity of integration (Johnson, 2014). Conversion validity involved legitimising the mixed methods by ensuring that the data were transformed from quantitative form to qualitative form or vice versa and then interpreted accurately. The integration validity was improved by increasing the quality of the process of integrating and analysing the data as well as merging the conclusions drawn from the data.

Reliability is a term that generally applies to how consistent, dependable and repeatable a research study is in terms of its procedures for collecting, interpreting and analysing data (Creswell, 2014; Given, 2008; Cohen *et al*., 2007). However, this definition mostly applies to quantitative research because reliability is expressed in a different way for qualitative projects. This is because quantitative researchers have a specific way of defining and determining reliability which is linked to their concern for how precise and accurate research results are (Cohen *et al*., 2007). In this research,

reliability lies in the possibility of controlling and replicating the research tools and results, striving to make them predictable and consistent. This means that quantitative research renders a study reliable if it yields similar results among investigators who perform it through similar strategies of research, even under differing circumstances of time, data collection tools and sample.

According to Cohen *et al*. (2007), some authors go as far as challenging the appropriateness of the term "reliable" for describing qualitative inquiries. This is because, for qualitative inquiry, reliability refers to the extent of the findings reflecting the actual truth about what happens in the natural research site. Consequently, the term "dependable" is mostly preferred among qualitative researchers even though other terms such as credible, neutral, confirmable, applicable, consistent, and trustworthy, among others, are also widely used. This study ensured that the process of recording data and reporting the results was accurate and comprehensive to enhance reliability in the qualitative phase.

The focus of the qualitative phase of this investigation was on the thoroughness of the processes and the ability to carry out the study in a reasonably subjective way rather than being haphazardly subjective as highlighted by Given (2008). Some of the characteristics of a credible and dependable qualitative study exercised in the current study include the use of coherent methods, being responsive, and ensuring transparency. The dependability was emphasised through the application of wide-ranging ways of collecting data and having a variety of standpoints and sense-making views because Cohen *et al*. (2007) warn researchers against the practice of homogeneity.

Another strategy employed to promote the study's credibility was triangulation. For instance, the frameworks that guided the study, the methods of data collection used, the sources of data engaged, and the forms of data were triangulated. The theories which were triangulated are the instructional leadership frameworks namely, the PIMRS and the ILQ, as well as the distributed leadership theory. The methods of data collection included for triangulation in this study are a quantitative questionnaire, as well as interviews, and document analysis. The sources of data which were triangulated include the HoDs, science teachers, and both personal (teachers' work books) and public documents (policy and syllabus documents).

The qualitative part of this inquiry was also made to be more dependable through the use of an array of other strategies. One of the strategies employed was validation done by colleagues who regularly interrogated my work to provide feedback necessary for improving it. The current study was also conducted with some reflexivity to protect the research data from the researcher's own opinion by recording only what transpired in the research site instead of her own experiences as a former HoD for science. An audit trail was also kept by clearly demonstrating all the procedures employed to conduct this enquiry to improve its confirmability. Inconsistent cases and discrepancies were analysed and reported to enhance the study's credibility as Cohen *et al*. (2007) insist.

Even though the questionnaire was adopted from well-established scholars' work the validity, reliability, and general trustworthiness of which have already been established, Cronbach Alpha coefficients and Pearson's correlation alpha coefficients were computed as measures of reliability and validity of the questionnaire items, respectively. This was done because Ling *et al*. (2015) emphasise that it is a necessary step, particularly if the instruments have been adapted as it were the case in this study whereby the questionnaires had been adjusted for the specific context of Lesotho schools. According to Cohen *et al*. (2007), these alpha and correlation coefficients afford researchers an alternative way of measuring reliability related to the extent to which the questionnaire is internally consistent. This means that the alpha coefficients provide the inter-item correlations that demonstrate the relationship of each item with the total of all the other items related to it.

The Cronbach Alpha coefficients of the current study's tool fluctuated between 0.63 and 0.80 and these values were lower than the scores of each one of the instruments separately. This was not surprising because the two instruments were not used in their original status. The sample size was also smaller in this study than in the studies in which the two original questionnaires were used. However, the coefficients in this study were still comparable with the values of the original instruments. For instance, Hallinger's (1983) Alpha coefficients ranged between 0.78 and 0.9 for the nine categories (2 to 10) adopted for this questionnaire. The coefficients for the seven categories of Akram *et al*.'s (2017) instructional leadership questionnaire ranged between 0.78 and 0.86. This means that the questionnaire employed for the current study was also consistent and reliable even though it could also be improved through

subsequent research to enhance the reliability of a possible new instrument that caters for other instructional leaders including HoDs.

The Pearson correlation coefficients for the eight constructs of instructional leadership practices of selected HoDs ranged between r=0.35 and r=0.77 and all their p-values were below 0.05. These results are consistent with Akram *et al*.'s (2017) coefficients ranging between 0.33 and 0.71. The correlations and the p-values suggest a statistically significant linear relationship between the instructional leadership practice categories. This kind of relationship indicates that the eight constructs of the instrument represented different concepts without repeating any of the practices, thus implying higher validity of the questionnaire (Ahrens, Lirani & De Fransisco, 2020). The study was also rendered valid because its correlations fall within ±0.07 and ±1.00 which Jackson (2009) considers acceptable.

According to Given (2008), pilot studies have been historically linked with quantitative studies, particularly those that employ experiments in their design. However, this has changed because pilot studies have increasingly been used in all research approaches. Pilot studies are commonly used to gather data in a different arrangement or context or to assess possible challenges before the research roll-out. Pilot studies may also be used to assess the feasibility of a bigger study where there are monetary concerns, among others.

Consequently, the questionnaire and the interview guide were piloted at two neighbouring secondary schools after they had been reviewed by the study's promoter. A pilot study was conducted so that the required modifications could be made to the research process and the items in the research tools. For instance, the questionnaire items were rearranged to mix up the practices from different categories and the category headings were omitted as a result of the feedback from the pilot. A pilot study was also used as a strategy for determining the practicality of the study by establishing if the study would be possible to carry out to its completion in terms of duration, funding and labour, among other factors Igwenagu (2016) suggests. The pilot interviews also helped to improve the researcher's interviewing skills in terms of prompting and probing the respondents to give clearer answers as well as how to rearrange the questions in a way that made sense to the respondents during the

interviews. The pilot study also helped the researcher to become more acquainted with the recording equipment and to test its functionality before the study roll-out.

The questionnaires, interviews, and document analyses were also self-administered to enhance the reliability of the methods employed (Mulwa *et al*., 2012).

1.9.9 Ethical considerations

According to Jackson (2009), the concept of research ethics owes its origins to the medical field whereby the so-called Nuremberg Code was launched in 1948. This code listed the ten rules that were meant to regulate research conducted by the Nazis following World War II in 1945. This code was developed as a way of mitigation against the Nazi doctors and the doctors involved in the Tuskegee study on syphilis, among others. In these studies, black people and Jews were used as guinea pigs for testing dangerous substances such as viruses and poisonous drugs, among others. The participants of research in these cases were deceived, coerced to participate and exposed to fatal harm, among other issues of ethical importance. The Nuremberg Code had a minimalistic effect on the researchers but the American Psychological Association (APA) used it in 1953 as a basis to develop their guidelines to control research involving human participants. Researchers have since acknowledged that it is important to consider ethics for any form of research, involving human subjects or otherwise.

Qualitative data poses a higher ethical challenge owing to its potential to provide detailed information that may seem more revealing in the opinion of the reader even in cases where the data is regarded with utmost privacy and confidentiality (Given, 2008). This study therefore sought to address the ethical considerations throughout the research duration and afterwards, particularly because it consisted of the qualitative phase as part of the mixed methods that the study employed.

The University of the Free State's Ethics Committee granted written permission for this inquiry as it sets out the code of ethics that guides research at the institution, the ethical clearance number of which is UFS-HSD2019/0458/3011. Permission to use the adapted format of the research instruments was also requested in writing from the corresponding publisher of the PIMRS as prompted by Creswell (2014). The necessary permission to include the schools in the study sample was sought in writing

from the Lesotho Ministry of Education and Training, school principals and the participants themselves. Participation was strictly voluntary in all cases and at all times during the study. All written correspondences discussed herein have been attached to this report as appendices.

Information regarding this research, which included the purpose, procedures, intended uses, participants' roles, and possible risks was communicated both orally and in writing to all participants beforehand. This information was followed up with a consent form which the participants were asked to fill out. It was also made clear to the participants and relevant authorities that this research was independent and as such, it did not pose any conflicts of interest. It was also emphasised that the researcher of the current study would avoid causing possible harm to the participants during the course of their participation in this research. Furthermore, the researcher strove to be honest, frank and responsible in conducting this research and reporting its findings. The sampled schools were also approached with respect and the teaching time was not disrupted.

It is important during any study to ensure that the respondents' identities and information are kept private and confidential (Given, 2008). This principle of anonymity was practised to facilitate the provision of the necessary protection to the participants so that they may not be harmed by issues that may arise if their identities were to be disclosed. The participants were kept anonymous by asking them to omit their personal information on the questionnaire forms. This means that the quantitative research participants were granted full anonymity because even the researcher of this study was not able to identify them from their questionnaire forms. In the qualitative stage, the respondents were kept anonymous by assigning pseudonyms to them for purposes of differentiating them during reporting and their actual names were not mentioned during the audio-recording sessions.

The information regarding the participants was handled with strict confidentiality by keeping the hard copies of the filled questionnaire forms in locked cabinets and the soft copies of transcripts in password-protected computer files. This information will be kept for a maximum of five years, after which the soft copies will be eradicated through suitable file-destruction software. The hard copies together with the audio recordings will be destroyed through shredding. Once the research had been

completed, all the people who contributed were acknowledged accordingly. The participants and other stakeholders will also be provided with access to the research report to facilitate effective sharing of the research findings once it is available.

1.9.10 Research delimitations and limitations

This study focused on the description of the distributed instructional leadership practices and perspectives of the heads of science departments in secondary schools. This means that the study did not address other factors outside the leadership practice, other department heads, and other education levels. The key limitation of the present investigation originated from the size of the sample and the duration of the study. Even though the study intended to gather rich information from various origins, it faced a restricted capacity to generalise the findings to the entire population owing to the small sample size of the qualitative phase which minimised the potential of data saturation and limited time which inhibited the possibility of follow-up interviews. Furthermore, the study does not claim to have asked all of the questions that are relevant to problems encountered in education regarding instructional leadership. This, therefore, implies that there is a need for further research to get an in-depth assessment of the challenges embedded in the daily routine of instructional leaders. However, the outcomes of this investigation should be rendered useful, because the quantitative sample was large enough and adequately spread across all the districts of Lesotho to accommodate a variety of contexts, thus providing a fair representation of the population.

1.10 Clarification of Key Terms

Leadership: The influence of a leader on followers to achieve a goal by cohesively and coherently directing a team (Sharma & Jain, 2013). For purposes of the current study, leadership refers to the process by which the HoDs as educational leaders interact with their teachers and other leaders to achieve the science department's mission, namely delivering scientific content to the students.

Instructional leadership: The type of leadership that emphasises the fundamental school goal as the improvement of classroom activities (Leithwood *et al*., 2004). This means that this study focused only on the HoDs' functions that impact instruction. The

instructional leadership of the HoDs relates to their practices and perspectives which are intended to enhance instructional activities.

Distributed leadership: A perspective of leadership which results from collaborations by school leaders, their subordinates as well as their respective school contexts (Spillane, 2005). This study explored distributed leadership that manifests as the interactions between the HoDs for science and their teachers as a product of how they interpret and adapt to the conditions prevailing in their schools.

Distributed instructional leadership/DIL: This concept draws on the strengths of both distributed and instructional frames. DIL allows researchers to explore the achievement of instructional improvement by more than one individual striving to adapt both the contexts of leadership and instruction (Halverson & Clifford, 2013). Consequently, the current study employed DIL to define the collaborations between the HoDs and the teachers related to the improvement of student outcomes.

Science: This refers to all the natural science subjects, namely Physical Sciences (Physics and Chemistry), Biological/Life Sciences, and Junior Level Science (a combination of Chemistry, Biology, and Physics). These subjects form the basic structure of the science departments in all schools. However, in some schools, subjects such as Mathematics, Agriculture, Physical Geography, and Computer Education, among others, may be incorporated into the department.

1.11 Outline of the Sections

The research report is an articles-based thesis consisting of three sections. Section 1 presents the introduction and orientation of the study, outlining the following features: a) an introduction and orientation of the concept of instructional leadership, b) background and rationale of the study, c) study context, d) problem statement, e) research aims and objectives, f) research questions, g) framework on which the study is based, h) significance of the study, i) research methodology, j) ethical considerations of the study, k) delimitations and limitations of the study, l) definition of operational words, and, m) an outline of the sections.

Section 2 is a presentation of the three articles, with the following titles:

Article 1: The dynamics of distributed instructional leadership in a conglomerate Science department in Lesotho secondary schools. This article is a quantitative description of the general composition and properties of the science department as well as the practices of the heads of departments related to instructional leadership. The referencing format of this article matches the demands of the 2nd Knowledge and Innovation Exchange symposium (KIX) organised by the UNESCO International Institute for Capacity Building in Africa (IICBA) 19 Hub held in Abidjan, Ivory Coast between the 3rd and 5th of October 2023.

Article 2: Departmental Leadership: Last level in the Hierarchy of Formal Distributed Instructional Leadership Structures in Schools? This article is based on mixed-methods research aimed at exploring the perspectives of the HoDs for science and describing their practices related to different subjects in their departments from a distributed viewpoint. The article was developed based on the guidelines of the Journal of Education (University of Kwazulu-Natal), to which it was submitted.

Article 3: Implementing Science and Technology Curriculum in Lesotho: Insights from a Distributed Instructional Leadership perspective. This article is a mixed-methods research-based study that explored the distribution of leadership power in the implementation of the integrated curriculum in secondary schools. This article was submitted to the South African Journal of Education.

Section 3 comprises the epilogue of the study. This means that this part of the study is a discussion of the findings presented in the articles about the three research questions. It also presents the recommendations and the conclusions made based on the findings. The section also highlights the limitations and delimitations of the current study.

Section 2: Articles

This section presents the three articles comprising this articles-based study. The articles address the aim of the study namely, the exploration of the instructional leadership perspectives and the practices of the HoDs for science within the context of a conglomerate subject department. However, the first article which is a quantitative study, is more focused on the description and explanation of instructional leadership practices while the second and third articles highlight the description and explanation of the practices from the perspectives of the HoDs. The difference between the last two articles is that the second one addresses the irregularities within various subjects while the third article focuses on instructional leadership linked to the implementation of the integrated curriculum.

2.1 Article 1: 2nd Knowledge and Innovation Exchange (KIX) symposium organised by the UNESCO International Institute for Capacity Building in Africa (IICBA) 19 Hub held in Abidjan, Ivory Coast between the 3rd and 5th of October 2023.

Exploring the Distributed Instructional Leadership Dynamics within a Science Department in Lesotho Secondary Schools

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Abstract: Positions in literature over the years have attributed students' performance to instructional leadership in schools. A sufficient probe into distributed instructional leadership within the subject departments in developing countries is yet to gain momentum, hence the investigation of the leadership practices of heads of departments (HoDs) in this study. Descriptive survey-type research was employed to elicit data from 67 HoDs for science instructional leadership through the Principal Instructional Management Rating Scale with 5 Likert indicators. Statistics Analysis Software was employed to get the descriptive and inferential statistics of the sample. The results demonstrate that the HoDs were actively engaged with instructional leadership, even though the acting HoDs displayed lower instructional leadership activity than their counterparts who were employed under permanent conditions. Significant employment-status differences existed between these groups of HoDs for providing resources and supervising instruction. The findings also reveal that a large workload and low competence had a negative impact on HoDs' instructional leadership. We recommend further research to explain the differences in the instructional leadership practice of the HoDs. Single-subject departments are also recommended over multidisciplinary departments in schools.

Keywords: science department, heads of departments, instructional leadership, PIMRS, secondary schools.

Introduction

Instructional leadership is among the elements that significantly influence school performance because it can allow school leaders to respond to increasing accountability and sustainability demands (Demirdag, 2021; Li, Chan & Hu, 2023). Through its focus on teaching and learning, instructional leadership seems to be the foundation of success in schools. Schools, therefore, require a shift from random managerial actions to focusing on building sustainable instructional activities as their core business (Munje, Tsakeni & Jita, 2020; Shelton, 2022). This paradigm shift necessitates instructional leadership to be more collaborative and distributive rather than hierarchical (Malinga, Jita & Bada, 2022; Thornell, 2022). Successful distribution of leadership in different situations can be realised through interactions among leaders, teachers, students, parents, and the community at large (Islam, Karmaker & Paul, 2019; Matsepe, 2014). The efficiency of instructional leadership depends on the distribution of power to a variety of individuals.

The success of the distribution of leadership depends on the context of the institutions; therefore, the main responsibility of an instructional leader is to develop a positive learning environment (Abdulaziz *et al*., 2021). The learning environments have become more complex thus complicating the leadership responsibilities (Zahed-Babelan *et al*., 2019). These complications have implications for time allocation thus hindering the school leaders' aptitude to uphold a balance between administrative and instructional tasks (Dania & Adriani, 2021; Mokoena & Machaisa, 2018). This means that principals are a necessary but inadequate source of instructional leadership in schools.

The heads of departments (HoDs) are given the responsibility of instructional leadership as part of the distribution of leadership in schools (Munje *et al*., 2020). Instructional leadership places the HoDs at the focal point of school leadership because it advocates for improving instruction, which requires subject expertise (Chikwanda, Masaiti & Banda, 2020). Effective HoDs are better equipped for instructional leadership because they are competent with the subjects under their jurisdiction (Doherty, 2021; Munna, 2021). The HoDs' subject expertise coupled with years of experience makes them suitable for supervising other teachers within departments (Mampane, 2017). The HoDs also have the potential to promote curriculum implementation and are therefore rendered to be agents of change

(Cheruiyot, Ngeno & Kibett, 2019; Sengai, 2021). Consequently, this paper proposes that placing HoDs at the centre of the distribution and decentralization of instructional leadership can be beneficial to school improvement plans.

Problem Statement

Secondary schools have been chosen for this paper because they experience low rates of both student performance and completion of courses due to a lack of effective leadership, on the one hand (Examinations Council of Lesotho, 2020; UNESCO, 2021). On the other hand, secondary schools experience challenges related to large numbers of students and complex curricula, among other factors (Halverson & Clifford, 2013; Leithwood, 2016). Some of the challenges of the HoDs discovered at the tertiary level in Bangladesh, which may also apply in secondary schools, are lack of material and human resources as well as unhealthy political influences (Islam *et al*., 2019). Even though some of these challenges have been linked to a lack of efficacy in leadership, the current study investigated the contextual factors within which instructional leadership is enacted in secondary schools.

Geleta (2015) noted that some of the school leadership problems may be associated with the inability of existing research to provide a clear and consistent description of instructional leadership. This means that it is necessary to construct relevant knowledge of instructional leadership in secondary schools, in particular, through rigorous research (Gurley *et al*., 2016).

The subject department phenomenon has since evolved as one of the strategies for distributing instructional leadership in secondary schools. However, there are some challenges related to the involvement of HoDs in distributed instructional leadership in secondary schools in African contexts (Seobi & Wood, 2016). For instance, a UK study reported a lack of leadership positions to promote teachers to, particularly in small schools (Kim, Crellin & Glandorf, 2023). As a result, there is limited opportunity for the distribution of instructional leadership in such schools. In some countries such as Lesotho, educational activities' planning, monitoring, and evaluation are centralized regardless of the presence of HoDs and other leaders (Government of Lesotho, 2016). Other challenges that define the context within which instructional leadership is practiced in schools include a lack of continuous professional development, large

workload, negative school climate, a lack of instructional resources and a lack of collaboration with the stakeholders (Feyisa & Edosa, 2023; Tapala, van Niekerk & Mentz, 2020)

The Science department was chosen for this study to explore the dynamics that characterise instructional leadership in its context as an example of a conglomerate department. This is because the federal or confederate nature of some subject departments that consist of two or more subjects contribute towards complicating the HoDs' instructional leadership practice (Malinga, Jita & Bada, 2021). Instructional leadership of a conglomerate or multi-discipline department is a complicated task partly because HoDs are responsible for many subjects, some of which they are not competent in (Du Plessis & Eberlein, 2018; Malinga *et al*., 2021). A large number of subjects in a department necessitates the HoDs to employ a distributed approach in their leadership to accommodate all the subject disciplines in their departments (Malinga *et al*., 2022; Munje *et al*., 2020). By default or design, the current school structures, therefore, need to include more people than there currently are in the formal hierarchy of leadership.

The extent to which a distributed approach has been embraced by secondary schools in Africa is not clear because the concept of subject department leadership has not been fully explored (Tlali & Matete, 2021). Leithwood (2016:117) observes that HoDs are generally "an underutilised, if the not untapped source of instructional leadership". This means that the HoDs perform their instructional leadership in the context where their significance as instructional leaders has not been fully acknowledged, both in practice and in research, particularly for secondary schools (Leithwood, 2016; Morsidi *et al*., 2015).

Acknowledging this gap in scholarship this study, therefore, begins from the proposition that research on department leadership is both urgent and worthy of attention. This proposition is crucial for developing countries such as Lesotho, where major educational improvements have the potential to positively influence socio-economic development. Our study consequently aims to address the following question: What are various contextual factors in secondary schools of Lesotho that can influence instructional leadership practice by HoDs for science?

Conceptual Framework

The majority of effective school leaders demonstrate more or less the same set of activities that constitute the fundamentals of leadership (Leithwood, Harris & Hopkins, 2019). Identifying these practices through research helps to promote the leaders' understanding of what instructional leadership requires to translate their leadership into instructional success (Hallinger, 2011). Consequently, the instructional leadership practices of the HoDs in this study were viewed through Hallinger and Murphy's (1985) Principals' Instructional Management Rating Scale (PIMRS) due to the following reasons: Firstly, the PIMRS clearly outlines the leaders' engagements that can be employed by HoDs to improve classroom practice in their departments. Secondly, the PIMRS is among the most thoroughly investigated and well-developed frameworks that allow instructional leadership to be explored in a variety of contexts (Hallinger, 2011). This principle was applied to explore the functions of HoDs in the context of a Science department of a school in a developing country. Lastly, the models of instructional leadership such as the PIMRS are considered to have a more positive impact on leadership research and practice than other leadership frameworks (Townsend, 2019). The application of this model in the context of this paper adds insight that may validate the impact of instructional leadership from a wider perspective that goes beyond the principals' instructional leadership.

The PIMRS model classifies leadership functions into three main dimensions; describing the goals, controlling instruction, and creating a positive environment (Koçak, 2019). Describing the goals requires leaders to involve other individuals in decision-making processes and ensure that the set of goals is effectively disseminated. The control of the instructional activities involves the identification of the methods of achieving the set goals while the creation of a conducive learning climate requires the implementation of a particular set of processes to accomplish those goals. The enactment of these leadership functions is guided by the policies, practices, and procedures that govern their schools, as well as by the social characteristics and expectations of their communities (Leithwood, 2021). Figure 1 outlines the two levels of instructional leadership functions.

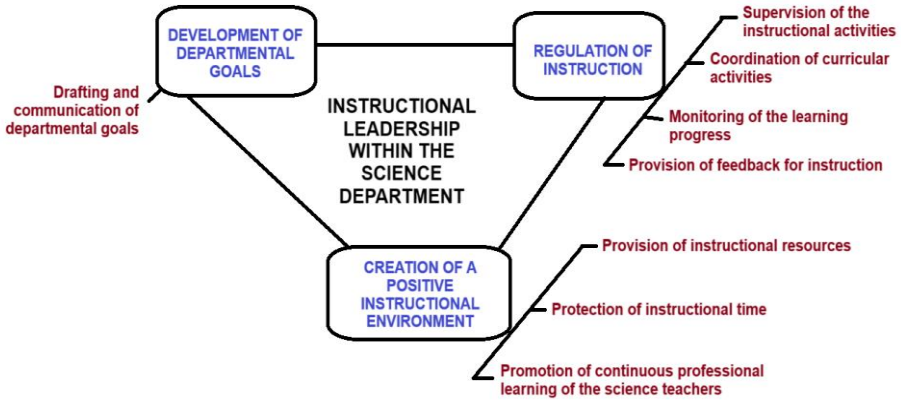

Figure 1: The PIMRS model.
Adapted from Hallinger and Murphy (1985:221).

The three rectangles in Figure 1 illustrate the core actions of instructional leaders, namely the development of departmental aims, instructional supervision, and enforcement of a positive environment for instruction (Bada, Ariffin & Nordin, 2020; Grissom, Egalite & Lindsay, 2021). Each practice is further broken down into specific activities (see Figure 1), the total number of which is eight instead of eleven as is the case in the original PIMRS. This adaptation was done based on Akram, Kiran and ÌLĞAN's (2017) instructional leadership questionnaire (ILQ) whereby the two models were integrated based on their commonalities. The model also includes strategies through which these activities are achieved even though they are not shown in the diagram. These strategies include effective communication, decisiveness, interaction with the contextual factors, distribution of responsibilities, ensuring accountability, handling of conflicts, management of team dynamics, and implementation of reforms (Australia, Department of Education/DoE, 2022; Leithwood, 2021).

Method

This quantitative article is part of a broader mixed-methods research study that explored Lesotho HoDs' instructional leadership practices within the science department. The population of the study was the heads of departments for science deployed in Lesotho secondary schools. The sample for this study was selected from all ten districts of Lesotho by assigning a number to each school and feeding those numbers into a random number generator (Random.org, 2021) through the random cluster sampling method. The resulting sample was 101 of 247 schools registered for external examinations with the Examinations Council of Lesotho/ECoL (2020). The

sample was randomised to achieve increased validity, and reliability of the results as recommended by Igwenagu (2016). However, the absence of HoDs for science in some schools, coupled with the low return rate of the filled questionnaire forms reduced the final sample size to 67 schools.

Sixty-seven HoDs from selected schools were asked to answer 40 closed-ended questions on a 5-point Likert PIMRS ranging from 1/almost never to 5/almost always. The questionnaire forms were self-delivered to their schools and either personally collected from schools or sent back electronically upon completion to maximise their return rate and provide the needed support to the participants. The questions were organised into two sections; A for demographic data to describe the sample in preparation for the response of the third research question dealing with explanations and sense-making of the results, and B which consisted of eight main scales of instructional leadership practices and five sub-constructs per scale (Akram *et al*., 2017; Gurley *et al*., 2016).

Statistical analysis software (SAS) was employed to analyse the questionnaire responses to generate both descriptive (mean and standard deviation) and inferential statistics, namely Cronbach Alpha coefficients and Pearson correlation coefficients (SAS, 2013). The descriptive statistics enabled us to enumerate and organise data (Cohen, Manion & Morrison, 2018). Inferential statistics helped us to relate different variables of the analysis model for generalisation of the findings (Creswell, 2014). The questionnaire was piloted in two secondary schools to ensure that the items were not ambiguous, thus increasing the reliability and validity of the study (Cohen *et al*., 2018). The Cronbach Alpha coefficients and the Pearson correlation coefficients for the categories of instructional leadership were also calculated to establish the validity and reliability of the integrated version employed in this study.

The Cronbach Alpha coefficients in this study ranged between $\alpha=0.63$ and $\alpha=0.80$ for the eight categories of instructional leadership. These values were lower than the alphas for each one of the instruments which were integrated into our questionnaire, namely the PIMRS ($\alpha=0.78$ to $\alpha=0.9$) and the ILQ ($\alpha=0.78$ and $\alpha=0.86$). This difference may have been a result of the difference in the number of items chosen from each questionnaire to build the current instrument as well as the smaller sample size employed in the current study. However, the Alpha coefficients in the present study were above 0.5 and hence reliable (Ling *et al*., 2015). The Pearson correlations

between the categories of instructional leadership practices of the sampled HoDs ranged between r=0.35 and r=0.77, with most values (20 of 28) ranking above 0.5 with all of their p-values below 0.05. These results imply significant and strong positive correlations between the instructional leadership constructs which is a characteristic feature of a valid instrument (Ahrens, Lirani & de Fransisco, 2020).

Written permission to conduct this research, to use the PIMRS instrument, and to collect data in schools was granted by relevant authorities namely, the University of the Free State, the corresponding author of the model as well as the Lesotho government and school authorities, respectively as suggested in Creswell and Creswell (2018). Participation was voluntary and the respondents were kept anonymous through the use of pseudonyms whilst their information was handled with confidentiality as Cohen *et al*. (2018) emphasise.

Research Results

This section of the study discusses the characteristics and general instructional leadership practices of the heads of departments for science. The demographic details will be presented first, followed by the practices of the participants. Then the two sets of data will be interpreted together under the discussion section.

Demographic data

The data in Table 1 is a display of the characteristics of the HoDs who participated in the study.

Table 1: Demographic data

Variable	Interval	Frequency	Percentage
Type of school (n=67)	Government	18	26.87
	Churches	44	65.67
	Others	5	7.46
Location of school (n=67)	Rural	17	25.37
	Urban	50	74.63
Age (n=65)	20-29	3	4.62
	30-39	18	27.69
	40-49	25	38.47
	≥50	19	29.23
Employment status (n=60)	Acting	17	28.33
	Permanent	43	71.63
Gender (n=67)	Female	29	43.28
	Male	38	56.72
Availability of a Science HoD (n=79)	Present	67	84.81
	Absent	10	12.66
	Present but not a Science specialist	2	2.53

The data in Table 1 states that the sampled schools were mostly owned by churches (65.67%), and located in the urban areas of the country (74.63%). These schools were represented by more male HoDs (56.72%) than female HoDs (43.28%) and most (71.63%) of these HoDs were employed under permanent conditions. The most popular age groups among participating HoDs were 30-39, 40-49, and 50+ years of age with 27.69%, 38.47%, and 29.23% of HoDs in the group, respectively. A reasonable number of HoDs (43.75%) were teaching 26-30 periods per week. Unexpectedly, ten of the originally sampled schools did not have HoDs for science while two schools were assigned HoDs that did not specialise in science and eleven of these twelve schools were government schools.

Competence

The results in Table 2 summarise the characteristics of the HoDs selected for the current study in terms of their readiness for leading the science department.

Table 2: The qualifications, major subjects, teaching subjects, and experience of the quantitative sample

Variable	Intervals	Frequency	Percentage
Years of experience (n=63)	0-9 ≥10	30 33	47.62 52.38
Qualification (n=65)	Diploma Bachelor's degree Honour's degree Master's degree	1 54 4 6	1.54 83.08 6.15 9.23
Major subjects (n=66 with 2/3 subjects per person)	Agriculture Biology Chemistry Geography Physics Mathematics	3 22 23 20 25 36	4.54 33.33 34.84 30.30 37.87 54.54
Teaching subjects (n=62 with 1/2/3 subjects per person)	Agriculture Biology Chemistry Geography Physics Mathematics Science and Technology	2 20 24 1 22 39 2	3.23 32.26 38.71 1.61 35.48 62.90 3.23

This data reveals that the number of HoDs (52.38%) who had long-term experience with leadership for 10 or more years was slightly higher than the number of HoDs (47.62%) who were relatively new in their positions. The table also illustrates that most of the participating HoDs were qualified for teaching with a Bachelor's degree (83.08%). Mathematics was the most common major subject (54.54%), followed by Physics (37.87%), Chemistry (34.84%), and Biology (33.33%). Mathematics was the subject taught by most (62.90%) of the HoDs, followed by Chemistry, Physics, and Biology which were taught by 38.71%, 35.48% and 32.26% of the HoDs. This means that most of the HoDs were Mathematics experts as well as Mathematics teachers. Surprisingly, all the subjects except Biology were taught by more HoDs than the HoDs who had majored in them. This suggests that the participants were teaching even the subjects that they were not qualified to teach.

Workload

Table 3 is a display of the constituents of the workload of the participating HoDs.

Table 3: The HoDs' workload

Variable	Interval	Frequency	Percentage
Number of subjects in the department (n=64)	2 3 4+	6 38 20	9.38 59.38 26.25
Number of teachers in the department (n=65)	1-5 6-10 11-15	11 36 18	16.92 55.38 27.70
Number of HoDs' teaching subjects (n=66)	1 2 3	11 46 9	16.67 69.70 13.63
Number of HoDs' teaching periods per week (n=64)	≤19 20-25 26-30 31-35	3 29 28 4	4.69 45.39 43.75 6.25

These results reveal that the majority (59.38%) of the departments from selected schools consisted of three subjects, namely Physical Science, Biology and Mathematics. Most (55.38%) of these departments comprised six to ten Science and/or Mathematics teachers. Most participants (45.39%) taught 20-25 periods per week, which the Manual for principals of secondary and high schools (Ministry of Education and Training/MoET, 1995) indicated as the normal HoD working load. Nonetheless, 32 of the 64 participants who responded to this question taught a higher number of periods than recommended for HoDs (26-35 periods per week). The workload (26-30 periods per week) carried by 43.75% of the HoDs is what MoET (1995) stipulated as normal for a classroom teacher. The workload (31-35 periods per week) taught by 6.25% of the HoDs is higher than the normal teacher's workload recommended by MoET (1995). This means that 50% (43.75% + 6.25%) of the HoDs were normal classroom teachers with an extra workload of instructional leadership as was the case in a South African study by Tapala, Fuller, & Mentz (2021).

The overall instructional leadership performance

Figure 2 presents the overall mean scores obtained by the HoDs in all the questionnaire items related to their instructional leadership practices. The participants were asked to rate their instructional leadership practices on a scale of 1 – almost never to 5 – almost always and the mean scores were calculated for each question.

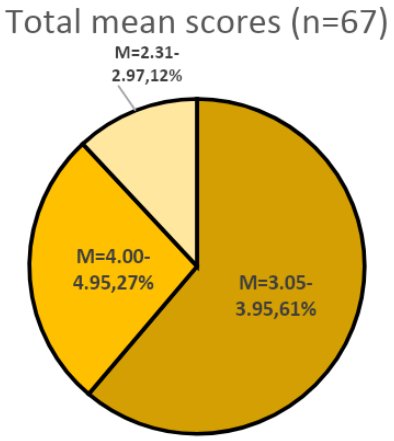

Figure 2: Total mean scores in the 40 questionnaire items

The results in Figure 2 indicate that most of the total mean scores (61%) for all the responses to the questionnaire items ranged between 3.05 and 3.95. This shows that the majority of the participants' overall scores were above the average of the 5-point Likert scale values which was 3 and represented "sometimes" on the scale. This implies that the HoDs were moderately involved with instructional leadership in their schools. The data in Figure 2 also display that 27% of the questionnaire items were scored between 4.00 (frequently) and 5 (almost always). According to Hallinger and Wang (2015), these scores are considered to be high because even the most effective leaders do not always reach the highest score of 5. This means that some HoDs were highly active in their execution of instructional leadership. Figure 2 also demonstrates that 12% of the scores ranged between 2.31 and 2.97. This range was between 2 (seldom) and 3 (sometimes), which was below average. This implies that the instructional leadership activity of the participants was low in a few practices.

Descriptive scores for various constructs of instructional leadership

Table 4 presents the mean and standard deviation scores as well as the F-statistics and probability values for the instructional leadership construct scores of the participants according to their employment status.

Table 4: Results based on heads of departments' employment status (N= 17 for acting, N=43 for permanent participants) in descending rank order of the overall mean values

Variable	Group of HoDs	M	SD	F	p
C2. Setting and communication of goals	All	3.95	0.74		
	Acting	3.71	0.86	2.51	0.11
	Permanent	4.03	0.63		
C4. Coordination of curriculum	All	3.93	0.6		
	Acting	3.66	0.65	3.66	0.06
	Permanent	3.98	0.58		
C1. Provision of materials	All	3.9	0.58		
	Acting	3.54	0.51	7.05	0.01
	Permanent	3.96	0.58		
C6. Protection of teaching time	All	3.77	0.69		
	Acting	3.59	0.69	1.41	0.23
	Permanent	3.81	0.64		
C8. Promotion of professional growth	All	3.53	0.68		
	Acting	3.24	0.73	3.71	0.06
	Permanent	3.60	0.63		
C3. Supervision of instruction	All	3.45	0.71		
	Acting	3.13	0.74	5.36	0.02
	Permanent	3.58	0.67		
C5. Monitoring learning progress	All	3.43	0.71		
	Acting	3.22	0.84	2.36	0.13
	Permanent	3.53	0.63		
C7. Provision of instructional feedback	All	3.4	0.82		
	Acting	3.06	0.93	3.30	0.07
	Permanent	3.47	0.72		

The mean results (see Table 1 and Table 4) of all participating HoDs for the eight categories ranged between 3.4 and 3.95. These results are comparable to the results of studies conducted both in the continent and abroad whereby school principals were sampled including Amakyi's (2021)$_{M=2.90-3.59}$ and Bellibaş *et al*.'s (2015)$_{M=2.83-3.03}$ studies.

All the mean scores of the participants occupying permanent leadership positions (M=3.47 to 4.03) were higher than the mean scores of the acting participants (M=3.06 to 3.71). The results in Table 4 also illustrate that the highest scores for all participants (M=3.95), acting HoDs (M=3.71), and permanently employed HoDs (M=4.03) were in Category 2 for setting and communicating goals. The lowest scores for all participants, acting HoDs and permanent HoDs were M=3.4, M=3.06, and M=3.47, respectively and they were obtained in Category 7 for providing instructional feedback. The second and third highest ranking practices of these three groups of participants were Categories 4 for coordinating curricular activities and 1 for providing materials for

instruction. The second and third functions from the bottom of the rank were Categories 5 for monitoring the learning progress and 6 for supervising the instructional activities. All three of the functions which were found at the bottom of the rank were linked to the second dimension of the PIMRS model which addresses the supervision of inside-classroom instructional activities while only one of the three top-ranking constructs was linked to this dimension.

Table 5 is a summary of the ANOVA results of categories of instructional leadership practices for different groups of teachers.

Table 5: The maximum and minimum F-statistics and p-values of different groups of HoDs (n=67)

Variable	Minimum values:		Maximum values:	
	F-statistic	p-value	F-statistic	p-value
Type of school	0.26	0.06	3.72	0.61
Location of school	0.00	0.35	0.89	1.00
Age	0.01	0.22	1.55	0.93
Gender	0.00	0.13	1.14	0.95
Years of experience	0.00	0.08	3.27	0.99
Number of teaching subjects	0.01	0.11	2.64	0.92
Number of subjects in the department	0.01	0.25	1.35	0.92
Number of teachers in the department	0.57	0.06	3.72	0.45
Teaching workload	0.00	0.24	1.39	0.95

Regarding the F-statistics, the results in Table 4 ranged between 1.41 and 7.05, while the results in Table 5 ranged between 0.00 and 3.72. The results in Table 4 were all greater than 1.00 while some values were lower than 1.00 in Table 5. This means that all the results in Table 4 were high enough to represent substantial differences between the groups of participating HoDs employed under varied conditions. It also implies that some of the F-values in other groups of participants were too low to represent significant differences between different variables.

Most of the p-values (6 of 8) in Table 4 stretched between 0.06 and 0.23 while all of the p-values in Table 5 ranged between 0.06 and 1.00. These probabilities were greater than the significance level of $\alpha \leq 0.05$, hence they were also not statistically significant. Nonetheless, the probability of gaining an F-ratio of 7.05 for Category 1 (provision of materials) and 5.36 for Category 3 (supervision of instruction) was p=0.01 and p=0.02, respectively. This reveals that employment status differences between

the sampled HoDs in these categories were the only results that were statistically significant even though their reasons were not part of the analysis model in this study. The rest of the differences in the descriptive results of the participants were not dependent on their demographic details.

Discussion

This section discusses the dynamics of the science departments in Lesotho secondary schools first followed by their implications on the instructional leadership practice of the HoDs.

Organisational details of the Science departments

Secondary school level experiences low learning outcomes and a high drop-out rate partly owing to a lack of efficacy in the leadership practice (ECoL, 2020; UNESCO, 2021). One of the sources of poor leadership in secondary schools lies in the lack of acknowledgement of the significance of HoDs as instructional leaders, both in practice and in research (Leithwood, 2016; Morsidi *et al*., 2015; Tlali & Matete, 2021). The Lesotho education system had also not taken full advantage of the subject departmental organisation.

The subject department organisation in Lesotho secondary schools depends on the size of the school. Larger schools are given a higher number of leadership positions than smaller schools. Small schools sometimes have one head of department for all the subjects while the size of some schools may not be large enough to be allocated any heads of departments. Consequently, some of the schools which were originally selected for this study did not have any heads of departments. Ten government schools did not have any HoDs, one church school had one HoD for all the subjects while one government school had an HoD for science without Science (and Mathematics) majors. This implies that some schools do not get the instructional leadership benefits of the distribution of power into departments. It comes as a surprise that most of the schools run without HoDs are government owned when UNESCO (2006) states that Lesotho schools are guided and financially supported by the government.

Another challenging organisational issue in Lesotho secondary schools is the formation of departments even in large schools. Only six of the 67 schools that participated in this study had the two Science subjects namely, Physical Science and Biology in their departments. The majority (59.38%) of the departments from selected schools included Mathematics in their structure to have a total of three subjects. Most (62.9%) of the participants were Mathematics teachers even though only 54.54% of the HoDs had majored in Mathematics during their In-service training. This means that these HoDs could comfortably help science teachers in only one science discipline if their other major subject was a science subject. It is possible that their second major was either Geography or Agriculture, which would mean that they could have both majors outside the Science subjects and hence have no competence in those subjects. This means that the promotion of teachers into leadership positions is also problematic hence inhibiting the schools from harnessing the full potential of distributed instructional leadership through departmental organisations.

The findings also reveal a discrepancy between the HoDs' major subjects and teaching subjects. All the subjects, except Biology (see Table 2) had a higher frequency of participants teaching it than the participants who had majored in it. This suggests that the selected HoDs were teaching even the subjects they were not qualified to teach, thus setting precedence for their teachers. Mathematics had the highest difference between the number of participants teaching it (62.9%) and the number of participants who had majored in it (54.5%) of all these subjects. This proposes that most of the participants paid more attention to Mathematics than all the three disciplines of Science, the ripple effect of which is the lack of balance in terms of the supervision provided to these two subjects. This necessitates the separation of Mathematics and Science into two different departments.

The other inhibiting factor to the success of distributed instructional leadership at the departmental level in Lesotho secondary schools is the amount of workload that is allocated to the HoDs. This workload comprises large numbers of teachers (6-15) to monitor owing to the multidiscipline nature of the department as well as large numbers of periods (20-35) to teach per week. This workload can result in time management issues that may lead to the failure of the HoDs to balance their focus between their teaching roles and instructional leadership.

Instructional leadership practices of the HoDs

The mean score of 3 suggests that most (61%) of the instructional leadership functions were sometimes performed, while the mean scores of 4 and 2 imply that 27% and 12% of the practices were frequently and seldom executed by the participants, respectively (see Figure 2). These participants also sometimes performed all the constructs of instructional leadership when they were grouped into various categories. This finding suggests that the participants were actively involved in the distribution of instructional leadership as it has been proposed that they should be placed at the centre of instruction by Doherty (2021), Munje *et al*. (2020), and Munna (2021) among other writers. Nonetheless, the performance was biased because the participants completed some functions more actively than others. Their performance was highest in categories related to the first dimension of instructional leadership and lowest in activities related to the second dimension. Generally, the HoDs in this study found it easier to plan the instructional activities but found it to be more challenging to regulate the execution of those plans during the actual teaching. This observation was also made in both local and international studies whereby the principals' scores were also highest in the dimension related to the development and communication of the goals (Bada *et al*., 2020; Bellibaş *et al*., 2015).

The overall performance of the participants in all constructs (Table 4) and most specific functions (Figure 2) of instructional leadership was above average for all groups despite the differences in demographic details. However, the participants in permanent leadership positions were generally more actively involved with the instructional leadership practice than their counterparts who occupied acting positions. The ANOVA results for the differences between these two groups of participants for providing materials ($F=7.05$, $p=0.01$) and for supervising instruction ($F=5.36$, $p=0.02$) were statistically significant. These were the only substantial differences between different groups of HoDs. Even though the reasons for these differences were not investigated in this study, a possible explanation may be the low confidence and motivation levels as well as a lack of job security that is usually linked to short-term employment as suggested by Burgess and Connell (2004).

Conclusions

This study sought to answer the question: What are various contextual factors in secondary schools of Lesotho that can influence instructional leadership practice by HoDs for science? The HoDs from selected Lesotho secondary schools were actively practising instructional leadership, even though they were performing some practices more than others due to certain circumstances, some of which were identified in this study.

While Townsend (2019) and Abdulaziz *et al*. (2021) consider the creation of a positive learning environment as the most important of the three dimensions, writers such as Bada *et al*. (2020) and Bellibaş *et al*. (2015) reveal that principals focus on describing goals. The HoDs in this study also focused most of their attention on the framing and communicating of goals rather than on the supervision of the actual instructional activities. We, therefore, argue that while the creation of a positive climate for instruction is the most important dimension for the principals, the HoDs need to focus most of their attention on supervising and monitoring instruction and the curriculum. This is because the HoDs are expert leaders who understand the context of the subject(s) under their jurisdiction and, hence more suited for this dimension than the principals if they are properly placed. This way, the three dimensions of instructional leadership will be effectively addressed through the distribution of power.

Even though the HoDs from the sample of schools in this study had been actively engaged with instructional leadership, there were some challenges. The most active group of participants consisted of the HoDs who occupied permanent leadership positions. This means that the first challenge can be linked to the temporary leadership positions. This finding creates an opportunity for further investigation into the variable(s) that might have been missing in the model used for the analyses in this study to explain this behaviour of HoDs. This finding is a contribution of this study to research on instructional leadership because it provides the necessary evidence and identifies the gap for more research.

The second challenge relates to the domination of Mathematics over Science. Most HoDs majored in and hence taught Mathematics, thus they are more likely to give it more attention. Even the HoDs who had not majored in Mathematics preferred to teach it over Science. One of the possible reasons for them teaching Mathematics may be

the lack of teachers qualified to teach Mathematics. However, as the literature emphasises, instructional leadership depends on subject expertise and HoDs are entrusted with instructional leadership because they are perceived to possess content knowledge (Doherty, 2021; Munna, 2021). Science is a multi-disciplinary subject that can be a department on its own as is already the case in some (six) of the schools selected for this study. We, therefore, recommend the revision of the policy guiding the formation of departments so that the HoDs can be properly placed and permanently appointed where they can have maximum impact on instructional leadership.

The finding related to the absence of HoDs and the misplacement of HoDs in some schools may be viewed as an indication of a lack of appreciation of the potential of the instructional leadership by the HoDs. It is therefore recommended that the government policy on the formation of departments be revised to rethink the grouping of the subjects. Each subject can experience improved student outcomes if it receives tailored instructional leadership from different educational leaders including the heads of departments.

The main contribution of this study to research and practice is the provision of evidence that adds to the literature on the improvement of teaching through department structures and HoD instructional leadership. However, the study has limitations linked to explaining the results because it does not include qualitative data. However, the sample was large and representative enough to allow the results of the important practices of the sampled HoDs to be carefully utilised to describe the instructional leadership of heads of departments. The computation of inferential results in the current study also enables individuals to cautiously apply the conclusions of this study to other HoDs beyond the Science department and the Lesotho country. This means that this paper has effectively illustrated how the dynamics of science departments in Lesotho secondary schools affect the performance of instructional leadership practices despite the limitations. However, these limitations also necessitate future research to explain the instructional leadership practices of the HoDs by employing more sources of data and deeper data analyses.

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2.2. Article 2: Journal of Education (University of Kwazulu-Natal)

Departmental Leadership: Last Level in the Hierarchy of Formal Instructional Leadership Structures in Schools?

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Abstract. This report addresses the instructional leadership of heads of departments/HoDs for science in secondary schools as leaders whose significance has not yet been completely acknowledged in research and practice. The study employed mixed methods of a convergent parallel design based on the distributed instructional leadership framework to determine the adequacy of the HoDs. Descriptive data were collected from a random-cluster sample of 67 schools from the ten districts of Lesotho. This sample translated into 67 HoDs, with one HoD per school that participated in the quantitative phase of the study. Data were collected from these HoDs through a 5-point Likert Principal's instructional management rating scale/PIMRS questionnaire and were analysed using statistical analysis software/SAS to generate descriptive and inferential statistics. Four schools selected through stratified purposive sampling from the original sample partook in the qualitative part of the study. The interview transcriptions and work documents from these HoDs and four Grade 8 teachers of their choice were thematically analysed. The HoDs' instructional leadership engagement was generally above average even though it displayed marginalisation of inside-the-classroom activities and subjects outside their majors. Some of the reasons raised by the respondents for the disparities in their instructional leadership practice include the large workload, a lack of content knowledge of some subjects, and a lack of confidence. This paper recommends appropriate placement of HoDs supplemented by tailored

support through continuous professional learning and provision of teaching resources, among other strategies of improvement. This may imply the formal or informal deployment of additional expert leaders for individual science disciplines.

Keywords: Distributed instructional leadership; head of department; mixed-methods research; PIMRS; science department

Introduction

Schools as organisations consist of many individuals who collaborate to achieve a set of academic goals. This places schools at the centre of evaluation of instructional performance thus necessitating them to have effective leadership to increase academic performance (Amakhukwu et al., 2015; Morsidi et al., 2015; Printy, 2010). The literature in the area of educational leadership and classroom practice ranks school leaders among the most effective tools for the development of student outcomes (Australia, Department of Education/DoE, 2022; Bin Hassan, Ahmad & Boon, 2019; Hou, Cui & Zhang, 2019; Shaked, 2022). Studies on school leadership focus the attention of various practitioners in the education space mostly on improving instruction, hence the need for every school leader to practise instructional leadership.

Instructional leadership (IL) is among the factors that have the most significant effect on school performance, ranking second after classroom instruction (Leithwood et al., 2019; Thornell, 2022; Zora et al., 2023). The focus of IL shifted towards improving instructional activities, establishing a positive learning environment, and fortifying accountability recently (Leithwood, 2021; Li et al., 2023). This shift complicated the educational climate thus rendering the school principals an important but inadequate foundation of IL (Dania & Adriani, 2021). This necessitated the distribution of IL advocating collaboration for decision-making and implementation (Leithwood et al., 2019; Sahlin, 2022).

Subject departments form part of school initiatives to improve instruction through collaboration. The heads of departments (HoDs) consistently and substantially impact academic outcomes because they have experience in classroom practice (Leithwood, 2016; Sengai, 2021). HoDs assess resources, monitor instruction, practise teaching, and promote continuous professional learning (CPL), among other roles (Munje et al., 2020). However, they experience a range of challenges exacerbated by internal

factors such as their lack of knowledge and external factors including limited leadership training (Tapala et al., 2021). Multi-subject departments such as the Science department also pose the challenge of accountability of HoDs for subjects they are not familiar with (Malinga et al., 2022). This necessitates further distribution of leadership to more teachers.

Lesotho secondary schools recently experienced a deterioration in the quality of education (MoET, 2006). This is partly due to the opinion that most of these schools are owned by churches and their principals tend to adhere to church regulations rather than state policies (UNESCO, 2006). The HoDs are also not adequately involved in mitigating this problem because the leadership role of middle managers has not been completely approved locally and globally (Malinga & Jita, 2020; Tlali & Matete, 2021). It is crucial and imperative to explore instructional leadership in the context of developing countries where radical educational improvements can influence national development, hence the investigation of the perspectives and practices of science HoDs in this study.

Conceptual Framework

The main justification behind employing the Principal Instructional Management Rating Scale (PIMRS) model by Hallinger and Murphy (1985) as the basis for this study relates to its ability to describe what leaders do and how they do it (Hallinger, 2011; Hallinger & Murphy, 1986a; Townsend, 2019). However, the selection of the PIMRS over other instructional leadership models is three-fold: Firstly, the model has been developed through thorough research (Leithwood et al., 2004). This means that the PIMRS model is evidence-based with high levels of reliability and validity (Hallinger, 2011). Secondly, the PIMRS model applies to a variety of school situations because it describes the impact of contextual factors on instructional leadership (Hallinger & Murphy, 1986a). This allowed the inclusion of schools from various backgrounds in the current study. Thirdly, the current study took advantage of the critique against the PIMRS that its expectations of principals are too ambitious. As Day and Sammons (2013) insist, the presumption of the model that principals of secondary schools in particular, have the content knowledge of all the subjects, is debatable. Lee,

Hallinger and Walker (2012) indicate that it is impossible for the success of any school to solely depend on the principal, hence the investigation of the HoDs in this study.

Figure 1 shows the three main instructional leadership functions and their corresponding leadership practices explored in this study. These are: Developing the school goal, supervising instructional activities, and creating a conducive atmosphere for teaching and learning (Bada et al., 2020; Geleta, 2015; Grissom, Egalite & Lindsay, 2021; Hallinger & Wang, 2015). These three major components of instructional leadership practices are subdivided into specific functions that include developing and aligning the school vision, promoting professional learning, coordinating the curricular activities, promoting leadership practice in their followers and monitoring the classroom practice (Chikwanda et al., 2020; Dermidag, 2021; Kaur & Noman, 2020). Each one of these functions can be achieved through a specific set of strategies and resources that constitute the school's context namely, dissemination of information, decision-making, handling of conflicts, management of team dynamics, implementation of reforms, and interaction with the situation of the school, among others (Chikwanda et al., 2020; Kaur & Noman, 2020; Australia, DoE, 2022).

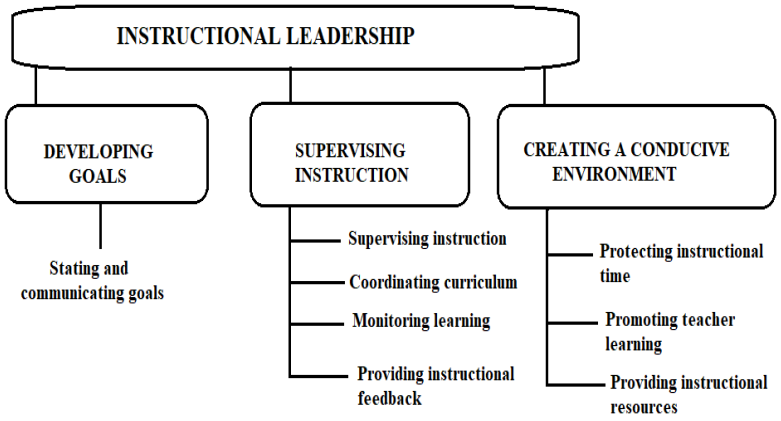

Figure 1: The integrated instructional leadership model.
Adapted from Hallinger and Murphy (1985:221) and Akram et al. (2017).

The model in Figure 1 is an integration of the PIMRS and Akram et al.'s (2017) Instructional Leadership Questionnaire (ILQ). Akram et al. (2017) studied various instructional leadership models and isolated the seven most popular functions among those models: Supplying instructional resources, modelling good practice, providing continuous professional learning, protecting instructional time, monitoring the learning progress, providing instructional feedback, and coordinating the curriculum. For

instance, they compared the works of Hallinger and Murphy, Sergiovanni, Weber, and Whitaker, among others, published in 1985, 1984, 1987 and 1997, respectively (Akram et al., 2017).

The integration of the two models was founded on the assumption that the dimensions of Akram et al.'s model are more appropriate for describing the role of the HoDs. For instance, the ILQ does not include the development of goals as one of its constructs. This category may have been more descriptive of the principals' role, hence some studies depict the principals to be more actively engaged in the development of goals than the other two dimensions that are directly linked to classroom practice (Bada et al., 2020; Bellibaş et al., 2015). However, the ILQ model could not be used as the main lens in this study because even though it is based on empirical evidence and an extensive literature review, it is a relatively new model requiring more extensive research application and feedback.

Methodology

Research design and approach

A mixed-methods research (MMR) approach was employed in this study to take advantage of the strengths of quantitative and qualitative methods for a more extended conception than possible through either of the individual approaches as recommended by authors such as Creswell and Creswell (2018), Curry and Nunez-Smith (2015), and McKim (2017). An interactive or equal status approach of MMR was employed in this study for even distribution of focus between the two approaches in a complementary rather than a supplementary manner as has been suggested by Cohen, Manion and Morrison (2018) and Johnson (2014). MMR was also employed in this study to achieve triangulation of the research methods, theories, samples and data even though methodological triangulation is mostly emphasised in this study owing to its increased significant impact on validity and reliability.

The convergent parallel design was employed by distributing the questionnaire forms in schools whilst interviewing some of the participants as Creswell and Creswell (2018) suggest. This means that the two data sets were collected independently even though they were analysed together afterwards to address the research aims more

comprehensively as proposed by authors such as Cohen et al. (2018), Creswell (2014, Creswell and Creswell (2018) and Schoonenboom and Johnson (2017). This MMR design was employed because it is less time consuming than the sequential MMR designs (Creswell, 2009; Norman & Lincoln, 2013; Schoonenboom & Johnson, 2017). This was done to alleviate time and monetary concerns raised by doctoral candidates in Norman and Lincoln's (2013) study.

Population and sampling

The population of the study was HoDs from 243 schools registered for external examinations (Examinations Council of Lesotho/ECoL, 2021). A random number generator (Random.org, 2021) was applied to select a random cluster sample of 101 from 10 districts of Lesotho. Random sampling was employed to maximise the precision, proficiency, validity, and reliability necessary for generalising the conclusions to the whole population as Igwenagu (2016) and Mathers et al. (2009) suggest. Cluster sampling was preferred because school information is readily accessible while data of individual teachers may be classified. However, the sample size was reduced to 67 schools due to the low response rate and absence of HoDs for science in some schools. Most of these were church schools (65.67%), located in the urban areas of the country (74.63%). There were more males (56.72%) and more permanently employed leaders (71.63%) among the participants. The participants' age ranges were 40-49 (38.47%), 30-39 (27.69%) and 50+ (29.23%).

Four of the 67 schools were selected through stratified purposive sampling to interview their HoDs and Grade 8 science teachers as proposed by Given (2008) and Tashakkori and Teddlie (2010). Stratified purposive sampling is judgemental and deliberate to allow comparison of closely related but varied cases necessary for capturing all possibilities (Etikan et al., 2016; Tolmie et al., 2011). The stratification was based on the location and the piloting status of the schools: Six schools were in urban areas while the other six were from rural areas, half were pilot schools for the new Grade 8 Science and Technology syllabus while the remainder were non-piloting schools.

These 12 schools were part of the 101 schools sampled for quantitative data thus implying a concurrent nested type of MMR sampling method (Johnson, 2014). The nested nature of the mixed sample enabled the use of some of the schools for both

the qualitative and quantitative data collection while the concurrent character of the allowed data from both samples to be assembled around the same period.

Participation in this study was voluntary resulting in some of the respondents from selected schools not consenting to partake in the qualitative part of data collection thus reducing the sample size to four schools. Each HoD from these four schools was asked to choose one teacher who had taught or was teaching the new Grade 8 Science and Technology learning area to participate in the interviews and document analysis. The teachers were included in the sample for triangulation of data and the focus was on Grade 8 because it was the only level in secondary schools doing the integrated curriculum.

This sample of HoDs from selected schools was identified through pseudonyms with the demographic details summarised in Table 1.

Table 1: Demographic data of the interviewed HoDs

Variable	**Ms. Skop**	**Ms. Maki**	**Mr. Santos**	**Mr. Thabi**
Gender	F	F	M	M
Age	30-39	30-39	30-39	40-49
Workload (number of periods per week)	26-30	26-30	31-35	26-30
Number of teachers in the department	6-10	11-15	1-5	6-10
Grade 8 status	Pilot	Non-pilot	Pilot	Non-pilot
Number of subjects in the department	4	4	3	3
Employment status	Permanent	Permanent	Acting	Acting
Type of school	Church	Church	Church	Government
Location of school	Rural	Rural	Urban	Urban

Data collection

The research instruments were piloted at two schools to enhance the revision of the research instruments before they were self-administered. The questionnaire and the interview guide were piloted at two neighbouring schools resulting in the rearrangement of the items. For instance, the questionnaire sub-constructs from different categories were mixed and the category headings were omitted to mitigate the participants' tendency to rate the items within the same category equally. The pilot interviews improved the researcher's ability to prompt and probe the respondents for

details and to arrange the questions in a way that suited individual respondents during the interviews.

The questionnaire forms consisting of a 5-point Likert scale meant to rate 40 IL practices were self-delivered to schools but mostly returned electronically upon completion. The Cronbach Alpha coefficients for the categories of the items of the questionnaire ranged between 0.63 and 0.80, thus suggesting high reliability because they were all above 0.5 (Ling et al., 2015). Most of the Pearson correlation coefficients (71%) for the same categories ranged between r=0.5 and r=0.77 while all their p-values were below the significance level of $\alpha \leq 0.05$. These correlations and the p-values are indicative of a significant linear relationship between the instructional leadership categories which translates into the questionnaire validity because they were positive and above 0.5 (Ahrens et al., 2020). Four HoDs and four Grade 8 science teachers were individually interviewed face-to-face with open-ended questions. The departmental meeting minutes, teachers' lesson planning, and scheme books were among the analysed documents.

Data analysis

The responses from the questionnaires were analyzed using statistical analysis software (SAS, 2013) to obtain descriptive and inferential statistics whereby mathematical operations were applied to raw data to generate smaller consumable values. This means that the mean and standard deviation statistics were computed as measurements of central tendency and variability, respectively. Descriptive data produces non-parametric statistics necessary for describing, summarising, and explaining the results for effective communication and reporting (Creswell, 2014; Johnson & Christensen, 2014). Pearson's correlation coefficients were determined to identify features which influence the HoDs' leadership practices as proposed by Morsidi et al. (2015).

Cronbach's Alpha coefficients and Pearson's correlation alpha coefficients were also computed for reliability and validity, respectively. The Cronbach Alpha coefficients of the current study's tool fluctuated between 0.63 and 0.80 thus demonstrating reasonable levels of consistency and reliability. The Pearson correlation coefficients ranged between r=0.35 and r=0.77 and all their p-values were below 0.05. This means

that the eight constructs of the questionnaire represented different concepts without repeating any of the practices, translating into higher validity (Ahrens et al., 2020).

The qualitative information was transcribed, translated, coded and thematic analysed. The data analysis began during data collection, rather than at the end of the data collection process to avoid bulkiness of data. According to Du Plessis and Eberlein (2018), data transcription allows researchers to document important parts of the text, together with the respondent's body language and paralanguage from the voice recordings. The coding and thematic analysis enable the identification of the key topics for better organisation of the discussions (Given, 2008). The HoDs' minutes and the teachers' preparation books were content analysed to corroborate and hence triangulate the information from the questionnaire forms and the interviews.

Results

This study interrogates the HoDs' instructional leadership provided to various subjects within a single department. This section discusses the main findings under three dimensions of instructional leadership which are further divided into eight categories of practices. The two data sets are presented side-by-side whereby quantitative data is followed up with qualitative data. Then the two databases are discussed together to establish whether or not departmental leadership is adequate as the lowest level in the formal hierarchy of school leadership.

IL Dimension 1: Development and communication of goals

The mean score of 3.95 (SD=0.74) for the only category in Dimension 1 illustrates that the HoDs involved their teachers in the decision-making processes. The interviews reveal that two of the four HoDs experienced high satisfaction levels with their involvement in decision-making at the school level while the other two HoDs were not satisfied. Three of the four teachers expressed their contentment with their level of involvement in decision-making at the departmental level. Mr. Santos (HoD, Mohai HS) expressed his satisfaction by saying, "Uhm, I am satisfied". Mr. Juvi shared his HoD's (Mr. Santos) sentiments despite being excluded from some decisions:

Yes, it's fine because it would lead to a person saying I don't like a certain duty such that nothing would get done. Uhm, he (Mr. Santos) calls a meeting for all of

us to discuss that this one will do this. His role is to call us to meet so that we can divide ourselves according to our subjects to do allocations of grades. …Things like being a class teacher, supervision of study, ah, we are not considered there. We are just told that you will go there. (Mr. Juvi, Mohai HS)

Ms. Skop's (HoD, Pelo HS) comment about her level of satisfaction was: "A lot. …But mostly we make decisions together as a department. We just tell our principal how we want things to go. She does not make the decisions for us". Ms. Skop also attested to involving the students and the parents in making decisions that concern them by stating "We explain the core and extended curriculum to the students so that they can decide which one they want to do. We also give them a chance to go and talk to their parents before they could decide based on our explanations". Her teacher, Ms. Ntha shared the same sentiments through the following declaration:

We are involved in decision-making in the department. E.g. when having a department meeting, she (HoD) *raises an issue, instead of making decisions herself. She puts different sides to an issue. Even when it comes to class allocation and workloads, she discusses it with us to find out if we can handle them before finalizing them. She is somebody who is very willing to communicate with us. Even at the school level, we are still involved in decision-making. E.g. whenever, there is a teacher in need of help, Mrs. Molli (her principal's pseudonym) holds a meeting so that the staff members could come up with a solution regarding how we can help such a teacher.* (Ms. Ntha)

Mr. Thabi's (HoD, Khetha HS) dissatisfaction with his lack of involvement in decision-making was stated as follows: "Actually, we don't have a say. Things mainly originate from the principal". Mr. Maru agreed with his HoD (Mr. Thabi) regarding the teachers' lack of involvement in decision-making at the school level when he said "Yes, I am not even involved. It is my HoD or principal who delegate me to go to the workshop and also the class teachers". However, Mr. Maru appreciated that he was involved in decision-making at the departmental level by stating "We as Science department we sit together at the Science lab here. Then we talk about this one: There is that thing of asking "Are you able to teach Form D or not?" When asked if he was content with his level of involvement in decision-making he indicated that he was satisfied even though

he was excluded in some decisions by saying: “Yes. Uhm, most of the time they don’t just tell me. I just do it myself without being told. I do the work”.

Ms. Maki (HoD, Monti HS) also indicated her discontentment with her lack of involvement in decision-making by saying:

> *I’m frustrated. I feel belittled most of the times. …but I am prevented from doing my work by my leaders, and sometimes even by my followers. Im frustrated to be fair. All in all I like being an HoD. It is just that I am being hindered from doing my work by the situation in this school.* (Ms. Maki)

Ms. Lebo also shared her HoD’s (Ms. Maki) sentiments of lack of involvement in decision-making when she said “… Can I say we make decisions now? At the moment we are just being told what will happen. We catch on as we progress.”

The interviews also revealed that it had recently become difficult to hold departmental meetings to make some decisions. As a result, the most popular meetings were the subject meetings between teachers who taught the same subjects even though those meetings were also mainly for scheming purposes. For instance, when Mr. Maru was asked how frequently they had their meetings he had this to say after a long moment of hesitation: “Hai, not regularly. Hai, we once meet at first session. Just once. We were talking about how we can improve in performance of our Science”.

Mr. Juvi also had this to say about departmental meetings: “Uh, we sometimes have meeting mostly at the beginning of the year to scheme, or when there are workshops to see who can attend them. Uh, we do not hold departmental meetings a lot of times”. Ms. Lebo also shared the same sentiments about the lack of opportunities for holding departmental meetings by stating the following:

> *We also have a problem of meeting as a department. We have not had a departmental meeting in a long time. Uh, we sometimes have meeting mostly at the beginning of the year to scheme, or when there are workshops to see who can attend them.* (Ms. Lebo, Monti HS)

IL Dimension 2: Supervision of instruction and curricular activities

Table 2 presents the mean and standard deviation results of the HoDs selected for the current study regarding their IL practices under Dimension 2.

Table 2: HoDs' descriptive results for categories in Dimension 2

Category	Mean	SD
3. Supervision of instruction	3.45	0.71
4. Coordination of curriculum	3.93	0.60
5. Monitoring of learning	3.43	0.71
7. Provision of feedback	3.40	0.82

Table 2 discloses the participants' mean scores in the four constructs of the second dimension of IL as between 3/sometimes and 4/frequently which demonstrate above-average levels of engagement in supervising instructional activities. The interviews reveal that the participants supervised the teachers through periodic reviews of their work documents including lesson plans as well as schemes and records of work. For instance, Ms. Skop confirmed that she performed the reviews of workbooks despite her lack of confidence:

> *If it is the day designated for checking lesson plans, then I check them together with the scheme books. As for the scheme books, I always check them on Fridays even though it might not be every Friday. I do it monthly. …I am scared to check some of their lesson plans and scheme books because they know more than I do. However, I have never experienced somebody who shows me that they know more than I do. But it still happens that I feel scared to check some of the things.* (Ms. Skop, Pelo HS)

Ms. Skop continued to declare that she lacked both leadership and content knowledge:

> *But then when it comes to knowledge, there are a lot of things I do not know about being an HoD, which I am still learning about. It is a challenge because if I can*

make an example with Maths teachers, there are a lot of things I do not know, especially at higher level. It is easier with the lower levels. ... I have agriculture, which is also a challenge sometimes. I have Computer/ICT which is also a challenge. … I also know Physics even though I cannot say I am competent with it. (Ms. Skop, Pelo HS)

Ms. Maki also checked her teachers' workbooks: "We agreed with other HoDs that we check them quarterly". Ms. Lebo agreed that her HoD (Ms. Maki) checked the workbooks; "We also have days scheduled for submission of schemes and lesson plans". Mr. Santos also experienced a lack of confidence and attributed it to his temporary status of employment. When he was asked about how he thinks his job situation could be improved, he said:

…When you give instructions to your colleagues… How can I put it? That position, as I am still acting, is like it can be permanent so that when you do the work… At the moment one still has that lack of confidence. (Mr. Santos, Mohai HS)

The participants provided feedback on the checks of workbooks during oral face-to-face sessions with their teachers. Ms. Skop provided reports to teachers individually and in groups:

Even though we are very disorganised, we still have departmental meetings whereby I give them feedback about what I found out when I checked the lesson plans and schemes of work. I still give individual feedback by commenting inside the scheme and discussing the points of concern with the relevant teacher. In a meeting I just generalise common issues. (Ms. Skop, Pelo HS)

Ms. Maki also explained that the reviews were followed up with one-on-one meetings, subject meetings, or departmental workshops:

…If there is something like a misconception or lack of understanding I call the teacher to look at it together and then I write with my pen that "checked and recommendations made". …But when I have realised a mistake that might be there which is common, by the time we go for a meeting I talk about it that let us look at a certain thing. (Ms. Maki, Monti HS)

However, the researcher found no evidence of feedback given on the workbooks to demonstrate what has been reported by the HoDs, which implies that all feedback may have been provided orally.

The interviews divulge that even though the participants' activity of monitoring instructional activities was relatively high, they did not visit classrooms for supervisory observation but for their own learning and team teaching. Ms. Skop declared that even when she attempted to visit the classrooms, she was not welcome by the teacher: "I have not gone to class for supervision in a long time. We only go to class together for team teaching. The one person that I once visited stated that they were not comfortable".

Ms. Ntha agreed with her HoD (Ms. Skop) about classroom observation and said; "Both the HoD and the principal do not go to classes. They monitor us in the staff room when we are sitting in here instead of being in class." Ms. Maki reported partial visitation of classes:

> *I do it but not to all teachers. Some of them refuse and say no, I don't feel comfortable when you come to my class to watch me. Some of them they don't have the problem, just like Chemistry teachers. They agree, I can even go to the laboratory to watch them performing the experiments. The Biology ones are the ones who are mostly not cooperative.* (Ms. Maki, Monti HS)

Mr. Maru and Ms. Lebo also expressed a lack of classroom visits from their HoDs by saying: "He (Mr. Thabi) has never come" and "I do not remember her (Ms. Maki) coming to my class or seeing her going with another teacher to class", respectively. As Gedik and Bellibas (2015) state, secondary school teachers experience lower levels of classroom observation owing to their greater sense of being knowledgeable in their subjects.

Mr. Thabi is the only participant who attributed his lack of classroom supervision to a large workload:

> *Most of the time we do it when a person has asked you. When they say that you should come and check me because now the problem we have is that all of us, regardless of whether or not you are an acting HoD you still have more than 30 so you don't have that slot*. (Mr. Thabi, Khetha HS)

The other participants also reported that they marginalised the subjects outside their majors as was the case in Malinga and Author's (2020) and Du Plessis and Eberlein's (2018) South African studies. Ms. Skop admitted that she could not assist some teachers in her department with their subject matter:

> *I think an HoD should be familiar with the subjects in their department but in our department it is not possible because you sometimes go for years without teaching Maths. As a result, it becomes difficult to manage them. …except in terms of checking the lesson plans. I cannot follow their stuff.* (Ms. Skop, Pelo HS)

When Ms. Lebo was asked if her HoD, Ms. Maki's guided them in terms of the subject matter, she pointed out: "No, we are the ones who help her because she is not competent with the science subjects allocated to her". Ms. Maki also corroborated her teacher's claim about not sufficiently guiding the science teachers:

> *We meet as maths and scheme together… I also give the science teachers a chance to do the same but unfortunately, you will find that I don't get to be with the science people when they do that. I think it is because I am always with the maths people because I now have a lot of experience in maths than in science.* (Ms. Maki, Monti HS)

The role played by the HoDs in monitoring the learning progress was to facilitate discussions about the national results. The only reviews of the learning progress were conducted after the publication of the external results. For instance, Ms. Ntha described the situation at her school; "We analyse the results as the department first and then later as the whole school after the release of national results". Mr. Santos also said the following about what they discussed in their departmental meetings "I think it's a matter of looking at the results to look at the students' performance and decide on what is it that we can do to improve maybe". Mr. Maru also shared these sentiments in his comment about how often they met and what they discussed, "Hai, not regularly. Hai, we once meet at first session. Just once. We were talking about how we can improve in performance of our science".

These results imply that even though these HoDs were actively engaged in Dimension 2 of instructional leadership, it was a challenge for them to perform roles that are directly linked to the actual classroom practice, particularly in a uniform manner.

IL Dimension 3: Creation of a positive environment for instruction

Table 3 shows the mean and standard deviation scores of the HoDs from selected schools for the instructional leadership constructs under Dimension 3.

Table 3: Descriptive data of the HoDs for categories in Dimension 3 (N=67)

Category	Mean	SD
Provision of materials	3.90	0.58
Protection of teaching time	3.77	0.69
Promotion of professional learning	3.53	0.68

Table 3 demonstrates that the mean scores for the three categories in this dimension were scored between 3/sometimes and 4/frequently. This implies that the instructional leadership activity of selected HoDs was above average for the functions related to creating a positive instructional environment. The interviews also confirm that all of the participant HoDs were actively providing instructional materials to their teachers Ms. Lebo reported that her HoD was active when providing resources:

> *She is a person who follows up on what she wants. For instance, we were promised that methylated spirits will be bought for our laboratory and she nagged the office until it was bought. She has the willpower to follow up on issues.* (Ms. Lebo, Monti HS)

Mr Thabi also hinted that he was actively procuring resources for his department: “Uhm, oh, the school management gives me the support because everything we need… there has never been a time when they give us trouble with our needs as the department.” Meanwhile, Mr Maru disagreed with his HoD (Mr Thabi): “…We regularly talk about the science lab equipment then write down but even today nothing. So, I can’t say they are supporting us”.

Only one participant commented about her involvement in protecting instructional time which was limited to ensuring that her teachers went to class. Ms Skop said; “I make sure that my teachers do not laze around”, and her teacher, Ms Ntha agreed, “They monitor us in the staff room when we are sitting in here instead of being in class”.

The HoDs' role in their teachers' continuous professional learning (CPL) was limited to a few activities. For instance, Ms. Ntha explained that her HoD appointed the attendees of training workshops organized elsewhere on a needs basis: "When you teach a class that experiences many learning problems the HoD normally chooses you to represent the school in relevant workshops so that you can gain the necessary skills to solve some of your problems". Ms. Maki is the only HoD who cited an example of an activity that she organized to equip her teachers with some skills:

> *For example, number of classes allocated, number of lessons in the scheme cause them some discomfort such that I held an internal departmental workshop and actually taught them. We taught each other and helped each other with how we can scheme, what is meant by methods and which ones are the main resources*. (Ms. Maki, Monti HS)

Discussion

Lesotho has introduced a new career and salary structure for teachers indicating that a teacher qualifies for departmental leadership after teaching for a minimum of five years with a Bachelor's degree in education (MoET, 2019). This criterion implies that HoDs in Lesotho are not hired based on prior leadership training. The participants reported a lack of continuous professional learning related to instructional leadership in the form of in-service training during the implementation process as was also the case in Tafai and Tsakeni's (2022) and Schleicher's (2012) studies. Untrained leaders lack leadership expertise and experience and hence depend on their own experiences and intuition to improve classroom practice. Ogina (2017) asserts that a lack of expertise and experience results in a loss of self-confidence and confidence related to their practice. This implies that the participants exist in a state of frustration owing to a lack of confidence linked to leading people. For instance, one participant cited a lack of self-confidence related to supervising teachers who had higher qualifications than herself. One participant did not feel confident enough to lead people with the same qualifications as himself, and also about occupying an acting position.

Clinical observation of classroom practice is among the processes of instructional supervision with a significant impact on learning outcomes (Ampofo et al., 2019; Islam et al., 2019). Two participants mentioned that even when they attempted to observe some teachers, they were turned down because those teachers found the visits

inappropriate. This is not a surprise because the job description of the HoDs states this role generally as coordinating instructional activities (MoET, 2019). The teachers may not be aware that this is part of the leadership role. According to Gedik and Bellibaş (2015), secondary-level teachers have a higher sense of being experts due to their specialization during teacher education programs than their counterparts from primary schools. This may be the explanation for the participants who felt uncomfortable and hence declined their HoDs' observation offer.

The main challenge facing the heads of multi-disciplinary or federal departments such as the Science department is being responsible for many subjects some of which are not within the HoDs' majors (Malinga & Jita, 2020). This contributes to the problem that transpired during the interviews that the participants were able to guide the teachers of some but not all the subjects in their departments. The implementation of the instructional leadership practice was not balanced among the subjects within the Science departments in the schools selected for the current study owing to a lack of competence in some subjects and large workloads, among other reasons. Many participants had insufficient time for instructional leadership because they had large workloads. As a result, such HoDs focused most of their attention on their teaching roles rather than their leadership roles. It is also not surprising that the participants assisted teachers of the subjects they were trained on and neglected others.

The participant HoDs had satisfactory levels of instructional leadership in all constructs. The participants' mean scores were highest in Categories 2 (M=3.95) for setting and discussing goals, 4 (M=3.93) for coordinating curricular activities, and 1 (M=3.90) for providing teaching and learning resources. Nonetheless, the interviews reveal that some decisions were not shared, more so in some schools than others. The interviews also divulge that the regular check-ups of the workbooks were conducted to ensure conformity rather than meaningful implementation of curricular guidelines as was also the case in Malinga et al.'s (2022) study. This is because the workbooks that were checked were only signed by the participant HoDs instead of giving meaningful feedback. The participant HoDs presented positive feelings about the provision of materials in their schools even though some teachers did not share their sentiments. One of the participants attributed her school's success in providing instructional resources to having a science teacher for a principal probably because they had the same understanding of how crucial they are. Some participating teachers

expressed a lack of material and human resources in their schools, thus suggesting that the provision of resources was ineffective in some schools.

The mean scores of the participants were low for Categories 7 (M=3.40) for providing feedback on teaching and learning, 5 (M=3.43) for monitoring the learning progress, and 3 (3.45) for supervising instructional activities. The common denominator between these three categories is their direct link to what transpires inside the classroom. The interviews and document reviews illustrate that the participants were more active in supervising out-of-classroom activities. This is a disadvantage to the Science departments because as Alsaleh (2020) asserts, teachers are more likely to require assistance for classroom activities than outside-the-classroom instructional activities.

Conclusions

This study investigated the instructional leadership practices and perspectives of the HoDs for science to establish whether or not their leadership is sufficient for them to be regarded as the last level of the formal hierarchy of school leadership. The Lesotho secondary school HoDs for science who partook in this study had a satisfactory engagement with all the instructional leadership constructs. However, there were some disparities in the way the success of instructional leadership practice was achieved.

Firstly, the HoDs actively supervised the instructional activities performed outside the classrooms but paid less attention to the supervision and evaluation of the in-class teaching and learning. Secondly, the HoDs believed that a department leader must be competent in the subjects they lead but this was not true in their case. They provided unbalanced support to different subjects, thus marginalising those that were outside their major subjects. This paper consequently recommends the appropriate placement of HoDs and their subsequent support in terms of training and resources.

Some of the reasons raised by the respondents for the disparities in their instructional leadership practice include the large workload, unfamiliar content of some of the subjects, and a lack of confidence. The lack of competence in the subject matter impedes instructional leadership attempts departmental leadership depends solely on content expertise (Munna, 2021). This necessitates the distribution of instructional

leadership to be extended beyond departmental leadership. The main argument in this study is that the HoDs should not occupy the last level of leadership. The schools could distribute instructional leadership to teacher leaders for each subject to reduce the HoDs' workload and harness the potential of the teachers' expertise in different subjects. A responsibility similar to a class teacher role for different streams within a grade/form could be applied to subjects whereby a teacher can be appointed either formally or informally to be accountable for a particular subject.

The findings of the current study should be used with caution, particularly for generalisation purposes owing to limited triangulation as a result of a lack of observations and the exclusion of principals and deputy principals, among other school leaders. This limitation creates a methodological gap that can be closed by further research with a deeper analysis to aid the sense-making of the practices of the HoDs regarding various subjects. However, the conclusions from this study should be rendered useful because they were generated from a variety of data sources. The study also contributes evidence that is necessary for the conceptualisation of distributed instructional leadership for the improvement of academic performance in secondary schools in the context of a developing country. This evidence adds more insight into the understanding of the concept of instructional leadership by the HoDs of a multi-discipline subject department such as a Science department whilst calling for more research to unpack the strategies for optimising the engagement of the HoDs.

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2.3 Article 3: Sent to South African Journal of Education

Implementing the Integrated Curriculum in Lesotho Secondary Schools: Insights from Heads of Departments for Science

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Abstract

The heads of departments (HoDs) have the subject expertise that enables them to assist teachers with the content and tailor the school atmosphere for subject-specific instruction. However, departmental leadership for secondary schools, in particular, is not fully acknowledged practically and theoretically, and its principles are still ambiguous. Therefore, this mixed methods research of a convergent parallel design explored the instructional leadership of the HoDs for science aimed at improving the implementation of the new integrated curriculum in Grade 8. The sample consisted of 67 schools selected through concurrent nested random cluster sampling. Data

collected through an instructional leadership questionnaire were analysed through statistical analysis software while interview and document data were thematically analysed. The HoDs had a high instructional leadership activity even though they lacked first-hand experience in teaching the integrated curriculum. Some HoDs in this study facilitated the improvement of curriculum implementation in an integrated manner while others abandoned the idea of integration in their departments. We recommend the employment of curriculum integration methods that are more suitable for secondary schools. Effective monitoring and evaluation of the implementation process need to be practised at the school and national levels.

Keywords: distributed instructional leadership, heads of departments, integrated curriculum, learning area, mixed methods, science, technology.

Introduction

School leadership remains undervalued despite its potential to significantly influence instruction (Dania & Adriani, 2021; Thornell, 2022). School leadership becomes instructional leadership when it focuses on the improvement of pedagogical activities thus increasing its importance for enhancing education (Munje, Tsakeni & Jita, 2020; Munna, 2021). Instructional leadership depends on first-order changes which are directly linked to classroom activities including curricular and instructional design changes to improve student outcomes (Manaseh, 2016). These first-order changes manifest as a positive learning environment that is created through instructional leadership (Demirdag, 2021).

The academic world has recently increased in complexity, thus complicating the leadership practice (Zahed-Babelan *et al*., 2019). This has necessitated instructional leadership to be extended beyond one leader because most leaders commit more time to administrative duties than to instructional advancement (Chikwanda, Masaiti & Banda, 2020). Consequently, instructional leadership has recently become a distributed practice (Sahlin, 2022). This paradigm shift has assisted the education

systems to incorporate other people into the leadership practice for instructional improvement.

The heads of departments (HoDs) form a critical component of the school leadership distribution initiatives that enhance instruction (Alsaleh, 2019, Tsakeni, Munje, & Jita, 2020). These HoDs are the focal point of instructional leadership, particularly during reforms, owing to their consistent and significant influence on classroom practices than the school leaders or government officials (Leithwood, 2016; Peacock, 2014; Sengai, 2021). The HoDs are also considered to be the representatives for change because they model good practice. They also ensure good relations between their teachers, thus building their confidence to partake in the implementation of any innovation (Doherty, 2021). The HoDs' subject expertise also enables them to assist teachers with the content and to tailor the school atmosphere for subject-specific instruction (Barton, 2013; Ghavifekr & Ibrahim, 2014; Mampane, 2017; Munna, 2021)). These HoDs also solicit external support for their teachers by promoting intra- and/or inter-school collaborations between teachers of the same subject (Sahlin, 2022; Thornell, 2022).

However, the instructional leadership role of the HoDs is yet to be fully acknowledged by both the educational systems and the researchers for secondary schools, in particular (Leithwood, 2016). This means that although the subject departments are considered to be valuable groups, the principles of departmental leadership are still not clear (Du Plessis & Eberlein, 2018). This paper recognises this gap and acknowledges the urgency of research that explores the contribution of HoDs towards school leadership. Research on the HoDs' distributed instructional leadership function is even more significant for underdeveloped countries such as Lesotho, which require drastic educational reforms for their socio-economic growth.

Background

None of the components of the education system require more effective leadership strategies than the secondary schools owing to their low-quality instructional leadership that may lead to resistance to innovations (Macann, 2020; UNESCO, 2021). According to Akuma and Gaigher (2021), most educational challenges are experienced in senior secondary and natural science. For instance, secondary schools

experience low student results in national examinations, as well as a high student dropout rate (Lesotho, Examinations Council of Lesotho/ECoL, 2020; UNESCO, 2021). These challenges originate from the large school size, the complicated curriculum in secondary schools, and the lack of relevant research (Leithwood, 2016). The challenges at the secondary school level are aggravated by the leaders' lack of expertise and their confusion regarding managerial and instructional leadership practices (Malinga, Jita & Bada, 2021). These challenges explain the selection of secondary schools for the focus of this study.

The world has recently shifted its attention towards the incorporation of 21st-century abilities into learning and the ongoing discovery of knowledge. As a result, the students in this era require lifelong learning, data management, sense-making, creative thinking, and problem-solving, among other aptitudes (Drake & Reid, 2018). Curriculum integration is considered to be among the key strategies through which education can better prepare students for the 21st-century lifestyle by improving knowledge construction creativity and self-reliance (Kneen *et al*., 2020; MoET, 2021). This is because the integrated curriculum perspective advocates for student-centred pedagogy and democratic learning to develop both the knowledge and attitudes of the modern world.

Consequently, the world is consistently attempting to adapt to these changing times through curriculum reforms and Lesotho is not an exception in this regard. The current innovation in Lesotho, namely the Integrated Basic Education Curriculum (IBEC) is the most recent curriculum change since the end of the British colonial rule in 1966 (Raselimo & Mahao, 2015). This curriculum innovation was prompted by the Curriculum and Assessment Policy (CAP) of 2009, and it was introduced in stages in 2012 (Lesotho, Ministry of Education/MoET, 2021). The CAP emphasises that education should integrate what happens at school, at home, and within the learners themselves through the integration of subjects (MoET, 2009). As a result, IBEC incorporates the traditional subjects into windows and learning areas for the lower (R-4) and higher (5-8) grades, respectively. For instance, science, agriculture, home economics, technology, geography, life skills as well as physical and health education constitute the "Science and Technology" learning area (Lesotho, National Curriculum Development Centre/NCDC, 2018). This bunching together of many subjects

negatively impacted the quality of the content owing to the way it has been presented both in the syllabus and in the classrooms (MoET, 2021).

Therefore, even before the rollout of this new curriculum was completed, CAP which is the focus of this study, was already under review and being replaced with the Lesotho Basic Education Curriculum Policy (LBECP). According to this new policy, CAP was not effectively implemented owing to a lack of planning, supervision, and evaluation (MoET, 2021). Jita (2021) opines that this may be a result of a lack of commitment towards innovations owing to the introduction of new curricula only as political attempts towards compliance with the international educational standards for Lesotho, Zimbabwe, and South Africa. Niemelä (2021) also advocates that effective curriculum integration requires high levels of the subject matter. Lesotho teachers were declared to have lacked this content knowledge during the IBEC implementation owing to their lack of appropriate qualifications, among other reasons (MoET (2021). Unlike the CAP that demanded curriculum integration from Grade R up to Grade 8, LBECP, therefore, proposes the integration of subjects for Grades R to 4 only.

This study consequently explored the leadership practices in Lesotho secondary schools that were undergoing one of the greatest transformations marking an important stage in the history of the Lesotho education system viz, the implementation of IBEC. The current study sought to answer the following question: How are the instructional leadership practices of the HoDs for science enacted to assist teachers in the implementation of the new integrated curriculum?

Theoretical Framework

The need for educational improvement is linked to the following two-fold justification of viewing this investigation through distributed instructional leadership (DIL): On one hand, DIL advocates for most of the leaders' attention to be focused on improving instruction (Shaked, 2022). On the other hand, instructional advancement can only be achieved through the effective distribution of efforts (Malinga, Jita & Bada, 2022; Mosoge & Mataboge, 2021). This means that this study was viewed through an integration of two leadership models, namely the instructional leadership model and distributed leadership (Bakkali, 2020). For instance, the concept of distributed

leadership is rather ambiguous on its own, even though it is the most popular among models related to leadership involving several individuals (Shava & Tlou, 2018). Integration is therefore an attempt to strengthen the framework of a study.

Instructional leadership has many dimensions which were discovered as a crucial component of the Effective School Movement in the USA between 1960 and 1980 (Bellibaş, Kilinç & Polatcan, 2021; Chikwanda *et al*., 2020). The majority of leadership research in that period was dedicated to discovering meaningful dynamics of educational performance (Australia, Department of Education, 2022). Instructional leadership matched with accountability demands compelled a shift of attention from a random form of managing schools to leadership that focuses on successful instructional activities (Munna, 2021). Consequently, instructional leadership is increasingly prioritised by any leader who needs to improve their school performance.

The potential of instructional leadership to enhance classroom practice has been attributed to the creation of a conducive learning environment (Abdulaziz, *et al*., 2021; Demirdag, 2021; Mora-Ruano, Schurig & Wittmann, 2021). This principle places instructional leadership second after classroom instruction among the most significant factors influencing learning achievements (Lethwood, Harris & Hopkins, 2019; Thornell, 2022). This means that the impact of instructional leadership on student outcomes is incidental but influential because it improves teaching, which in turn has a more direct effect on student learning (Townsend, 2019). As such, instructional leadership remains among the most proficient leadership models for achieving affirmative learning outcomes (Dania & Adriani, 2021).

Instruction is a manifold phenomenon requiring the distribution of leadership functions among staff members, students, and instruments that drive the education system (Doherty, 2021; Matsepe, 2014; Sahlin, 2022). However, the efficacy of the enactment of distributed leadership is more significant than the activity of the distribution of power itself (Spillane, 2005). The emphasis of DIL lies on the collaboration of the leaders and their followers in terms of the subject matter, instead of their isolated behaviour or traits (Malinga *et al*., 2022; Mosoge & Mataboge, 2021).

Collaboration for sharing knowledge and resources is an example of the effective distribution of instructional leadership (Doherty, 2021; Sahlin, 2022). Expert leaders such as HoDs have the potential to enhance the efficacy of DIL with their content-

related competencies (Munje *et al*., 2020). Nonetheless, the function of these expert leaders is influenced by educational policies and guidelines (Diamond & Spillane, 2016). These guidelines, coupled with the curriculum form the major component of the school leadership context. This paper consequently focuses on the interactions within the science departments concerning the curriculum and assessment policy (CAP) and the Grade 8 Science and Technology syllabus.

The diagram in Figure 1 illustrates the principles of the distributed instructional leadership model.

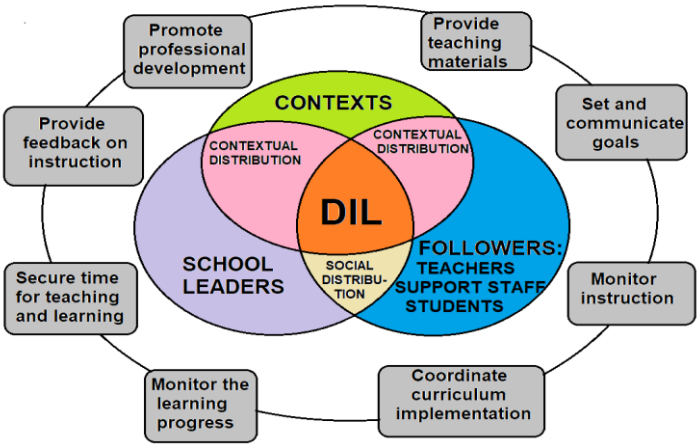

Figure 1: DIL model guiding the features of leadership in the current paper.
Source: Adapted from ideas of Hallinger and Murphy (1985), Spillane, Halverson & Diamond (2004), Akram, Kiran, and Ìlğan (2017), and Day and Sammons (2016).

Figure 1 illustrates the collaborations of the leaders, followers, and contexts. The collaborations between various individuals represent social distribution while the collaborations between people and their resources signify contextual distribution (Halverson & Clifford, 2013). The outermost layer of the diagram illustrates the eight functions that have the potential to enhance school leadership and these include monitoring instruction, providing resources, and coordinating the curriculum (Dermidag, 2021; Kaur & Noman, 2020). These functions have been translated into the eight constructs used in the questionnaire. These functions, coupled with the distribution aspects of the model were translated into the interview and document analysis protocols.

Methods

The mixed-methods research approach and pragmatism were employed in this paper. This is because they are applicable to investigations with diverse research questions that can be addressed through the employment of both quantitative and qualitative approaches (Cohen, Manion & Morrison, 2018). A convergent parallel design was employed because according to Schoonenboom and Johnson (2017), it is more time- and cost-effective than the sequential designs as it allows both data sets to be collected independently.

A sample of schools was selected through a multi-stage method, namely concurrent nested random cluster sampling as per Given's (2008) and Johnson's (2014) suggestion. As Creswell & Creswell (2018) posit, schools are easily accessible compared to individual HoDs, hence their engagement as units of sampling in this study. A Random.org (2021) number generator was employed to ensure the randomness of the quantitative sample for purposes of accuracy and efficiency necessary for generalising the conclusions. The final sample consisted of 67 secondary schools from all the districts of Lesotho. One HoD from each school responded to a 5-point Likert-scaled questionnaire with 40 statements based on the integrated model of instructional leadership in Figure 1. The descriptive analysis of the questionnaire responses was conducted using Statistical Analysis Software/SAS (2013). This analysis aimed to enumerate and organise the quantitative results for meaningful reporting (Cohen *et al*., 2018).

Stratified purposive sampling was employed to select four schools from the bigger sample because Etikan, Musa and Alkassim (2016) believe it allows the comparison of responses from various contexts. The HoDs from these four schools were then asked to choose one of their Grade 8 teachers to participate in the interviews through convenience sampling. The four HoDs and the four Grade 8 teachers were individually interviewed through semi-structured and open-ended questions to allow them to express themselves freely and honestly. The interviews were audio-recorded to have a detailed account of what was revealed with minimum interference. The interview data were transcribed and coded to identify meaning for thematic analysis as Du Plessis and Eberlein (2018) suggest. The interviewees' workbooks (preparation books, scheme books, record of work done, and minute books), as well as the relevant policies (CAP and LBECP) and the Grade 8 ST syllabus, were also analysed for content related to instructional leadership.

The questionnaire employed in this study was an adaptation of validated instruments, namely Hallinger and Murphy's (1985) principals' instructional management rating scale (PIMRS) and Akram *et al*.'s (2017) instructional leadership questionnaire (ILQ). However, the new questionnaire was re-validated through inferential statistics and piloting because some of the items from the original instruments were combined following Creswell and Creswell's (2018) suggestion. The questionnaire had reasonable internal consistency because the Cronbach Alpha coefficients were 0.69, 0.80, 0.63, 0.67, 0.70, 0.68, 0.73, and 0.70 for categories one to eight respectively. Most (71%) of the Pearson inter-item correlation coefficients for the categories were between 0.5 and 0.77 which Cohen *et al*. (2018) and Ling *et al*. (2015) regard as an acceptable level for social research. The correlation p-values were all below the significance level ($\alpha=0.05$) thus revealing that the categories were significantly and linearly related to each other, meaning that the questionnaire had acceptable content validity based on Ahrens, Lirani and de Fransisco's (2020) study. Both the questionnaire and the interview protocol were piloted in two secondary schools to improve the items and enhance their reliability and validity according to Creswell and Creswell (2018). For instance, in the pilot questionnaire, the items were categorised and given headings but in the final form, the items were mixed and the headings were removed to avoid leading the respondents to answer them in a certain way. The data collection instruments were then self-administered to augment the credibility of the procedures.

Ethical Considerations

The University of the Free State, relevant school authorities, and the Lesotho Ministry of Education and Training granted this study permission to be conducted within a specific code of ethics. Participation in this study was voluntary and anonymous and the information was handled with confidentiality as suggested by Cohen *et al*. (2018). Information regarding this research namely, the purpose, procedures, intended uses, participants' roles, and possible risks was communicated to the participants and authorities in writing. This research was declared independent and free from any conflicts of interest.

Results

This section discusses the practices and perspectives of the HoDs and the teachers related to the implementation of the Grade 8 Science and Technology curriculum. The discussion will be completed with the presentation of the cues or lack of, thereof, given by the curriculum and policy documents.

Assisting the teachers in the implementation of the Science and Technology curriculum

Teachers' continuous professional learning

Table 1 displays the descriptive data for the five sub-constructs of promoting continuous professional learning (CPL) among teachers.

Table 1: Descriptive statistics of the HoDs in promoting teacher learning

Sub-construct	N	Mean	SD
All	67	3.53	0.7
8. Learn with teachers	66	3.50	1.0
20. Discuss the subject matter and the new curriculum	66	3.90	0.9
29. Evaluate teacher learning	66	2.64	1.1
35. Select teacher workshops	66	3.89	1.1
38. Suggest improvements based on assessment data	67	3.15	1.2

Table 1 illustrates that the participant HoDs were moderately engaged with promoting their teachers' learning in four-fifths of the sub-constructs in this category (M=3.15-3.90). Their highest score was attained in Items 20 (M=3.90) and 35 (M=3.89) for engaging their teachers in discussions related to the content knowledge and the new curriculum as well as selecting teacher workshops, respectively. The lowest score (M=2.64) obtained in Item 29 related to the evaluation of CPL indicates that their activity in this function was below average.

It, therefore, does not come as a surprise that these participants' highest scores were attained in Items 20 and 35 because the interviews also reveal that the level of collaboration in selected schools was high. The first approach employed to address some of the implementation challenges was teamwork whereby teachers discussed the solutions to the problems and shared knowledge. This was necessitated by the

type of students who have resulted from the new integrated curriculum in primary schools whom the teachers generally considered to lack pre-requisite knowledge and learning skills. The participant teachers opined that the quality of all the integrated curriculum students was lower than that of their counterparts who were doing the old curriculum.

Ms Ntha indicated: "They are difficult to teach. The present ones cannot even write... They do not even come close to writing the right thing because they seem to be writing in Afrikaans". Mr Juvi also added:

> *For the Grade 8, most of the time you find that they need special attention. ...even mere writing is a struggle for them. They need somebody who comes to their level which is very low, so it becomes difficult. The grades 8, 9, etc. are the same but different from the Forms A, B, etc. The grade classes are actually not good*. (Mr Juvi, Mohai HS)

The teachers, consequently, collaborated by sharing content pedagogical knowledge (PCK) that would be suitable for teaching such students. For instance, Ms Ntha solicited assistance related to content knowledge from another department:

> *When we have problems …, we bring them to other teachers so that they can advise accordingly… If there is something you cannot teach, you approach the Geography teacher so that they can teach it for you. However, if it is something that is easy to understand, then they give you the material that you can read. Even though I have the reading material, there is one female teacher with whom we team-teach.* (Ms Ntha, Pelo HS)

Ms Skop added that sometimes her teachers solicited help from outside their school and from the school principal:

> *Some were consulting from other schools and that seems to have helped them...Our leader is supporting us. As a science teacher herself she really supports us a lot. She even helps us with the teaching of our subjects whenever we experience problems.* (Ms Skop, Pelo HS)

Ms Maki also shared that consultations among teachers were important as follows; "…He/She is an agriculture person but he/she is able to teach it (ST) alone through consulting."

The participant HoDs also facilitated the attendance of workshops organised by the country's Ministry of Education and Training to equip teachers with PCK. All the teachers expressed positive feelings towards the workshops, even though they were concerned that these workshops had either stopped happening or occurred less frequently. For instance, Ms Ntha expressed her feelings about one workshop that was organised in her district:

> *...We went to district education office where we were dealing with integration to avoid teaching according to our majors, but trying to teach them as one thing. We got there it seemed that we were just playing but it was later explained that it was the way in which we should teach the Grade 8 learners because that is how their brains work. I remember that we made an example of chemistry whereby we included agriculture in it. It was nice indeed.* (Ms Ntha, Pelo HS)

Mr Juvi added that the workshops usually addressed effective teaching strategies which he appreciated: "They motivated me on how we can teach them". Nonetheless, the participants reported the recent lack of support in terms of in-service training as one of the barriers to the successful implementation of the new curriculum in Grade 8. Mr Thabi emphasised: "We used to have them in the past. Honestly, we no longer have them. I think for the past two years there was nothing except for the dissemination of Grade 8". Ms Lebo had not attended even the Grade 8 syllabus dissemination workshop: "We never had a chance to attend Grade 8 workshops. I heard rumours that we were supposed to attend at some point but we just started teaching them". Ms Ntha added: "I have never attended any workshop. They do not happen that much. I do not remember any from last year".

Ms Lebo explained that in the absence of the government workshops, they organised their online meetings through their subject associations during the COVID-19 era:

> *We have an association called MaScaRA… We stopped the activities of the association because of corona. ... When we realised that we could not easily meet, we ended up creating a page for Maths and Science teachers whereby we could easily communicate urgent matters. … We also share ways of dealing with the learning challenges of our students.* (Ms Lebo, Monti HS)

Ms Ntha also expressed positive feelings about the strategic selection of teachers who needed more assistance to attend the training in her school: "When you teach a class

that experiences many learning problems, the HoD normally chooses you to represent the school in relevant workshops so that you can gain the necessary skills to solve some of your problems". However, Ms Maki as the HoD represented her school in the workshop for disseminating the ST syllabus. When Ms Maki was asked to comment about the professional development of the science teachers she said; "…Last time I checked was when they were disseminating this new syllabus to be given the syllabus copy and getting an explanation about how we should work".

Some of the selected schools also decided to collaborate on teaching the new ST syllabus together. This is because most interviews revealed that teaching ST as a learning area in Grade 8 was difficult. Most participants asserted that they did not have the content knowledge and pedagogical skills for some subjects they were expected to teach within this learning area. Mr Santos said: "It is taught by one person. Someone will not be well equipped with the content of certain subjects." Ms Lebo also stated:

> *The greatest challenge with the Grade 8 is the fact that as the subject is Science and technology, one teacher has to teach it as it is with all its components. My main challenge with this setup is that I did not do computer studies. How am I going to help a child when I know nothing about it? I still do not know the correct way of teaching them.* (Ms Lebo, Monti HS)

Mr Maru was the only participant who felt comfortable teaching the ST learning area as a whole. However, he expressed his concern for the challenge as it pertains to the student teachers by stating; "It is so difficult, why because on behalf of the interns…, they did Home Economics at the college but here they are teaching Physics, Biology, Chemistry, and Agric".

Two schools, therefore, separated the ST learning area into its components to enable different teachers to teach their majors. When he was asked how they solved some of the problems encountered in ST in Grade 8, Mr. Santos mentioned that:

> *We discussed as the department that we should at least split it. It is true that the ministry does not encourage this issue of splitting because it does not have integration. We took it from the angle that where one is confident they should continue so that another person can take the other part.* (Mr Santos, Mohai HS)

Ms Maki explained what happened in her school as follows:

We met a challenge in grade 8 Science and Technology when the principal and the deputy principal told us to remove Agriculture so that it could be taught on its own. The others should teach the Sciences as they are. We met we found that there was still a challenge so much so that we ended up having a separate teacher for Physics, Chemistry, and Biology in Grade 8 Science and Technology. (Ms Maki, Monti HS)

Support for the implementation of the new curriculum

Table 2 presents the mean and standard deviation scores of the participating HoDs in the five sub-constructs of providing materials for teaching and learning.

Table 2: Descriptive results for the HoDs' provision of materials.

Sub-construct	n	Mean	SD
All	67	3.90	0.6
1. Provide resources	65	4.00	0.8
9. Guide teachers on the use of resources	67	3.30	1.0
18. Report on resources	66	3.92	0.9
25. Ensure accessibility of resources	67	4.09	0.7
34. Ask teachers to recommend resources needed	66	4.18	0.9

Table 2 illustrates that the overall category mean for the construct of providing materials was 3.90. The participants' activity in this construct was high because three-fifths of the sub-constructs were scored above 4/frequently with the highest score of M=4.18 for probing the teachers for materials to be purchased.

The interviews confirmed that the participant HoDs did not only support their teachers in terms of resources but also with the subject matter. Ms Ntha commented:

Yes, there are times when we need some things, especially in ST because it requires a lot of things. You find that the things that there are things we need. She helps us with content too and she is always willing to drop whatever she is doing to help you if she can. (Ms Ntha, Pelo HS)

Ms Lebo from Monti High School also stated the following about her own HoD: "She is a person who follows up on what she wants. For instance, we were promised that methylated spirits will be bought for our laboratory and she nagged the office until it was bought". M. Skop also reported that she collaborated well with her principal to provide materials for her teachers:

The school bought the necessary textbooks for different subjects. The school also photocopied the materials for the teachers in situations where the textbooks were not available. Oh yes, no, our department is greatly supported by the administration because we always get what we need after submitting our budget every year. (Ms Skop, Pelo HS)

Nonetheless, the interview with Mr Maru from Khetho High School reveals that they did not get much support for instructional materials: "…Why because we regularly talk about the Science Lab equipment then write down but even today nothing. So, I can't say they are supporting us".

Supervision of instruction

Table 3 is a summary of the scores in the functions supervising instructional activities of the science teachers.

Table 3: Descriptive data for supervising instructional activities

Sub-construct	n	M	SD
All	67	3.45	0.7
10. Observe teaching	66	2.92	1.3
11. Encouraging activity-based teaching	67	3.67	1.0
17. Model Science teaching	66	3.35	1.0
24. Review workbooks and teaching aids	66	3.89	1.0
39. Motivate teachers to improve	67	3.64	0.8

Table 3 illustrates that the overall mean score for all the participants was 3.45 and their scores for four of the five sub-constructs in this category were also in the range of 3.35 to 3.89. These results indicate that the HoDs' activity in this category was above average, except in the function of observing classroom activity of which the mean score was 2.92.

The interviews divulge that a review of workbooks was attained through periodic evaluation of the documents such as lesson plans, scheme books, and records of work done, among others. For instance, Ms Skop expressed her practice as follows: "If it is the day designated for checking lesson plans, then I check them together with the scheme books." Ms Skop also highlighted that she modelled good practice by ensuring that her lesson preparations were completed. She believed that doing the right thing gave her the courage to monitor the teachers:

I always ensure that I am the first one to have lesson plans for my classes. That motivates me to check other people's work. It gives me the courage to ask anybody for the lesson plans when it is time to check them. (Ms Skop. Pelo HS)

Ms Maki also hinted that she sometimes modelled contemporary teaching practice:

Sometimes I invite somebody of the very same subject to go and listen with me so that we could help each other. Or else we end up teaching for each other right away whereby he/she goes with me to watch me teaching a maths topic to later say that here you did well but here I did not understand. How about we do it like this… (Ms Maki, Monti HS)

Two participants indicated that they understood the importance of observing classroom activities. Ms Maki said, “Because I believe through observations even the subject that you do not know well, you may end up having a slight idea when you realise that oh, this is what they do in here”. Nonetheless, the data in Table 6 reveal that the HoDs’ activity of observing classroom practice was the lowest of all the functions in this category. This was reiterated during the interviews which disclosed that the participant HoDs did not visit the classrooms to observe teaching and learning but for their own learning and team teaching.

Ms Skop declared she had not visited the classrooms: "I have not gone to class for supervision in a long time". Ms Ntha agreed with her HoD (Ms Skop) about classroom observation: “Both the HoD and the principal do not go to classes. They monitor us in the staff room when we are sitting in here instead of being in class." Mr Thabi admitted that he visited classrooms strictly on demand: "No, not necessarily most of the time we do it when a person has asked you when they say that you should come and check me." Ms Maki also admitted that she visited only some teachers instead of all the teachers: "I do it but not to all teachers. Some of them refuse and say no, I don't feel comfortable when you come to my class to watch me. Some of them they don't have the problem." Nevertheless, their teachers disagreed with them. Mr Maru disputed that Mr Thabi visited their classroom: "He has never come." Ms Lebo also refuted that Ms Maki observed classroom activity: "I do not remember her coming to my class or seeing her going with another teacher to class."

Table 4 illustrates the teaching subjects of the HoDs who partook in the quantitative part of the study and the respondents of the qualitative phase.

Table 4: Teaching subjects of the participants (n=67)

Teaching subject	Quantitative sample (n=67 with 1-3 subjects per person)		Qualitative sample (n=4 with 2 subjects per person)	
	Frequency	Percentage	Frequency	Percentage
Mathematics	39	63	3	38
Chemistry	24	39	2	25
Physics	22	35	1	13
Science and Technology	2	3	1	13
Geography	1	2	1	13

Data in Table 4 demonstrates that only 2.99% of all the participants and one of the interviewees taught ST and hence had some level of experience in its implementation. Most (62.9%) of these HoDs could not teach ST because they were Mathematics Education specialists. The interviews divulge that the participants referred to the experiences of other teachers in their departments, instead of their knowledge. For instance, Ms. Skop said: “The teachers did not know how to handle them”. Mr. Santos also used the pronoun ‘they’ in his responses as follows: “One of the challenges that they raised is the issue of teaching ST”. It is, therefore, not necessarily surprising that the participant HoDs did not observe classrooms because the data in Tables 4 illustrate that they did not have the necessary experience to supervise the teaching in Grade 8.

The policy and curriculum guidelines

The curriculum and assessment policy organised the secondary curriculum into five learning areas, consisting of 17 core-contributing subjects and six compulsory subjects (MoET, 2009). The ST learning area classifies the content into six themes namely, science from the personal and social perspective, physical sciences, life sciences, earth and space science, energy as well as technology (NCDC, 2018). These themes seem to suggest the concepts that are related and hence could be integrated even though the pedagogical details regarding the actual integration are not provided. Table 6 illustrates an excerpt of the syllabus showing the concepts in the theme of technology as well as the details of learning outcome 46.

Table 5: The excerpt from the Grade 8 ST learning area syllabus document

Learning outcomes under the 'Technology' theme	Learning outcome 46. Perform basic functions of Excel.			
	Concepts, skills, values, and attitudes	Suggested learning experiences	What to assess	Suggested resources
42. Describe simple machines and their applications. 43. Describe the care and maintenance of garden tools and tractor-drawn implements. 44. Demonstrate cleaning and care for wooden equipment and utensils. 45. Use technology to save money. 46. Perform basic functions program.	Concepts: Spreadsheet Graphs and Charts, etc.	Teachers and learners revise the spreadsheet. Learners collect data and enter it on the spreadsheet. Etc.	Collect data. Enter data on the spreadsheet. sort data on the Spreadsheet. Create sheets and label them. Etc.	Computers Pictures Cellular Phones

The activity plan of the ST syllabus (Table 5) presents the details of each learning outcome independently from other learning outcomes without combining content from various subjects. The separation of learning outcomes thus enables the content to be taught in any way possible, including fragmentation and integration by one or more teachers, among other strategies. This ambiguity may explain the variations in the implementation of the integrated curriculum in selected schools.

Discussion

The challenges regarding the implementation process

The lack of relevant experience was identified as the challenge that faced the HoDs in this study because they did not possess first-hand experience in teaching the ST curriculum. The Lesotho government also declared that the HoDs could not properly supervise the implementation of the CAP owing to a lack of experience (MoET, 2021). The findings demonstrate that 97% of the participants did not teach ST and therefore did not have the necessary experience to guide its implementation. Most of these

participants (62.9%) were Mathematics teachers and therefore they could not effectively teach a learning area with eight science disciplines. This problem is not peculiar to Lesotho because a South African study also reveals that more than 50% of its sample of HoDs for science did not teach Natural Science yet they were expected to supervise its instruction (Malinga *et al*., 2021). This means that these HoDs did not understand the syllabus themselves and as such, they could not provide the necessary supervision and guidance to their teachers. This highlights the key issue of inappropriate placement of the HoDs.

Successful curriculum integration requires high levels of pedagogical content knowledge of all the subjects involved (Niemelä, 2021). However, the participants in this study complained that the organisation of eight Natural and Applied Science subjects into one learning complicated their practice, particularly because one teacher was expected to teach all those subjects. These teachers highlighted that they lacked knowledge of some of those subjects. The teachers also identified that the students who came into Grade 8 as the products of the new integrated curriculum lacked the expected pre-knowledge. These participants believed that the integrated curriculum had reduced the quality of education in Lesotho contrary to the claim that curriculum integration enhances knowledge construction and creativity (Kneen *et al*., 2020; MoET, 2021). The HoDs, teachers, and students in selected schools lacked the competence levels necessary for the implementation of the ST curriculum.

The findings reveal that the government did not guide the participants through in-service training. The schools navigated the implementation process without the necessary knowledge and skills related to the new ST curriculum (MoET, 2021). The government seemed to lack commitment towards meaningful implementation of the new curriculum possibly because as Jita (2021) asserts, the introduction of this new curriculum may have been a political compliance stunt for international educational standards.

The dissemination workshops were the only form of training related to the ST curriculum that most participants admitted to having experienced. However, in one of the schools, the HoD attended this workshop and the ST teacher did not receive the workshop information because it was allegedly not shared. While it may not be a bad idea for the HoDs to attend the workshops as the custodians of all the subjects in their

departments, it is necessary for them and any other delegate to disseminate the training to their department. This is especially important in situations where the HoDs do not teach the subject in question as was the case with that school.

Strategies for effective implementation of the curriculum

Collaborations contribute significantly to the creation of a conducive climate for instruction (Alsaleh, 2020; Sengai, 2021). The HoDs in selected secondary schools of Lesotho facilitated a certain degree of continuous professional learning through the strategic selection of teachers who attended the government training workshops. The participants have also reported that the government-led workshops have recently diminished leaving them to devise other means of collaboration for sharing the subject matter and skills. Such collaborations occurred at both intra and inter-school levels. The intra-school collaborations also occurred within and outside the Science department. The results also show that having a science specialist as a principal had a positive impact on such collaborations.

Jita (2021) asserts that instructional practices in schools are sometimes not a reflection of the expectations of the curriculum. The ST curriculum has been designed as one learning area meant to be taught by one teacher but some participants taught it in a fragmented manner to mitigate the lack of knowledge among teachers. This implies that the participant schools assimilated the curriculum to make it suitable for their contexts and this resulted in one curriculum being implemented in different ways. The reversal of curriculum integration from intermediate primary to secondary level by the new policy in 2021 supports the resolution taken by some schools to teach ST as independent traditional subjects. However, this would also mean that some subjects were not taught. For instance, subjects such as agriculture, home economics and physical geography which form part of the ST learning area are not compulsory. This implies that the schools would not have a teacher qualified for these subjects and they may not be allocated to any teacher.

Some of the participants reported that they adequately supported their members of the department in terms of providing them with the necessary resources for instructional activities. However, it is apparent from the findings that it is more difficult for the HoDs to supply materials in an environment that does not support collaborations and cooperation. This is because the participants who were not satisfied

with the resources in their schools were the ones who also expressed a lack of cooperation between the members of the department and the school leaders. The HoDs who cooperated with their leaders were in a better position to secure resources for their departments than their counterparts who felt unsupported by their leaders.

Alsaleh (2020) opines that teachers have the potential to require more assistance for instructional activities that happen inside than outside the classroom. The participants highlighted that they improved the implementation of ST through the supervision of instructional activities. However, these participants focused on ensuring that the teachers conformed to the regulations by checking their workbooks regularly instead of observing them in the classrooms to have a sense of the actual implementation process. This means that the participants dedicated more of their time to the out-of-class than the inside-classroom activities which is disadvantageous to curriculum implementation.

Conclusions and Recommendations

The heads of departments have the potential to promote curriculum implementation as agents of change (Sengai, 2021). The HoDs in this study, therefore, employed a certain degree of distributed instructional leadership to uphold the implementation of the Grade 8 Science and Technology curriculum. These HoDs involved teachers in decision-making and assimilated their school contexts to respond to the challenges of the implementation process. The HoDs encouraged their teachers to collaborate in terms of sharing knowledge, pedagogical skills, and instructional resources within and outside their schools. However, most of the selected HoDs lacked experience in teaching the ST curriculum because they were not suitably qualified to teach it, among other reasons. The HoDs must experience the actual teaching of the subjects in their departments because subject expertise is the distinguishing factor between the HoDs and other instructional leaders. We, therefore, recommend the restructuring of departmental leadership to separate science and mathematics into two different departments and the employment of subject leaders for each science discipline to promote the effective placement of HoDs according to their majors. We also recommend that the HoDs enrol in massive open online courses (MOOCs) for leadership training related to effective instructional supervision.

The integration of concepts within a wide range of curriculum areas is one of the major challenges experienced by instructional leaders (Day & Sammons, 2016; Leithwood, 2016). The participants in this study had a negative attitude towards the impact of curriculum integration on the quality of education. However, we argue that the mode of integration adopted in Lesotho secondary schools was problematic in that it was the continuation of the primary school practice. While this approach may be appropriate for primary schools where teachers have been trained to teach multiple subjects, this may not be the case for secondary schools. The secondary school teachers have been trained to teach a maximum of two subjects, hence their concern for lack of content knowledge in other subjects outside their majors is justified. The issue should not be how many teachers teach the learning area but how the areas are brought together meaningfully by one or more teachers. Consequently, we recommend that the decision of how change is implemented should be a result of multi-level and on-going collaborations.

The findings of this study should be cautiously considered owing to the limitations related to the lack of observations and follow-up interviews due to restrictions of the COVID-19 pandemic. Even though the follow-up interviews could have been conducted through other means of communication, it was difficult to do it without causing distress to the participants who were staying at home for most of the time. However, the results shed important light on evidence from a developing country's perspective on research and practice. One of the key contributions of this study is the model of distributed instructional leadership outlined in the theoretical framework section. This model can be extended by improving the understanding of the instructional leadership concept for change through research that includes more departments and deeper data analyses.

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Section 3: Discussion, Conclusions and Implications

This third and last section of the study report discusses the summarised results and findings as they pertain to the research questions and aims. The conclusions drawn from the research findings are also highlighted. Lastly, the section tables the implications of the study for practice and research and outlines its limitations.

3.1. Discussion of Results

This sub-section summarises the findings from exploring the following main research question: How can the perspectives and practices of science HoDs on instructional leadership in Lesotho secondary schools be described? The discussion is approached through the following sub-questions to unpack the main research question:

1. What are the views, beliefs, and attitudes of selected secondary school HoDs for science regarding instructional leadership in Lesotho?
2. How are the instructional leadership practices of science HoDs implemented in a sample of Lesotho secondary schools?
3. How can we make sense of and explain the instructional leadership perspectives and practices of science HoDs in the secondary schools of Lesotho?

3.1.1. Research question 1: HoDs' views, beliefs and attitudes towards instructional leadership

Views, beliefs and attitudes regarding instructional leadership

The findings from Article 2 reveal that the HoDs for science selected for this study had positive feelings regarding their instructional leadership even though they lacked the confidence to some extent. For instance, Mrs Maki stated that: "All in all I like being an HoD. …I now have a lot of experience in Maths than in Science". Ms Skop expressed her feelings as follows: "I like my job because I can do it well at this level. But then when it comes to knowledge, there are a lot of things I do not know about being an HoD". Mr Thabi had the following comment about his departmental leadership: "I think it is okay. It is not difficult if only the people you are working with are cooperative". Mr Santos also said: "That position, as I am still acting, is like it can be permanent so that when you do the work… At the moment one still has that lack of

confidence". These results indicate that the HoDs associated their lack of confidence with the temporary status of the leadership position (Mr Santos), lack of knowledge and experience in some subjects (Ms Maki) and lack of leadership skills (Ms Skop).

Data in Table 2, Article 1 illustrate that 98% of selected HoDs had a teaching qualification of a Bachelor's degree (83%) /Honour's degree (6%) or Master's degree (9%) level and 52% of them had more than 10 years of leadership experience. The interview data in Article 2 also affirms that three of the four interviewed HoDs felt competent enough to assist their teachers with the scientific concepts in some of the subjects in their departments. For instance, Ms Ntha's comment on her HoD (Article 2) was: "She is properly certified for the HoD position. …She is also good with the content". Nonetheless, Ms Lebo reported that her HoD lacked scientific content knowledge because she did not specialise in Science but in Mathematics: "She has majored in Maths but I cannot remember her second major even though I think it is geography. …No, we are the ones who help her because she is not competent with the science subjects allocated to her". As Doherty (2021) and Munna (2021) emphasise the HoDs are entrusted with the extra obligation to supervise other subject teachers because of the amount of experience and expertise they have. Subject content matter is the distinguishing factor between HoDs and other instructional leaders and this renders it to be a pre-requisite for departmental leadership.

However, 28% of the participants (Table 1, Article 1 and Table I, Article 2) were employed as acting HoDs because they did not meet the minimum requirements for promotion into permanent departmental leadership positions namely, a Postgraduate Certificate in Education or a Bachelor's degree in Education coupled with a five-years teaching experience as recommended by MoET (2019). The interviews also established that half of the interviewed HoDs were acting in their leadership positions, the ripple effect of which was reported as a lack in self-confidence. For instance, one of the four HoDs, namely Mr Santos expressed a lack of confidence in his practice of instructional leadership due to his insecurity and feeling of lack of authority over his teachers that is linked to the temporary or acting status of his leadership position. He stated: "That position, as I am still acting, it's like it can be permanent so that when you do the work… at the moment one still has that lack of confidence". This may have been the feeling of the other HoDs from the quantitative phase of this study who were

temporarily employed as departmental leaders. This view is supported by the literature that suggests that contractual positions have the potential to negatively influence the performance of skilled workers, in particular owing to their lack of job security as highlighted by Goldan, Jaksztat and Gross (2022) as well as Lisi and Malo (2017).

Some qualified and experienced participants who occupied permanent and pensionable contracts also disclosed their lack of confidence regarding their leadership function. For instance, one of the four permanently employed interviewees (Ms Skop) admitted that she was not confident in monitoring and supervising some of her teachers because they had higher qualifications than herself: "In some areas, I often feel like I am too scared to approach some of the teachers who are more knowledgeable than I am because some people in the department may have higher qualifications or competence than you do". This problem can be exacerbated by the positions of power, such as being the school principal, which are normally held by individuals with high qualifications within the school system. Another major reason for the low confidence levels among selected HoDs was the lack of teaching experience related to the teaching of the science and technology learning area (ST) in Grade 8 because only two of the 67 participants had taught the subject in question (see Table 2, Article 1 and Table 4, Article 3). The rest of the participants could not confidently supervise the implementation process of the ST curriculum owing to their lack of experience in that subject.

Some participants did not have adequate scientific content knowledge because they majored in either one or none of the natural or pure science subjects. On one hand, Table 2 (Article 1) demonstrates that 55% of the participants had majored in mathematics and 63% of the participants were mathematics teachers. On the other hand, Table 4 (Article 3) illustrates that one of the interviewees had majored in mathematics and geography. This shows that if a participant had majored in Mathematics and an applied science subject (e.g. Agriculture or Geography), they would not have any competence in science. However, many of these participants had majored in Mathematics and a Science discipline such as physics (38%) or chemistry (35%) in most cases (see Table 4, Article 3). Some of these participants declared that their supervision was limited to the subjects in which they were mostly competent and

confident during the interviews (Article 2). For instance, Ms Maki said the following about classroom visits:

> *I do it but not to all teachers. We meet as maths and scheme together… I also give the science teachers a chance to do the same but I don't get to be with the science people when they do that*. (Ms Maki, Monti HS)

This finding corroborates the literature that some of the HoDs in local and international studies are neither adequately experienced nor trained to guide other teachers (e.g. Ogina, 2017; Smith *et al*., 2013; Schleicher, 2012; Tlali & Matete, 2020). These two findings imply that the HoDs in the schools selected for the current study differed in competence and this affected their confidence levels and attitude towards instructional leadership of all or some of the subjects in their science departments.

Perspectives regarding the implementation process

The interview findings (Article 3) reveal that the interviewed teachers and HoDs generally had a negative attitude towards the Grade 8 ST syllabus which is part of the new Integrated Basic Education Curriculum (IBEC). The reasons associated with the negative attitude portrayed towards the ST learning area were three-dimensional: The first opinion voiced against the ST syllabus was related to the organisation of the curriculum into a learning area constituted by many natural science and applied science subjects. The participants emphasised that the expectation of the Curriculum and Assessment Policy (CAP) of 2009 of subjects taught by one teacher is neither feasible nor realistic. Ms Lebo stated: "The greatest challenge with the Grade 8 is the fact that as the subject is Science and technology, one teacher has to teach it as it is with all its components". This is because both the HoDs and the Grade 8 teachers interviewed in this study experienced the challenge of not being competent in some of the subjects included in the ST learning area. Ms Lebo continued: “My main challenge with this set-up is that I did not do computer studies”. Mr Maru had the following opinion regarding student-teachers who were doing their teaching practice in his school: “They did Home Economics at the college but here they are teaching Physics, Biology, Chemistry, and Agric”. The Lesotho Ministry of Education and Training (MoET) seems to have also realised that they might not have chosen the best integration method, hence the new policy namely, the Lesotho Basic Education Curriculum Policy/LBECP

replacing the CAP has dismantled the learning areas back to the original subjects with the (MoET, 2021).

The second source of the negative attitude discussed in Article 3 was related to the type of students enrolled in Grade 8. These students were deemed to be challenging to teach because they did not necessarily have the content knowledge and learning skills required for that level. "They are difficult to teach. The present ones cannot even write". The interviews reveal that this problem cuts across all the new grade levels (as opposed to the old form levels), which consisted of the students who had gone through the new integrated curriculum. Mr Juvi expressed: “The grades 8, 9, etc. are the same but different from the Forms A, B, etc. The grade classes are actually not good”. This means that the Grade 8 students lacked even the basic learning skills such as writing, among others, hence the interviewees’ opinion that the new curriculum (IBEC) has brought a decline in the quality of education in the country.

The third origin of the negative attitude regarding the ST learning area among the participants of this study was linked to the lack of support from the MoET. The support areas that these participants were mainly concerned about were related to the teachers' pedagogical content knowledge (PCK) of handling the integration of the curriculum. The interviewed teachers believed that the students must be taught by teachers with a variety of special skills and knowledge, the details of which remained ambiguous to the participants. The new LBECP also attested to this effect by emphasising that the teachers currently employed in Lesotho schools were not adequately prepared to teach the content of the learning areas, nor were they monitored and assessed during the implementation process (MoET, 2021).

For instance, the participants expressed that they were not adequately inducted into the implementation process of the integrated curriculum as the innovation, nor were they receiving guidance during the implementation process. Some of the interviewees indicated that the in-service training workshops regarding the integrated curriculum/IBEC were limited to the workshops where the syllabus was disseminated. Mr Thabi had the following opinion about the government workshops: “Honestly, we no longer have them. I think for the past two years there was nothing except for the dissemination of Grade 8”. It was revealed that some participants had never attended any workshop organised by the MoET regarding the implementation of the new Grade

8 ST syllabus when Ms Lebo said: "We never had a chance to attend Grade 8 workshops".

3.1.2. Research question 2: HoDs' instructional leadership practices

Results of the individual questionnaire items

The questionnaire in the current research consisted of two sections. The first part required the participants to complete their demographic details, while the second one required them to answer a total of 40 questions on instructional leadership. The following part of the discussion of results deals with the descriptive results obtained from the analyses of the individual questionnaire items. The discussion addresses the functions commonly and actively practised by selected HoDs followed by those not so popular.

The participants rated their instructional leadership activities within the Likert point range of 1 which represented almost never, up to 5, which represented almost always. The results in Figure 2 and Table 4 (Article 1), Tables III and IV (Article 2) and Tables 1, 2 and 3 (Article 3) reveal that the mean scores of the participants for most instructional leadership behaviours were above three (M=3.40-3.95), which was set as the standard for this paper based on Nwanekezi *et al*.'s (2011) view that the standard mean is the sum of the five Likert points divided by their total number. These results lead to a finding that the instructional leadership activity of the selected HoDs was in the range of a moderate to high level which was above standard.

The results from Table 4 (Article 1) also demonstrate that the HoDs from selected schools were most active in their practices related to formulating departmental goals with all the members (M=3.95), coordinating curricular activities (M=3.93), and ensuring accessibility and correct use of educational materials (M=3.90), among others. This finding implies that the leadership activity of the HoDs is comparable with that of the principals for which the PIMRS was initially created, as reported in Amakyi's (2021) and Hallinger and Murphy's (1985) studies. These relatively high scores provide evidence that suggests that HoDs can potentially contribute to the success of distributed instructional leadership. Consequently, this study supports the standpoint that HoDs are more successful in their practice of instructional leadership because

they are experts and practitioners of content and pedagogy in the subject matter in their departments (Barton, 2013; Ghavifekr & Ibrahim, 2014; Munna, 2021).

The action plan put in place by these HoDs to advance the performance of their departments includes the following, among others: reviewing their teachers' workbooks, modelling noble teaching, promoting collaborations, and adapting the curriculum to match their context.

The HoDs monitored and supervised the subject matter covered in the lessons by reviewing the teachers' documents related to the classroom activity, namely lesson preparations, scheme books, and records of work done (Article 3). For instance, Ms Skop expressed this about her practice: "If it is the day designated for checking lesson plans, then I check them together with the scheme books". Ms Maki added that she gave feedback to her teachers both in meetings and at the individual level: "I did them both. If there is something like a misconception or lack of understanding I call the teacher to look at it together and then I write with my pen that, checked and recommendations made". Ms Skop also added: "I still give individual feedback by commenting inside the scheme and discussing the points of concern with the relevant teacher. In a meeting I just generalise common issues". Even though these participants reported during their interviews that they provided feedback in the form of written comments on the teachers' books, the work documents themselves did not show any signs of written feedback except for the HoDs' signatures. This implies that the HoDs in this study may have provided only oral feedback from the reviews either to individual teachers, groups of different subject teachers or the entire department, depending on the type of feedback. These reviews might have been a matter of ensuring that the teachers complied with the cues of the curriculum instead of being used for obtaining feedback to upgrade classroom practice, as was the case in Malinga *et al*.'s (2021) study of South African HoDs. It is more meaningful to provide written feedback because it leaves a trail of evidence that can also serve as a constant point of reference in the future for purposes of sustaining the improvement.

Some of the participants also modelled contemporary teaching strategies (Article 3). One interview revealed that Ms Skop modelled effective planning by ensuring that her workbooks had been completed before checking the teachers' books: "I always ensure that I am the first one to have lesson plans for my classes". Another interview revealed

that Ms. Maki participated in team-teaching which allowed her teachers to learn from her while she also learned from them: “Or else we end up teaching for each other right away whereby he/she goes with me to watch me teaching a maths topic…”. However, this practice of becoming a role model of effective pedagogy may have been hindered in the case of HoDs who lacked the experience of classroom teaching in the case of the Grade 8 ST learning area and other science disciplines, because most of the participating HoDs did not teach Grade 8 and/or majored in Mathematics. The function of role-modelling of instructional leadership practices was performed at an above-average (M=3.35) activity level (see Table 3, Article 3). However, it is also possible that the HoDs were implementing some of the strategies that were employed by other leaders within or outside their schools, whom they regarded as their role models to attain success as was the case in Akram *et al*.’s (2017) and Hallinger and Murphy’s (1986a) studies. It is not surprising that HoDs such as the ones in this study feel the need to have role models to follow in an attempt to fill the void left by their lack of formal leadership training either before or during their tenure in HoD positions. This supports the findings from studies of Islam *et al*. (2019) as well as Zepeda and Kruskamp (2007) that the HoDs depend on learning through their own experiences instead of receiving formal training related to instructional leadership.

All the participating HoDs declared collaborations with other people within and outside their department and school borders to share knowledge, skills and resources (Article 3) as shown by Ms Skop’s statement that: “Some were consulting from other schools and that seems to have helped them”. One of the most crucial platforms used to facilitate inter-school collaborations is the subject associations of which some participants were members. Ms Lebo said: We have an association called MaScaRA… When we realised that we could not easily meet, we ended up creating a page whereby we could easily communicate urgent matters. We also share ways of dealing with the learning challenges”. These teachers also discussed the content of the new syllabus and shared skills and knowledge of how best they could deliver the content to the students. Some participants confessed to collaborating with other departments and their school leaders who taught the same subject. For instance, Ms Ntha stated: "When we have problems …, we bring them to other teachers so that they can advise accordingly… If there is something you cannot teach, you approach the Geography teacher…”. Ms Skop also said: “Our leader is supporting us. As a science teacher

herself…, she even helps us with the teaching of our subjects whenever we experience problems".

Besides attending some of these workshops themselves, the HoDs also strategically appointed the workshop attendees based on their needs. For instance, Ms. Maki represented her department in the ST syllabus dissemination workshop but Ms Skop sent relevant teachers. Ms Maki's comment regarding this was: "Last time I checked was when they were disseminating this new syllabus, to be given the syllabus copy and getting an explanation about how we should work". Ms Ntha said: "When you teach a class that experiences many learning problems, the HoD normally chooses you to represent the school in relevant workshops so that you can gain the necessary skills to solve some of your problems".

The participants attended training workshops organised by MoET which they rendered useful to their practice (Article 3). While the participants admitted that the workshops have recently decreased their frequency, they also attested that the workshops were important to them. Mr Maru stated that workshops equipped them with the pedagogical skills suitable for science teaching. When he was asked to comment on the content covered in the workshops he said: "The teaching methods and how best we can teach them". Ms Ntha added that the workshops afforded them as teachers the opportunity to learn how to integrate subjects for effective implementation of the ST syllabus in Grade 8 by commenting that: "...We went to district education office where we were dealing with integration to avoid teaching according to our majors, but trying to teach them as one thing. …It was nice indeed".

However, in 50% of the cases, selected HoDs made a deliberate and conscientious joint decision with their teachers to disregard the legitimate cues of the curriculum instead of adhering to them (Article 3). The perceived guideline of the curriculum that was mostly ignored was the integration of the curriculum by one teacher. Two of the four interviewed HoDs decided that the teaching of the ST learning area would be more effective if they disintegrated the subjects and taught them separately as they did before to allow each teacher to focus their attention on the content that they were both confident and competent to teach. Consequently, in some of the schools, the components of the ST learning area were taught separately by different teachers as if they were traditional subjects instead of being taught as one subject by one teacher.

For example, Mr Santos explained what happened in his school as follows: "We discussed as the department that we should at least split it. It is true that the ministry does not encourage this issue of splitting because it does not have integration". However, the other half of the schools conformed to what they reported to have been communicated to them during the dissemination workshop and went ahead to teach ST as a learning area.

The other instructional leadership function that was popular (M=3.95) among the participating HoDs shown in Table 4 (Article 1) is related to the goals of the department and/or school. This means that these HoDs were actively involved in the formulation of goals in their departments. Even though the participants generally declared that they did not hold departmental meetings owing to the restrictions of the COVID-19 pandemic, some of them expressed that they were still involved in the decision-making processes of their departments and/or schools. Examples of the decisions in which the members of the department are involved include allocations of classes to teachers and requisition of teaching and learning materials, among others. Ms Ntha described what happened in her school by saying: "We are involved in decision-making in the department. …Even when it comes to class allocation and workloads, she discusses it with us… Even at the school level, we are still involved in decision-making". However, some of the participants were not involved in the allocation of the duties in their departments. For instance, Mr Thabi's comment about decision-making in his school was: "Actually, we don't have a say. Things mainly originate from the principal" and Mr Maru (his teacher) agreed: "Things like being a class teacher, supervision of study, ah, we are not considered there. We are just told that you will go there". This study therefore argues that collaborations in decision-making related to the setting of goals enhance participation in the implementation of the goals.

Table 4 (Article 1) illustrates that the activities in which participants of this study experienced low involvement included the monitoring of the learning progress (M=3.43), the provision of feedback on instructional activities (M=3.4), and the supervision of classroom activities (M=3.45). The low activity of the HoDs in the evaluation and assessment of the progress of student learning may be a result of limited classroom supervision which was revealed not only during the interviews in this

study but also at the global level as illustrated in studies such as those of Geleta (2015), Gedik and Bellibaş (2015), Islam *et al*. (2019), and Manaseh (2016).

The low activity in the construct related to the supervision of instructional activities was confirmed by the interview responses (Article 2) by revealing that the current study's sample of HoDs visited the classrooms even though they only visited some teachers instead of all the teachers. Ms Maki's comment regarding whether or not she performed classroom observations was: "I do it but not to all teachers. …I can even go to the laboratory to watch them performing the experiments". These HoDs affirmed that the classroom visits that they conducted were not necessarily purported to observe and supervise the teachers, but they were rather aimed at enhancing learning from each other as well as promoting team teaching. Ms Skop gave the following example: "We only go to class together for team teaching". The reports of the HoDs' lack of classroom observation were also confirmed during the interviews with the Grade 8 ST teachers. Mr Maru's statement about his HoDs' classroom visits was: "He has never come". This was also the case in Malinga *et al*.'s (2021) South African study where the HoDs only visited the classrooms for other reasons than providing support for instructional activities.

Clinical observation of classroom activities is among the major processes of instructional supervision that have a significant impact on learning outcomes (Ampofo *et al*., 2019; Islam *et al*., 2019). The lack of classroom observations among the HoDs in this study who had relatively high instructional leadership activity is an illustration that the participants were more active in the out-of-class activities rather than in the functions that are performed inside the classrooms where actual teaching and learning manifest. Alsaleh (2020) highlights that focusing on out-of-class instructional activities is a disadvantage because teachers have a higher tendency to solicit assistance related to in-class than for outside-the-classroom instructional activities.

In an isolated case of a Zimbabwean study, contrary to other findings, heads of history departments performed classroom observations effectively (Sengai, 2021). However, this finding was based solely on the HoDs' self-reports rather than the actual observations of the actual classroom visitation practice. Furthermore, the HoDs' self-reports were not triangulated with the teachers' or other leaders' reports regarding their classroom visits to establish their credibility. The conclusions based exclusively

on the HoDs' self-reports in Sengai's (2021) may require to be interrogated further to address the issue of bias of the HoDs' responses.

Results of the categories of instructional leadership constructs

This part of the discussion of results covers the descriptive and inferential results obtained when the questionnaire items were analysed as categories or the eight main constructs of instructional leadership practices namely, 1. Provision of instructional materials, 2. Stating and communicating goals, 3. Supervision of instruction, 4. Coordination of curriculum, 5. Monitoring of the learning progress, 6. Protection of instructional time, 7. Provision of feedback on teaching and learning, and 8. Promotion of professional learning among the teachers.

The data (Table 4, Article 1) show the mean scores for the participants of the current study as a range between 3 (sometimes) and 4 (frequently) in all the eight constructs of instructional leadership practices. This finding confirms that the instructional leadership involvement of the participating HoDs was above average. These HoDs had their maximum engagement with Category 2, which incorporates practices linked to communication of departmental goals where they scored their highest mean of 3.95. The lowest mean score (3.4) for the HoDs was obtained in Category 7, which covered the provision of instructional feedback, thus rendering the activity of the participants low in this category. This means that the participants of this study had their highest involvement with the instructional leadership dimension of 'setting and communicating goals'. This also happened in one African study by Bada *et al*. (2020) as well as in another study conducted abroad by Bellibaş *et al*. (2015) where the principals' scores were highest in the dimension of setting goals.

The results in Table 4 (Article 1) demonstrate that the mean scores of the HoDs occupying permanent leadership positions (M=3.47-4.03) were greater than those of their counterparts in temporary positions (M=3.06-3.71) in all the instructional leadership practices. This means that the HoDs employed on a permanent contract basis had higher engagement with instructional leadership than the other group of HoDs who were employed as acting department leaders. This finding was corroborated during the interviews whereby Mr. Santos who was acting as an HoD reported his position was the cause of his insecurity (see section 3.1.1. a). The HoDs

in acting or temporary positions felt insecure and hence less powerful in their departments and these circumstances resulted in low levels of motivation among these HoDs regarding the performance of instructional leadership in a successful and meaningful manner.

The ANOVA results also indicate that the F-values were high enough and p-values low enough for Categories 1 (F=7.05, p=0.01) and 3 (F=5.36, p=0.02) to translate into substantial differences between the groups of HoDs employed under different employment conditions (Table 4, Article 1). This implies that the employment status differences between the participants in the practices related to the procurement of instructional resources and evaluation of classroom practices were statistically significant. This also means that the status of the position held by leaders in terms of being either permanently or temporarily employed may have an impact on the practice of distributed instructional leadership in part because it affects their sense of authority as well as their confidence.

3.1.3. Research question 3: Making sense of the HoDs instructional leadership perspectives and practices

HoDs' instructional leadership views, beliefs and attitudes

The first finding in this study is the HoDs' negative attitude towards some of the subjects in their departments which manifested as selective and limited assistance towards those subjects. This attitude may be attributed to the following factors: Firstly, the science HoDs from selected schools had large workloads hindering the success of their functions. One of the main reasons for their increased workloads is linked to the conglomerate nature of the science department which consists of a variety of subjects including, but not limited to, the natural and applied sciences together with Mathematics. These subjects, coupled with the HoDs' normal teaching loads of 20 to 35 periods per week (Table 3, Article 1) divide their attention between numerous activities as was the case in Du Plessis and Eberlein's (2018) and Malinga *et al*.'s (2021) studies. For instance, a good number (31.25%) of the schools had four or more subjects in their departments, including the subjects incorporated into the ST learning area in Grade 8, some of which are not necessarily pure or applied sciences. For

instance, the subject that addresses life skills is also a component of the integrated ST learning area even though it is not a natural/applied science subject. Subsequently, the HoDs may choose to focus most of their attention on their teaching roles because that is where their expertise and confidence are based.

Secondly, The HoDs from selected schools had low levels of competence and confidence to help the teachers in some of the subjects in their departments. The range of subjects within the department implies that the HoDs are faced with the responsibility of supervising the subjects that they were not necessarily trained to teach (Du Plessis & Eberlein, 2018; Malinga & Jita, 2020). The subjects that are not within the HoDs' scope of specialisation ended up being neglected in terms of supervision and support, which in turn has a negative influence on classroom practice in the whole department. For instance, Ms Maki admitted to having content meetings only with the teachers of the subject that she was also teaching in the following statement: "We meet as Maths and scheme together… I also give the Science teachers a chance to do the same but unfortunately... I don't get to be with the Science people when they do that".

Thirdly, the HoDs also lacked the confidence to execute their instructional leadership roles in general. This may be explained in part by the lack of leadership experience and training for the HoDs who were suitably qualified and permanently employed. It may also be explained by the insufficient job security and a sense of lack of authority that normally accompanies the temporary positions in the case of the HoDs in acting leadership positions (Goldan *et al*., 2022; Lisi & Malo, 2017)). This means that the acting HoDs were not content with the knowledge that their jobs were always in jeopardy of being terminated at any point in time. The lack of confidence was also caused by a lack of appropriate qualifications and an inferiority complex caused by the knowledge that some teachers are more qualified than the participant HoDs in some cases. In another case, a participant lost their self-confidence because she believed she was used by her leaders as their extra hand for performing their jobs instead of being allowed to make decisions for the development of her department as it were also the case in Leithwood's (2016) study.

Lastly, the lack of teaching experience in some of the subjects among selected HoDs also contributed to the seemingly negative attitude that some HoDs had toward those subjects. The majority of the HoDs (63%) in this study's quantitative sample were teaching Mathematics while 55% of them were Mathematics majors. Based on the assumption that they had two major/teaching subjects, this implies that these HoDs had knowledge or experience of only one or none of the natural science disciplines (Table 4, Article 1, Table 4, Article 3). This means that most of these HoDs could assist their teachers confidently in only one or none of the natural science subjects. For instance, Ms. Lebo indicated that the teachers in her school were assisting their HoD (Ms. Maki) in terms of the scientific content because she was teaching only Mathematics even though she had also majored in Geography during her training as a teacher (section 3.1.1.a).

The second finding is that the HoDs and teachers from selected schools seemed to have a negative attitude towards the integrated curriculum, which manifested as a belief that the integrated curriculum has reduced student outcomes in Lesotho schools. The explanation of the adverse attitude towards the integrated curriculum is manifold: Firstly, 97% of the HoDs from schools selected for the quantitative phase of this study were not teaching Grade 8 at the time of this study (Table 4, Article 3). All of the HoDs selected for this study also reported on other teachers' experiences regarding Grade 8 because they referred to "they" in all their responses. Even Ms Skop who had indicated that she was teaching ST expressed herself in the third person by stating the following opinion about her science teachers: "Some were consulting from other schools and that seems to have helped them". These results reveal that the HoDs in this study did not necessarily have first-hand experience related to the actual teaching of the ST learning area in Grade 8. This means that the HoDs from selected schools could not effectively monitor and guide the members of their departments in the teaching of the integrated syllabus in Grade 8. These HoDs also could not model the modern pedagogies required for the integration of concepts in Grade 8. The realisation that the HoDs are not leading by example and not providing guidance and support in their departments when it comes to the teaching of Grade 8 has the potential to demotivate their teachers.

Secondly, the implementation of the ST syllabus was characterised by a lack of professional training before and during the implementation process as discussed in section 3.1.2. For instance, the interview results reveal that participating HoDs and teachers alike had not been provided with adequate training regarding the teaching of the ST syllabus and the concept of curriculum integration in general. The reflections of the Lesotho government in the new Lesotho Basic Education Curriculum Policy of 2021 also reveal that the HoDs could not properly supervise the implementation of the CAP owing to a lack of experience (MoET, 2021). This means that neither the HoDs nor the teachers had the necessary guidance regarding the implementation of the integrated curriculum both at school and national levels.

Thirdly, the method of integration employed in Lesotho secondary schools, where one teacher integrates many subjects, may not be suitable for the secondary school level. One of the main factors that render this method of integration inappropriate for secondary schools relates to course specialisation in the secondary level qualifications. This means that student-teachers are taught a few major subjects and as such they may not be able to teach non-major subjects effectively. The practice of integrating many subjects by one teacher also contradicts the principle of distributed leadership that emphasises collaboration. This principle asserts that success in classroom practices is better achieved through collaborations that occur within and across the boundaries of subjects and/or programmes (Diamond & Spillane, 2016; Spillane *et al*., 2001).

Instructional leadership practices related to the whole department

The third finding was related to the high levels of instructional activity of the HoDs from selected Lesotho secondary schools in the current study which can be explained in several ways. One of the possible reasons for the HoDs' high instructional leadership engagement is related to the idea that most of the HoDs from the schools selected for the quantitative sample (98.46%) were appropriately qualified for teaching (Table 2, Article 1; Table V, Article 2). This finding shows that these HoDs were experts in at least some of the subjects under their jurisdiction. This gives them an advantage of being in a better position for distributed instructional leadership because they have expertise in a higher percentage of subjects in their jurisdiction than the principals who are accountable for all subjects as also proposed by Du Plessis and Eberlein (2018),

Ghavifekr and Ibrahim (2014), Harris and Spillane (2008), Mampane (2017) and Smith *et al. (*2013). Another reason could be that most of the HoDs who participated in this study (52%) had 10 or more years of instructional leadership experience (see Table 2, Article 1 and Table V, Article 2). Experience is one of the factors placing leaders in a better position for instructional leadership, especially because the HoDs in this study did not undergo any formal leadership training before or after their appointment (Mampane, 2017; MoET, 2010). Adequate qualifications and work-related experience are capable of enhancing the distribution of instructional leadership for the betterment of academic achievements.

The HoDs were less actively involved with instructional leadership practices related to observing and reporting on classroom activities. Gedik and Bellibaş (2015) also clarify that classroom observations are limited among secondary schools in their study because the teachers believe that they are experts in their subjects and hence they believe that they are not required to be monitored or assisted. The findings in this study reveal that the purpose of the HoDs' classroom visits involved neither purposeful observation nor the intent to provide feedback on the teaching practice. The lack of classroom observation among HoDs has a ripple effect on the provision of feedback on instructional activities because the HoDs could not effectively report on what they have not experienced.

One of the advantages of a distributed instructional leadership perspective lies in its potential to allow an investigation of how leadership is enacted in a variety of contexts. The idea of different contexts explains the variations between the day-to-day functions of the current study participants. The leaders' ability to consider the relationship between their behaviour, routine and access to resources plays a major role in the enactment of a distributed form of instructional leadership (Halverson & Clifford, 2013). Consequently, how the HoDs from selected Lesotho secondary schools conducted instructional leadership was influenced by their school contexts. The contextual factors that define schools are normally manifested as proprietorship, size, location, availability and accessibility of the instructional resources, as well as the strategies employed to enhance instructional outcomes, among other factors (Diamond & Spillane, 2016; Lee *et al*., 2012). For instance, the employment status of HoDs' is an example of a factor that had an unfavourable effect on the execution of the leadership

role in that the group of HoDs employed under permanent and pensionable contracts were generally more active than their colleagues who were appointed on a provisional basis.

However, most of the contextual factors such as the differences in location of school, type of school, major subjects, and workload, among others, between various groups, which may have resulted from varying factors, were not statistically significant. The only statistically significant differences were the employment status differences of the HoDs in terms of their engagement with the provision of resources for teaching and learning as well as the supervision of instructional activities. However, the explanation for the significance of these differences was not explored in the current study even though it can be associated with the lack of confidence that was expressed by one of the interviewees, namely Mr Santos. The results in Table 4 (Article 1) show that the mean scores of the acting HoDs for the eight constructs of instructional leadership were all lower than those of the HoDs who held permanent leadership positions. These two groups of HoDs both had their minimum mean scores (3.06_{acting} and $3.47_{permanent}$) in their enactment of the provision of instructional leadership. These two groups also had their maximum mean scores (3.71_{acting} and $4.03_{permanent}$) discussing departmental goals with their teachers. This means that the HoDs in temporary positions are always lagging behind the HoDs with permanent contracts, probably because they are less motivated to perform regardless of the level of difficulty of the role.

Practices regarding Grade 8 ST instructional leadership

The findings in this study (Article 3) divulge three major behaviours of instructional leadership employed by selected science departments as strategies aimed towards the improvement of the implementation process of the Grade 8 ST syllabus.

The first and most common instructional leadership practice employed by participating schools was teamwork, whereby teachers, HoDs, and principals in some cases, shared knowledge, skills, resources as well as the actual teaching roles. These collaborations among teachers occurred both at inter-departmental and inter-institutional levels in some cases. The practice of collaboration and cooperation is consistent with the frameworks of distributed leadership and PIMRS, which state that instructional success is possible only if there are collaborations throughout the entire

organisation or system (Hallinger & Wang, 2015; Lee *et al*., 2012; Spillane, 2005). This means that a distributed perspective of instructional leadership advocates for the establishment of a strong connection between leadership and instructional activities.

The second practice employed by the schools in the present study was related to professional learning provided through in-service training workshops towards effective implementation of the Grade 8 ST syllabus. The literature demonstrates that successful instructional leadership can be achieved when personnel in a variety of positions collaborate across different boundaries to improve their content knowledge which is among the most critical aspects of instructional leadership (Diamond & Spillane, 2016; Lee *et al*., 2012; Spillane *et al*., 2001). As discussed earlier the respondents stated concerns regarding the low rates of workshops organised by the ministry and departmental meetings following the COVID-19 lockdown regulations.

Subsequently, as mitigation for the lack of government-led workshops and departmental meetings, the teachers established online platforms whereby they could collaborate in their quest to learn together through subject associations. These teachers, therefore, took advantage of the availability of technology and subject associations to mitigate their challenges related to the lack of opportunities for continuous professional learning. This finding suggests that the instructional leadership in these schools was not distributed among the people only, but the schools also used the aspects of their contexts to find solutions to emerging challenges such as the lack of training and support, among other challenges (Sun *et al*., 2013). According to Spillane *et al*. (2004), effective collaborations involve not only the people-people interaction but also the people-material interactions. This means that the schools selected for the current study employed both types of distribution of instructional leadership namely, social distribution and contextual distribution. The schools in selected Lesotho secondary schools also implemented a collaborative approach to distributing leadership whereby many individuals are simultaneously engaged in the same action (Spillane & Diamond, 2007). The science HoDs in the sample of the current study practised distributed instructional leadership in their departments by involving their teachers and adapting their school contexts to develop a more positive learning environment.

The third and last strategy was related to the teaching of the Grade 8 syllabus as an integrated learning area. This is in accordance with the principle which emphasises that the enactment of distributed instructional leadership is affected by the guidelines of the policy documents and other official statements, which form the key elements of the school context (Diamond & Spillane, 2016). The two main documents guiding the curriculum implementation in Lesotho schools were the Curriculum and Assessment Policy (CAP) framework and Grade 8 Science and Technology syllabus documents. These two documents are grounded in curriculum integration as a holistic approach to education through strategic selection of the instructional content and pedagogy (MoET, 2009; NCDC, 2018). As a result, the Lesotho Ministry of Education Training officials allegedly disseminated the message that teachers were required to implement an approach of curriculum integration whereby one teacher taught all seven traditional subjects constituting the Grade 8 ST learning area. However, schools were divided on the issue of curriculum integration of all the subjects by one teacher.

Some of the participating schools adhered to the advocacy of the government officials while others resolved to divide the learning outcomes of ST the syllabus and teach them as fragmented subjects as they originally did before the current reform. As has already been pointed out, the subjects in question are Life Sciences, Physical Science, Information and Communication Technology, Home Economics, Agriculture, Physical Geography, as well as Health and Physical Education. However, the decision to overlook the prompts of the curriculum document related to the integration of the concepts was on its own not the ultimate solution because most of the subjects incorporated into the ST learning were foreign to some schools. For instance, some schools in Lesotho do not normally include Agriculture and Home Economics in their curriculum because these are expensive practical subjects. This implies that, fragmented or not, the teaching of the ST learning area remains a challenge for some schools.

3.2 Conclusions

“Education is a human enterprise, and one that is clearly the result of the work and contributions of many” (Hall & Hord, 1986:28).

This statement highlights the focus of this report, namely collaboration in leadership for instruction. This mixed-methods study that explored the instructional leadership perspectives and practices of the heads of departments about different subjects within the science department is founded on an integration of instructional and distributed leadership frameworks.

The current study was framed on the principals' instructional management rating scale (PIMRS) model that was originally developed to assess the functions of heads of schools. Nevertheless, the adapted version of the PIMRS was applied to the HoDs because they are instructional leaders too. The participant HoDs had high engagement with the instructional leadership practice thus, portraying their potential to effectively lead the improvement of instructional activities within the science departments, which in turn could increase the overall performance of their schools.

The HoDs from selected schools demonstrated higher engagement with the practice of having high expectations about their departments, collaborating to formulate goals, and ensuring curriculum compliance. However, the HoDs' rate of activity declined in practices that were directly related to classroom behaviour, namely observing classroom activities, evaluating teachers' knowledge and reporting on instruction. This finding contributes more research evidence to the body of knowledge that advocates for a distributed perspective and inclusion of HoDs for successful instructional leadership by recognising some of the strengths and weaknesses of the science HoDs.

The HoDs' instructional leadership practice was also not conducted in a balanced manner among different subjects within the science departments. For instance, the HoDs appeared to focus more attention on some subjects than others in terms of support and coordination. This finding leads this study to the conclusion that the head of department positions do not necessarily have to be the last level of the formal school leadership hierarchy. This is partially because even though the HoDs are a necessary source of instructional leadership, they may be inadequate to lead a manifold department such as a science department. This finding also contributes the necessary knowledge of instructional leadership by the HoDs to the research standpoint that advocates for the distribution of power to more individuals within an institution.

Another major finding was that there were statistically significant employment status differences linked to the practice of providing learning materials as well as the function of supervising instructional activities for selected HoDs. The HoDs who were employed permanently had higher instructional leadership involvement than their equivalents who occupied short-term leadership posts. This finding contributes to the crucial research evidence related to employment status as an example of a contextual factor that significantly influences the distributed instructional leadership practice of the HoDs in underdeveloped countries such as Lesotho.

The findings of the current study also disclosed that the science HoDs from selected Lesotho schools generally had positive feelings about their ability to lead their departments to academic excellence even though they differed in terms of their confidence levels. Nonetheless, the HoDs in this study expressed concerns related to their lack of content knowledge for some of their subjects, large workloads, and lack of training, among other issues of concern. The argument of this study, therefore, is that the HoDs are still some of the key providers of instructional leadership in secondary schools regardless of their shortcomings. Their limitations should be regarded as an indication that they are an efficient but inadequate source of instructional leadership.

This study also discovered a concern regarding the difficulty of the implementation of the Grade 8 Science and Technology syllabus. The explanation for the difficulty of teaching the ST learning area was associated with the teachers' incompetence in some of the subjects incorporated into the ST learning area, lack of appropriate induction into the programme, as well as lack of support from the government. This concern seemed to imply that the same difficulty was experienced in primary schools of Lesotho because the Grade 8 teachers believed that the academic level of the students they were teaching was of a lower quality than their predecessors who had experienced the former curricula that were developed abroad. As a result, there was a general apprehension among the respondents that the new integrated curriculum did not serve its intended purpose of improving the education system in Lesotho, but instead, it brought significant deterioration of the quality of the educational outcomes. This challenge regarding the teaching of ST was exacerbated by the science HoDs in this study who were neither experienced nor competent enough to guide the teachers

in their departments through the actual teaching of the new Integrated Basic Education Curriculum in Grade 8.

This summary of the conclusions highlights the practices and perspectives of the Lesotho heads of science departments regarding their instructional leadership in secondary schools, thus demonstrating that the main objective of this research study has been attained.

3.3 Implications

The methodology section of this study has revealed that one of the factors that resulted in the decline of the sample size was the absence of HoDs in some of the schools which were mostly government schools. This surprising discovery, coupled with the presence of HoDs who taught none of the natural sciences or HoDs who were underqualified for the leadership positions in some of the schools, necessitate that the departmental structures in schools should be strengthened. This implies that the government needs to ensure that all schools have suitable departmental structures and ultimately, suitable HoDs for science because the departmental leadership has been acknowledged as part of the formal hierarchy in the new teachers' career structure document (MoET, 2019). The ideal format of a subject department would be one-subject department but in the case where this may not be possible, the government could ensure that the HoDs are adequately competent in the majority of the subjects in the department in question. This study, therefore, recommends the appointment of HoDs for science departments which include mathematics to be focused on people who have majored in mathematics and one of the science disciples instead of HoDs who specialise in mathematics and another subject which is not a natural science discipline. The policies that guide school leadership could also make provision for inclusion of teacher leaders for each subject/discipline in the case of conglomerate departments like the Science department. These positions can be either formal or informal.

While temporary HoDs who are underqualified need to be supported to acquire higher teaching qualifications, all HoDs also need to be engaged in continuous professional learning initiatives related to instructional leadership. The competence and confidence

levels of the rest of the HoDs, who have suitable teaching qualifications, can also be enhanced through self-enrolment of the HoDs in the massive open online courses (MOOCs) related to instructional leadership. The statistically significant differences between HoDs in permanent and temporary leadership positions discovered in the current study have implications for research. This is because these differences require a deeper investigation that incorporates variables that could allow researchers to explain the factors that influence the instructional leadership functions of the HoDs in each category of employment status.

The lack of support for some subjects in this study has implications for the practice of all the stakeholders of the education system to find suitable strategies for promoting instructional leadership practices of the HoDs. This means that even though the members of the Science departments are at liberty to make decisions that are suitable for improving instructional activities considering their contexts, it is necessary to do it in collaboration with other educational leaders within and beyond the schools. This could assist the leaders in making joint decisions with the potential to affect other schools, thus leading to significant change and increasing the boundaries of the support structure. It could also be advantageous to appoint subject leaders for all the subjects in schools, with more than one teacher per subject, to ensure that all the subjects get the necessary support. Appointing subject leaders can enhance the distribution of leadership among teachers, thus taking advantage of the teachers' expertise and reducing the workload of the HoDs.

The method of curriculum integration employed at secondary schools also has implications on both policy and practice. It is recommended that all the stakeholders of the secondary level make joint decisions about appropriate ways of integration at this level. It could also be beneficial for the teacher training providers to be among the integral bodies that collaborate to structure the curriculum integration process to enable them to incorporate it into their programmes. The inclusion of the HoDs in decision-making about curriculum integration is also crucial to enable them to be at the forefront of the implementation process of the integrated curriculum. However, the method of curriculum integration by more than one teacher delivering the content of related topics at corresponding times is recommended. This approach has the

potential to promote cooperation and collaboration among teachers, whilst allowing teachers to focus on their areas of expertise.

The main limitation of the existing study is the lack of adequate complexity of the qualitative phase because observations and follow-up interviews could not be conducted to understand some of the HoDs' practices and perspectives due to the COVID-19 pandemic restrictions. However, this effect was minimised by the mixed nature of the research approach to enable the collection of rich data. The HoDs and the teachers were also the only participants instead of including the other school leaders in the sample, i.e. principals and their deputies. This limitation was mitigated by including other data sources such as the documents and the questionnaire for triangulation. The current study also experienced limitations of a relatively small qualitative sample, the mitigation of which was an unbiased sample through a selection of schools from three of the ten districts of the Kingdom of Lesotho. The employment of inferential statistics is also an advantage of this study because it enables the inference of the conclusions to other HoDs, locally and globally, even though this should be done with caution.

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4. Appendices

Appendix 1A: Ethical clearance letter

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

21-Nov-2019

Dear Ms Lisene, Lucia Nthooa LN

Application Approved

Research Project Title:

Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools

Ethical Clearance number:

UFS-HSD2019/0458

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. Furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

Prof Derek Litthauer

Chairperson: General/Human Research Ethics Committee

Digitally signed by
Derek Litthauer
20:57:38 +02'00'

Date: 2019.11.21

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Park West
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Appendix 1B: Ethical clearance continuation letter

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

08-Dec-2020

Dear Ms Lucia Nthooa Lisene

Continuation/Report Approved

Research Project Title:
Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools

Ethical Clearance number:
UFS-HSD2019/0458/3011

We are pleased to inform you that the application to extend your ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.
Automatic continuation for another year due to circumstance related to COVID-19. This is as per instructions from Vice-Rector Research.

Yours sincerely

Dr Adri Du Plessis
Chairperson: General/Human Research Ethics Committee

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Appendix 2: Permission from the Ministry of Education and Training

THE KINGDOM OF LESOTHO
MINISTRY OF EDUCATION AND TRAINING

09/09/19

The Principal

.....

Dear Sir/Madam

RE: PERMISSION TO CONDUCT RESEARCH

RESEARCH TOPIC: INSTRUCTIONAL LEADERSHIP PERSPECTIVES AND PRACTICES OF HEADS OF DEPARTMENTS FOR SCIENCE IN LESOTHO SECONDARY SCHOOLS

Ms Lucia Nthooa Lisene is a student at the University of the Free State and she is conducting a research study on the above-mentioned topic. As a result, she needs to collect data related to her study at your school.

You are kindly requested to afford her the necessary information in this regard.

Thanking you in advance for your unwavering cooperation and support.

Yours sincerely,

MABAKUBUNG BM SEUTLOALI (Mrs.)

CEO-SECONDARY EDUCATION

Appendix 3: Letter to the Ministry of Education and Training

Lucia Nthooa Lisene
P.O. Box 234
Thaba-Tseka 550

25 March 2019

The Chief Education Officer
Ministry of Education and Training
Maseru 100

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Dear Sir/Madam

I am doing research and would like to request permission to conduct my research at various schools in the country.

DATE

August, 2019

TITLE OF THE RESEARCH PROJECT

Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools

PRINCIPAL INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

Lucia Nthooa Lisene 2013158056 58006923/62006923

FACULTY AND DEPARTMENT:

Faculty of Education
School of Mathematics Natural Sciences and Technology Education

STUDY LEADER(S) NAME AND CONTACT NUMBER:

Loyiso C. Jita
051 401 2238/ 082 908 3369/ jitalc@ufs.ac.za

WHAT IS THE AIM / PURPOSE OF THE STUDY?

The research is aimed at describing the perspectives and practices of science heads of departments regarding their instructional leadership aimed at improving the quality of teaching and learning. The focus of the study is to establish how the science heads of departments go about their daily instructional leadership activities. The current study is also interested in exploring the heads of departments' views, beliefs and attitudes related to instructional leadership within the science departments.

WHO IS DOING THE RESEARCH?

My name is Lucia Lisene, and I am currently a student at the University of the Free State, studying for a doctoral degree in education. As part of my doctoral programme, I am required to conduct research on a topic of interest with a purpose of contributing towards knowledge and understanding of the topic under study.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained on request.

Approval number: Insert approval number

WHY IS YOUR INSTITUTION/ORGANISATION/COMPANY INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

The schools have been invited to partake in this study because they have science departments which are central to the improvement of science teaching and learning through instructional leadership practices of their heads of departments. The schools included in the quantitative survey have been chosen at random from a list of all schools in the district. The schools which will be used as sources of qualitative data were purposively selected on the basis of the proprietor and location of the school. A total of 125 schools will be selected for collection of quantitative data, twelve of which will be used as sources of qualitative data.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

The study is a mixed methods research. The study will involve a quantitative survey in which the heads of departments will be asked to fill in questionnaire forms. The questionnaire will take them approximately 20-30 minutes to complete and this will be done during short breaks, lunch time or after school hours to avoid class disruption. The heads of departments will be observed with their members of departments during their meetings. The heads of departments will also be individually interviewed after each meeting. The teachers as members of departments, will also be interviewed in focus groups after each meeting. The members of the whole department (both head of department and teachers) will be invited to avail their work documents for analysis. Please note that participation in the study is strictly voluntary and the participants are free to opt out of the study at any time if they so wish.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The study has the potential to benefit the heads of departments who are expected to lead the multi-disciplinary science departments by contributing to the body of knowledge that builds on instructional leadership practices and perspectives which are beneficial for different contexts. The study may also help the policy makers and the professional development service providers to incorporate some of the findings of this study into their future endeavours regarding instructional leadership in secondary schools. I undertake to respect confidentiality and privacy of the participating teachers.

WHAT IS THE POTENTIAL RISK OF TAKING PART IN THIS STUDY?

The participants will not be intentionally exposed to any form of harm during the study. The level of inconvenience and/or discomfort to the participant will be minimum in that they will be expected to participate in the research for short periods of time. They will also be allowed to withdraw their participation at any point in time. I will make every effort to ensure that the participants will not be connected to the information that they share during the focus group. However, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. I will also advise the participants not to disclose personally sensitive information in the focus group.

WILL THE INFORMATION BE KEPT CONFIDENTIAL?

The names of the participants or those of their schools will not be recorded anywhere and no one will be able to connect the participants to the answers they give. Their answers will be given fictitious code numbers or pseudonyms and they will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. Their answers may be reviewed by people responsible for making sure that research is done properly, including the language editor, the reviewers and members of the Research Ethics Committee but the participants will not be identifiable in the documents. Anonymous data from the participants may be used for other purposes, including the research report, journal articles, and conference presentations, among others. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report. However, it is sometimes impossible to make an absolute guarantee of confidentiality/anonymity, particularly when focus groups are used as a data collection method. A focus group is a data collection method which involves a group of individuals being interviewed together in one room. While I will make every effort to ensure that the participants will not be connected to the information that they share during the focus group, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. For this reason I will advise the participants not to disclose personally sensitive information in the focus group. Participation in this study is strictly voluntary and the participants are free to opt out of the study at any time if they so wish.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Hard copies of the participants' answers will be stored by the researcher for a period of five years in a locked cupboard in my home for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. Electronic data will be destroyed by using appropriate data deletion software to ensure that the data cannot be retrieved. The data that is in the form of hard copies and voice tapes will be destroyed by shredding.

WILL THERE BE PAYMENT OR ANY INCENTIVES FOR PARTICPATING IN THIS STUDY?

There will be no payment or reward offered, financial or otherwise. There will be no costs incurred by the participant because the questionnaire forms will be personally delivered and collected by the researcher. There will be potential level of inconvenience and/or discomfort to the participant because they will be using their time which could be used elsewhere, to participate in the research. There will be no deliberate or reasonably foreseeable risks of harm or side-effects to the potential participants, except for the risk that may come from others identifying the person's participation in the research during the focus group. In the case of focus groups, I will advise all participants to maintain the confidentiality and to avoid revealing sensitive information.

HOW WILL THE INSTITUTION / ORGANISATION / COMPANY BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, please contact Lucia Nthooa Lisene as the researcher on 58006923/62006923 or lucylisene@gmail.com. The findings are accessible for five years. Should you require any further information or want to contact the researcher about any aspect of this study, please use the same contacts. Should you have concerns about the way in which the research has been

conducted, you may contact Loyiso C. Jita, my study supervisor on (+27) 51 401 2238/ (+27) 82 908 3369/ jitalc@ufs.ac.za.

Yours sincerely
Lucia Nthooa Lisene

Appendix 4: Letter to the school principals

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Dear Principal

I am doing research and would like to request permission to conduct our research at _____

DATE

April 2019

TITLE OF THE RESEARCH PROJECT

Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools

PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

Lucia Nthooa Lisene 2013158056 58006923/62006923

FACULTY AND DEPARTMENT:

Faculty of Education
School of Mathematics Natural Sciences and Technology Education

STUDYLEADER(S) NAME AND CONTACT NUMBER:

Loyiso C. Jita
051 401 2238/ 082 908 3369/ jitalc@ufs.ac.za

WHAT IS THE AIM / PURPOSE OF THE STUDY?

The research is aimed at describing the perspectives and practices of science heads of departments regarding their instructional leadership aimed at improving the quality of teaching and learning. The focus of the study is to establish how the science heads

of departments go about their daily instructional leadership activities. The current study is also interested in exploring the heads of departments' views, beliefs and attitudes related to instructional leadership within the science departments.

WHO IS DOING THE RESEARCH?

My name is Lucia Lisene, and I am currently a student at the University of the Free State, studying for a doctoral degree in education. As part of my doctoral programme, I am required to conduct research on a topic of interest with a purpose of contributing towards knowledge and understanding of the topic under study.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher.

Approval number: Insert approval number

WHY IS YOUR INSTITUTION/ORGANISATION/COMPANY INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

Your school has been invited to partake in this study because it has a science department which is central to the improvement of science teaching and learning through instructional leadership practices of the head of department. Your school was randomly selected together with other schools in the district to partake in the quantitative survey. The schools which will be used as sources of qualitative data were purposively selected on the basis of the proprietor and location of the school. A total of 125 schools will be selected for collection of quantitative data, twelve of which will be used as sources of qualitative data.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

The study is a mixed methods research. The study will involve a quantitative survey in which the head of science department will be asked to fill in a questionnaire form. The

questionnaire will take him/her approximately 20-30 minutes to complete and this will be done during short breaks, lunch time or after school hours to avoid class disruption. The head of department will be observed with the members of science department during their meetings. The head of department will also be individually interviewed after each meeting. The teachers as members of departments, will also be interviewed in focus groups after each meeting. The members of the whole department (both head of department and teachers) will be invited to avail their work documents for analysis. Please note that participation in the study is strictly voluntary and the participants are free to opt out of the study at any time if they so wish.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The study has the potential to benefit the heads of departments who are expected to lead the multi-disciplinary science departments by contributing to the body of knowledge that builds on instructional leadership practices and perspectives which are beneficial for different contexts. The study may also help the policy makers and the professional development service providers to incorporate some of the findings of this study into their future endeavours regarding instructional leadership in secondary schools. I undertake to respect confidentiality and privacy of the participating teachers.

WHAT IS THE POTENTIAL RISK OF TAKING PART IN THIS STUDY?

The participants will not be intentionally exposed to any form of harm during the study. The level of inconvenience and/or discomfort to the participant will be minimum in that they will be expected to participate in the research for short periods of time. They will also be allowed to withdraw their participation at any point in time. I will make every effort to ensure that the participants will not be connected to the information that they share during the focus group. However, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. I will also advise the participants not to disclose personally sensitive information in the focus group.

WILL THE INFORMATION BE KEPT CONFIDENTIAL?

The names of the participants or those of their schools will not be recorded anywhere and no one will be able to connect the participants to the answers they give. Their answers will be given fictitious code numbers or pseudonyms and they will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. Their answers may be reviewed by people responsible for making sure that research is done properly, including the language editor, the reviewers and members of the Research Ethics Committee but the participants will not be identifiable in the documents. Anonymous data from the participants may be used for other purposes, including the research report, journal articles, and conference presentations, among others. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report. However, it is sometimes impossible to make an absolute guarantee of confidentiality/anonymity, particularly when focus groups are used as a data collection method. A focus group is a data collection method which involves a group of individuals being interviewed together in one room. While I will make every effort to ensure that the participants will not be connected to the information that they share during the focus group, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. For this reason I will advise the participants not to disclose personally sensitive information in the focus group. Participation in this study is strictly voluntary and the participants are free to opt out of the study at any time if they so wish.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Hard copies of the participants' answers will be stored by the researcher for a period of five years in a locked cupboard in my home for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. Electronic data will be destroyed by using appropriate data deletion software to ensure that the data cannot be retrieved. The data that is in the form of hard copies and voice tapes will be destroyed by shredding.

WILL THERE BE PAYMENT OR ANY INCENTIVES FOR PARTICPATING IN THIS STUDY?

There will be no payment or reward offered, financial or otherwise. There will be no costs incurred by the participant because the questionnaire forms will be personally delivered and collected by the researcher. There will be potential level of inconvenience and/or discomfort to the participant because they will be using their time which could be used elsewhere, to participate in the research. There will be no deliberate or reasonably foreseeable risks of harm or side-effects to the potential participants, except for the risk that may come from others identifying the person's participation in the research during the focus group. In the case of focus groups, I will advise all participants to maintain the confidentiality and to avoid revealing sensitive information.

HOW WILL THE INSTITUTION / ORGANISATION / COMPANY BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, please contact Lucia Nthooa Lisene as the researcher on 58006923/62006923 or lucylisene@gmail.com. The findings are accessible for five years. Should you require any further information or want to contact the researcher about any aspect of this study, please use the same contacts. Should you have concerns about the way in which the research has been conducted, you may contact Loyiso C. Jita, my study supervisor on (+27) 51 401 2238/ (+27) 82 908 3369/ jitalc@ufs.ac.za.

Yours sincerely

Lucia Nthooa Lisene Signature of Researcher

Appendix 5: Letter to the participants/consent form

RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM

DATE:

January 2020

TITLE OF THE RESEARCH PROJECT

Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools

PRINCIPAL INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S): Lucia Nthooa Lisene, 58006923/62006923

FACULTY AND DEPARTMENT:

Faculty of Education: School of Mathematics Natural Sciences and Technology Education

STUDYLEADER(S) NAME AND CONTACT NUMBER:

Loyiso C. Jita: 051 401 2238/ 082 908 3369/ jitalc@ufs.ac.za

WHAT IS THE AIM / PURPOSE OF THE STUDY?

The research is aimed at describing the perspectives and practices of science heads of departments regarding their instructional leadership aimed at improving the quality of teaching and learning. The focus of the study is to establish how the science heads of departments go about their daily instructional leadership activities. The current study is also interested in exploring the heads of departments' views, beliefs, attitudes related to instructional leadership within the science departments.

WHO IS DOING THE RESEARCH?

My name is Lucia Nthooa Lisene, and I am currently a student at the University of the Free State, studying for a doctoral degree in education. As part of my doctoral programme, I am required to conduct research on a topic of interest with a purpose of contributing towards knowledge and understanding of the topic under study.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher.

Approval number: UFS-HSD2019/0458

WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

Your school has been invited to partake in this study because it has a science department which is central to the improvement of science teaching and learning through instructional leadership practices of the head of department. Your school was randomly selected together with other schools in the district to partake in the quantitative survey. The schools which will be used as sources of qualitative data were purposively selected on the basis of the proprietor and location of the school. A total of 125 schools will be selected for collection of quantitative data, twelve of which will be used as sources of qualitative data.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

The study is a mixed methods research. The study will involve a quantitative survey in which the head of science department will be asked to fill in a questionnaire form. The questionnaire will take him/her approximately 20-30 minutes to complete and this will be done during short breaks, lunch time or after school hours to avoid class disruption. The head of department will be observed with the members of science department during their meetings. The head of department will also be individually interviewed after each meeting. The teachers as members of departments, will also be interviewed in focus groups after each meeting. The members of the whole department (both head of department and teachers) will be invited to avail their work documents for analysis. Please note that participation in the study is strictly voluntary and the participants are free to opt out of the study at any time if they so wish.

CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?

Participation in this study is voluntary and there is no penalty or loss of benefit for non-participation. Being in this study is voluntary and you are under no obligation to consent to participation. 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 free to withdraw

at any time and without giving a reason. However, it will regrettably not be possible to withdraw from the study once you have submitted the non-identifiable materials such as questionnaire forms and other documents.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The study has the potential to benefit the heads of departments who are expected to lead the multi-disciplinary science departments by contributing to the body of knowledge that builds on instructional leadership practices and perspectives which are beneficial for different contexts. The study may also help the policy makers and the professional development service providers to incorporate some of the findings of this study into their future endeavours regarding instructional leadership in secondary schools. I undertake to respect confidentiality and privacy of the participating teachers.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

You will not be intentionally exposed to any form of harm during the study. The level of inconvenience and/or discomfort to you will be minimum in that you will be expected to participate in the research for short periods of time. You will also be allowed to withdraw your participation at any point in time. I will make every effort to ensure that you will not be connected to the information that you share during the focus group. However, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. I will also advise you not to disclose personally sensitive information in the focus group.

WILL WHAT I SAY BE KEPT CONFIDENTIAL?

Your name or that of their school will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given fictitious code numbers or pseudonyms and they will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. Your answers may be reviewed by people responsible for making sure that research is done properly, including the language editor, the reviewers and members of the Research Ethics Committee but you will not be identifiable in the documents. Anonymous data from you may be used for other purposes, including the research

report, journal articles, and conference presentations, among others. A report of the study may be submitted for publication, but you will not be identifiable in such a report. Participation in this study is strictly voluntary and you are free to opt out of the study at any time if you so wish, even though you may not retrieve information once you have submitted it.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard in my home for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. Electronic data will be destroyed by using appropriate data deletion software to ensure that the data cannot be retrieved. The data that is in the form of hard copies and voice tapes will be destroyed by shredding.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICPATING IN THIS STUDY?

There will be no payment or reward offered, financial or otherwise. There will be no costs incurred by you because the questionnaire forms will be personally delivered and collected by the researcher. There will be potential level of inconvenience and/or discomfort to you because you will be using your time which could be used elsewhere, to participate in the research. There will be no deliberate or reasonably foreseeable risks of harm or side-effects to you as the potential participant.

HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, please contact Lucia Nthooa Lisene as the researcher on 58006923/62006923 or lucylisene@gmail.com. The findings are accessible for five years. Should you require any further information or want to contact the researcher about any aspect of this study, please use the same contacts. Should you have concerns about the way in which the research has been conducted, you may contact Loyiso C. Jita, my study supervisor on (+27) 51 401 2238/ (+27) 82 908 3369/ jitalc@ufs.ac.za.

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

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. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the interview and observation.

I have received a signed copy of the informed consent agreement.

Full Name of Participant: _____

Signature of Participant: _____Date: _____

Full Name(s) of Researcher(s): _____

Signature of Researcher: _____Date: _____

Appendix 6A: Questionnaire form

Part 1: Please provide **ALL** the following information in this part of the questionnaire.

District name: _____ **School name:** _____

Tick in one box:

Type of school	Government		Church		Other		
Location of school	Urban		Rural				
Age	20-29		30-39		40-49		50+
Employment status as HOD	Acting		Permanent				
Gender	Male		Female		Other		
Years of experience as HOD (including in other schools)	0-4		5-9		10-15		15+
Qualification	Certificate		Diploma		Degree		Masters

Your subjects:

Majors trained to teach: _____

Teaching subjects at present: _____

Subjects in your department (You may tick in more than one box):

Physical science		Life sciences (Biology)		Mathematics		Others	

Number of teachers in your department (apart from you): _____

Work load/ number of periods taught per week this year: _____

Part 2: Please **circle** the number of your response according to the following description:

1 = almost never	2 = seldom	3 = sometimes	4 = frequently	5 = almost always

Please choose only **ONE** response for each item. Also, please attempt to respond to **all** the items.

To what extent do you …?		Almost Never → Almost Always
1	Ensure that teachers have the necessary teaching materials and laboratory equipment	1 2 3 4 5
2	Set departmental goals together with the teachers	1 2 3 4 5
3	Review student performance to assess and inform teaching and learning	1 2 3 4 5
4	Ensure that what is taught in the classroom coincides with the demands of the curriculum	1 2 3 4 5
5	Involve individual teachers in discussions about student learning	1 2 3 4 5
6	Minimise the disruptions of instructional time (e.g. by announcements, sports, meetings, and other events)	1 2 3 4 5

7	Emphasize good teacher performance in departmental meetings and elsewhere	1 2 3 4 5
8	Participate in professional development with the teachers	1 2 3 4 5
9	Provide guidance to teachers on the use of teaching materials	1 2 3 4 5
10	Observe teachers in their classrooms/laboratory as they teach	1 2 3 4 5
11	Motivate teachers to practice activity-based instruction	1 2 3 4 5
12	Review students' exercise books and test scripts	1 2 3 4 5
13	Clarify and explain the departmental goals for a common understanding	1 2 3 4 5
14	Ensure that students do not miss classes	1 2 3 4 5
15	Publicly praise teachers for their achievements (e.g. in parades, newsletters or memos)	1 2 3 4 5
16	Ensure your active involvement in the examination of curriculum resources	1 2 3 4 5
17	Model outstanding and modern science instruction	1 2 3 4 5
18	Provide feedback on availability and use of teaching materials	1 2 3 4 5
19	Have high expectations about performance of the department	1 2 3 4 5
20	Set up meetings for discussions about subject content matter and new curriculum	1 2 3 4 5
21	Monitor students' progress reports	1 2 3 4 5
22	Discuss student performance in parent-teacher meetings	1 2 3 4 5
23	Inspire teachers to go to class with proper preparation and in time	1 2 3 4 5
24	Review lesson plans, scheme and record books, as well as teaching aids	1 2 3 4 5
25	Ensure that the teaching materials are accessible to the teachers	1 2 3 4 5
26	Plan strategies for improvement of the department	1 2 3 4 5
27	Encourage teachers to communicate student learning progress with their parents/guardians on regular basis	1 2 3 4 5
28	Publicly praise students for their achievements (e.g. in parades, newsletters or memos)	1 2 3 4 5
29	Develop strategies for evaluating teacher learning/training	1 2 3 4 5
30	Discuss curriculum issues with teachers and/or students	1 2 3 4 5
31	Design the schedule for practical work in the laboratory	1 2 3 4 5
32	Place the goals in order of their urgency	1 2 3 4 5
33	Provide formal feedback on instruction in written form	1 2 3 4 5
34	Make recommendation of teaching materials according to teachers' requirements	1 2 3 4 5
35	Suggest teacher training workshops to be attended by teachers according to their needs	1 2 3 4 5
36	Monitor and support the implementation of the departmental goals	1 2 3 4 5
37	Set up departmental and subject meetings to discuss curriculum implementation	1 2 3 4 5
38	Use data from students' learning assessment to suggest improvements for classroom practice	1 2 3 4 5
39	Motivate teachers to overcome challenges and improve their teaching practice	1 2 3 4 5
40	Ensure that students are always taught even when the teacher is absent	1 2 3 4 5

Appendix 6B: Interview protocols

1. Heads of science departments

Thank you once again for allowing me to interview you. My name is Lucia Lisene, a student at the University of the Free State. The title of my study is “Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools”. This interview is expected to take 40-60 minutes. For purposes of accuracy, accountability and efficiency, I would like you to allow me to audio-record our conversation.

School name (to be later replaced with a number) _____

Interview date: _____

a) Do you feel like you are adequately qualified for the position of a science HoD? If so what skills, knowledge and experience do you have regarding science instructional leadership?

b) What is the procedure (i.e. who and how) for formulating the school policy regarding teaching and learning (curriculum, formation of departments, allocation of subjects to teachers, student promotions, etc.?

c) What can you say about your level of involvement and that of the teachers in the decision making process concerning your school (number of periods per week, number of periods per subject per week, time-table, class-teacher and other roles, teacher recruitment, etc.) and your department (class allocation, laboratory schedule, attendance of workshops, excursions, etc.? Are you satisfied with the level of involvement? Are there some aspects that need improvement?

d) Have the teachers and/or students and/parents raised any concerns regarding their involvement in the making of decisions that concern teaching and learning? May you state some examples of their concerns (if any)?

e) How often do you have subject/departmental meetings? What issues do you normally discuss in those meetings?

f) Do you ever hold meetings with the school administrators (school board members, principal and/or deputy principal)? If yes, how often? What do you discuss

in those meetings concerning teaching and learning? If not, how do you communicate your departmental goals and provide reports to the school administration?

g) What kind of challenges do you encounter with your teachers' instructional practice? How do you help such teachers to overcome those problems?

h) Have you and your teachers encountered any challenges with the implementation of the new Grade 8 science curriculum. What kind of challenges do you face? How do you assist the teachers with their problems? How do you get assistance with your own problems?

i) Do you practice classroom observations? If you do, how often do you do them? What kind (random or scheduled)? What aspects do you focus on? What challenges do you encounter?

j) Do you and the other teachers in your department receive any form of professional development (in-service training)? If yes, how often? Who initiates it? Who provides it? What issues are covered?

k) Does the kind of teacher training workshops you and your teachers attend respond to your professional needs? In what way(s) do the workshops help you? What are the challenges involving professional development in your department?

l) Are you and your teachers, members of any subject associations? If not, what are the reasons? If yes, which associations? What issues do they focus on? Who attends their meetings? How often are the meetings? Do you think they contribute towards improvement of teaching and learning? Is there anything these associations can do to improve?

m) How do you feel about leading a science department in relation to the improvement of teaching and learning? Do you feel adequately supported by the education officials, school management, teachers, students and / parents?

Thank you very much for your cooperation!

2. **Teachers**

Thank you once again for allowing me to interview you. My name is Lucia Lisene, a student at the University of the Free State. The title of my study is "Instructional leadership perspectives and practices of heads of departments for science in Lesotho

secondary schools". This interview is expected to take 30-40 minutes. For purposes of accuracy, accountability and efficiency, I would like you to allow me to audio-record our conversation.

School name (to be later replaced with a number) _____

Interview date: _____

(a) Do you feel like your head of department is adequately qualified for that position? If so what skills, knowledge and experience does he/she have that make her/him suitable for science instructional leadership?

(b) What is the procedure (i.e. who and how) for formulating the school policy regarding teaching and learning (curriculum, formation of departments, allocation of subjects to teachers, etc?

(c) What can you say about your level of involvement in the decision making process concerning your school (number of periods per week, number of periods per subject per week, time-table, class-teacher and other roles, teacher recruitment, etc.) and your department (class allocation, laboratory schedule, attendance of workshops, excursions, etc.? Are you satisfied with your involvement? Are there some aspects that need improvement?

(d) How often do you have subject/departmental meetings? What issues do you normally discuss in those meetings?

(e) What kind of challenges do you encounter in your daily teaching practice? How does your HoD help you to overcome those challenges?

(f) Have you encountered any challenges with the implementation of the new Grade 8 science curriculum? What kind of challenges do you face? How does your HoD assist you with those challenges?

(g) Do you get classroom visits from your HoD? If you do, how often do you get them? What kind (random or scheduled)? What aspects do those visits focus on? How do you feel about those visits?

(h) Do you receive any form of professional development (in-service training)? If yes, how often? Who initiates it? Who provides it? What issues are covered?

(i) Does the kind of teacher training workshops you have attended responded to your professional needs? In what way(s) did it help you? What are the challenges involving professional development in your department?

(j) Are you a member of any subject associations? If not, what are the reasons? If yes, which ones? What issues do those associations focus on? Who appoints the teachers who attend the association meetings? How often are the meetings? Do you think they contribute towards improvement of teaching and learning? Is there anything these associations can do to improve?

(k) How do you generally feel about science instructional leadership in your department in relation to the improvement of teaching and learning? Do you think there is enough support structure for your department? Do your support your HoD? Does she/he support you? Do you think your department receives enough support from the relevant authorities, students and parents?

Thank you very much for your time and cooperation.

Appendix 7: Editor's letter

TO WHOM IT MAY CONCERN

I, Erné ne Roalda Verster, hereby confirm that I have edited the undermentioned document for Ms LN Lisene to the best of my ability, during November 2023.

Ph.D. titled

Instructional leadership perspectives and practices of heads of departments for science in Lesotho secondary schools

I always strive to consistently maintain the highest quality with respect of document editing and translation. However, as I have no way of ensuring that source documents are indeed replaced with my edited version, and also have no control over changes subsequently made to documents, the final responsibility for documents always rests with the commissioning author.

ER Verster

B.Bibl (Hons)

BA (Hons) (Language practice/Taalpraktyk) Cum laude

Appendix 8: Permission from the author of the questionnaire

I have waived the usual fee of $1 for your use of the PIMRS. Note however, that all conditions of use still apply to you (i.e., supplying me with your final soft copy of the study and raw data file).

You now are able to access various PIMRS resources on my website at http://philiphallinger.com/tool/survey/pimrs/a/researcherLogin-2.html.

Enter the following requested information:

- Research User ID: **PIMRS**
- Your Password: **4494836**
- Name: Your **First Name Last Name**
- Email: Your **email address**
- Click the *Submit button*

The webpage contains a variety of resources including:

- Forms of the English language PIMRS for your copying and adaptation
- Translated versions of the PIMRS for Malay, Chinese, Arabic, Thai, Persian, Amharic, Portuguese, Spanish, Turkish, Vietnamese
- Support resources including the Technical Report (new), User Manual (old)
- PIMRS related articles and book chapters
- Other instructional leadership articles
- List and zipped PDF files of 400 PIMRS Studies

For full and up-to-date information on the PIMRS and its use as a research and evaluation tool, please see my latest book, Assessing Principal Instructional Leadership with the PIMRS. The book contains useful information for researchers on the scale including its development, use, validity and reliability. The book also details how to use the short form and plan research with the instrument. For more info, go to: http://www.springer.com/cn/book/9783319155326. Note that although the book is expensive, you can purchase individual chapters.

Please keep in mind the conditions of your purchase including sending me: 1) a copy of the translated PIMRS (if applicable), 2) a copy of your RAW DATASET, and 3) a pdf copy of your completed study.

Please also note that the user is required to include ALL questions including demographic questions (i.e., gender, years of experience, years of teaching experience, school level) included in the PIMRS unless otherwise waived by the

publisher.

I've also attached some relevant articles and dissertations from Southern Africa.

If you need any assistance, please contact me directly.

Best of luck.

Prof. Hallinger

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www.philiphallinger.com
www.researchgate.net/profile/Philip_Hallinger/contributions
@ilearningleader

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University of Johannesburg, South Africa
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www.researchgate.net/profile/Philip_Hallinger/contributions

"Teachers live on and on through the lives of their students.
Good teaching is forever and the teacher is immortal."
Jesse Stuart, 1937, *The Thread That Runs So True*

Appendix 9: Acceptance letter for Article 1

From: IICBA Kix
Sent: Friday, 08 September 2023 11:16
To: lusialisene@live.com
Subject: Submission Decision: KIX Symposium on Educational Research in Africa
Importance: High

Dear Lucia Lisene,

Thank you for submitting the following individual submission for consideration to be included in the program of the 2nd KIX Continental Research Symposium in person in Abidjan, Côte d'Ivoire, from October 3rd – 5th, 2023:

"Exploring the distributed instructional leadership dynamics within a science department in Lesotho secondary schools"

Congratulations! We are pleased to inform you that your submission has been accepted for in-person presentation as part of the symposium program. If you submitted an abstract or paper in collaboration with other authors, please forward this notice of acceptance to all individuals included in your proposal.

The session format for your accepted paper is:
IN-PERSON POSTER PRESENTATION (1.5-hour session)

Attached are some important **guidelines** for the creation and formatting of your presentation slides or poster. We strongly encourage you to refer to these guidelines closely as you prepare.

If your paper has multiple authors, please note that due to space limits and our desire to include as many presentations as possible, we are only able to welcome in person one (1) author/presenter per paper. Other authors are welcome to attend virtually.

You will shortly receive more details on the program agenda, including the exact date and time of your presentation. The dates of the symposium are October 3 – 5, 2023.

NEXT STEPS and IMPORTANT DATES:

Appendix 10: Acceptance letter for part of Article 3

Dear Lucia Nthooa Lisene,

Congratulations! The NARST Program Committee has accepted your proposal entitled *Collaboration for curriculum implementation in Lesotho: Insights from a distributed instructional leadership perspective,* submitted to *Strand 10: Curriculum and Assessment* for the 2024 NARST Annual International Conference.

The 2024 Conference will be held at the Sheraton Denver Downtown, 1550 Court Pl, Denver, Colorado, USA from Sunday, 17th March, 2024 to Wednesday, 20th March, 2024. For the purpose of obtaining a visa to the USA or travel grants to support funding to attend the conference, please use this letter to verify that your proposal to present at the 2024 Conference was peer-reviewed and accepted. A draft program will be posted in December, with presentation dates and times.

Nearly all proposals received either two or three reviews, and most reviewers provided valuable feedback on the strengths and weaknesses of the proposal. To read your proposal's reviews, return to your dashboard and log in. In the Submissions panel you will see the title of each proposal that you submitted. Click on View in the Reviews box below the proposal title. We hope that you will find the feedback valuable.

Reviews are only visible to the submitting author. Please share them with your co-authors.

At the Strand Coordinators' discretion, some proposals were accepted for an alternative presentation format. Your proposal was accepted for placement in a Stand-Alone Paper session.

After reading the reviews, if you still have questions regarding the decision-making process, please contact the Strand Coordinators of the Strand to which you submitted your proposal. You will find their names and email addresses listed on the NARST website at https://narst.org/strands.

Registration details will be announced when the registration portal is opened. The presenting author(s) must register for the conference by 28 January 2024. Failure to register for the conference by the registration deadline will result in your submission and paper being deleted from the program.

Therefore, please put these dates in your calendar:

• Mid-December: Draft conference program posted

• 28 January: Conference pre-registration for all presenting authors

• 17-20 March: 2024 Annual International Conference

If you have any questions about conference scheduling, please contact Paul Kemp (paulkemp@narst.org). Questions about registration and the conference venue should be directed to the NARST management company (info@narst.org).

Again, congratulations on a successful proposal. We look forward to seeing you in Denver.

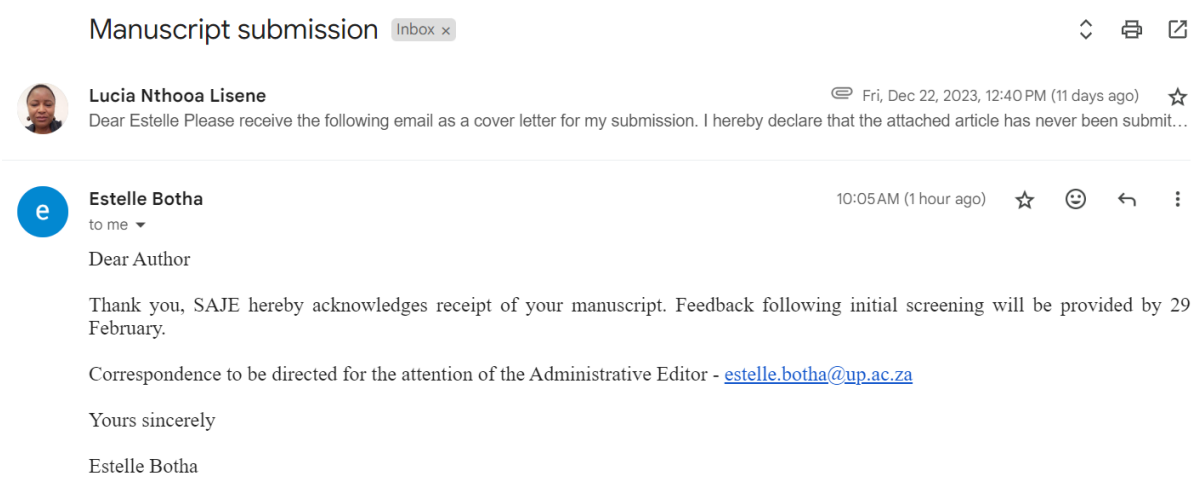
Sincerely,

Paul Kemp

NARST Conference Program and Data Coordinator

On behalf of the Program Chairs

Appendix 11: Proof of submission of an article



Manuscript submission Inbox ×

Lucia Nthooa Lisene Fri, Dec 22, 2023, 12:40 PM (11 days ago)

Dear Estelle Please receive the following email as a cover letter for my submission. I hereby declare that the attached article has never been submit…

Estelle Botha 10:05 AM (1 hour ago)

to me

Dear Author

Thank you, SAJE hereby acknowledges receipt of your manuscript. Feedback following initial screening will be provided by 29 February.

Correspondence to be directed for the attention of the Administrative Editor - estelle.botha@up.ac.za

Yours sincerely

Estelle Botha

Appendix 12: Similarity report

Turnitin Originality Report

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- ID: 2333682438
- Word Count: 62574
- Submitted: 3

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