

**PRINCIPALS' INSTRUCTIONAL LEADERSHIP ROLE AND LESSON STUDY
PROGRAM IMPLEMENTATION IN PUBLIC SECONDARY SCHOOLS IN KAJIADO
COUNTY, KENYA**

CHIIRA RAHAB

CMLA1706

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DECLARATION

I declare that this thesis is my original work and has not been submitted to any other university for award of any degree. All sources of information have been acknowledged.

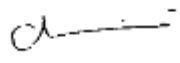
Signature: 
Rahab Wangari Chiira
CMLA1706

Date: 26/08/2023

This thesis has been submitted for examination with our approval as university supervisors.

Signature: *Rose Njihia*
Dr. Rose Njihia
Lecturer, School of Education
Tangaza University College

Date: 26/8/2023

Signature: 
Dr. Celestine Ndanu
HOD, Undergraduate Studies in Education
Catholic University of East Africa

Date: 26. 08. 2023

DEDICATION

I dedicate this work to my beloved parents the late Chiira Mukuha and the late Mary Murugi Chiira and to my son Andrew.

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ABSTRACT

The study investigated principals' instructional leadership role and lesson study program implementation in public secondary schools in Kajiado County. It was guided by the following objectives: To investigate principals' instructional supervision role and implementation of lesson study program in public secondary schools in Kajiado County; to investigate principals' promotion of collaborative practices and implementation of lesson study program in public secondary schools in Kajiado County; to investigate principals' coordination of staff professional development and implementation of lesson study program in public secondary schools in Kajiado County and to investigate principals' resource allocation and the implementation of lesson study program in public secondary schools in Kajiado County. The study was anchored on Carrier's instructional leadership model, Vygotsky's Social Cultural Development Theory and the Hallinger & Murphy Model of Instructional Leadership. Mixed methods research approach was used with convergent parallel mixed methods design. The study target population consisted of 95 public secondary schools, 95 principals and 651 mathematics and science teachers from Kajiado County with a sample size of 29 principals and 248 mathematics and science teachers. This was achieved using probability and non-probability sampling techniques which included purposeful, proportionate and simple random sampling. Collection of data was done using interview guide for principals and a questionnaire for teachers. A pilot study was conducted in two schools which had characteristics similar to those of schools that were involved in the study. The research instruments were validated by experts with knowledge on instructional leadership from Tangaza University College and the Catholic University of Eastern Africa. Analysis of quantitative data was done using descriptive statistics which included frequency distributions and percentages and was generated by use of Statistical Package for Social Sciences (SPSS) version 25. Data was presented in form of bar graphs, pie charts and frequency tables. Qualitative data was analysed using thematic approach and was presented using narratives and direct quotes. The findings revealed that secondary school principals carried out supervision throughout the process of lesson study by attending lesson study meetings and observing lessons as well as giving feedback; supported collaborations such as team work, peer lesson observation and networking and linkages; supported teachers to attend professional development and in allocated resources such as time, human resource and funds for lesson study implementation. However, the study revealed challenges that face lesson study implementation such as lack of time, funds, materials and uncooperative teachers. The study concluded that for effective implementation of lesson study, principals' instructional leadership is required.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGMENTS	iv
ABSTRACT	v
LIST OF TABLES	ix
LIST OF FIGURES	x
ABBREVIATIONS AND ACRONYMS	xi
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background to the Study.....	1
1.2 Statement of the Problem.....	5
1.3 Purpose of the Study	7
1.4 Specific Objectives of the Study.....	7
1.5 Research Questions	7
1.6 Significance of the Study	8
1.7 Scope and Delimitation of the Study	8
1.8 Theoretical Framework.....	9
1.8.1 Carrier’s (2014) Instructional Leadership Model.....	9
1.8.1.1 Strengths of the Instructional Leadership Model	10
1.8.1.2 Weaknesses of Instructional Leadership Model	10
1.8.1.3 Application of the Theory.....	11
1.8.2 Vygotsky’s Social Cultural Development Theory	11
1.8.3 Hallinger & Murphy (1985) Model of Instructional Leadership.	12
1.9 Conceptual Framework.....	14
1.10 Operation Definition of Key Terms	16
CHAPTER TWO	17
LITERATURE REVIEW	17
2.1 Introduction.....	17
2.2 Principals’ Instructional Supervision Role and Implementation of Lesson Study	17
2.3 School Principal and Promotion of Collaborative Practices in Lesson Study	22

2.4 Principals’ Coordination of Staff Professional Development and Implementation of Lesson Study	28
2.5 Principals’ Resource Allocation and Lesson Study Implementation.....	34
2.6 Summary of Literature Review and Research Gaps	38
CHAPTER THREE	41
RESEARCH DESIGN AND METHODOLOGY	41
3.1 Introduction.....	41
3.2 Research Design.....	41
3.3 Location of the Study.....	42
3.4 Target Population.....	42
3.5 Description of Sample and Sampling Procedures.....	43
3.5.1 Sampling of Schools.....	43
3.5.2 Sampling of Principals.....	44
3.5.3 Sampling of Teachers	44
3.6 Description of Data Collection Instruments	45
3.6.1 Questionnaire for Teachers.....	45
3.6.2 In-depth Interview Guide for Principals.....	46
3.7 Validity of the Research Instruments.....	46
3.8 Pilot Testing of Research Instruments	47
3.9 Reliability of the Study Instruments	47
3.10 Reliability of Qualitative Instrument	48
3.11 Description of Data Collection Procedures.....	48
3.12 Description of Data Analysis Procedures	49
3.13 Ethical Considerations	50
CHAPTER FOUR.....	51
PRESENTATION, INTERPRETATION AND DISCUSSION OF THE FINDINGS.....	51
4.1 Introduction.....	51
4.2 The Response Rate of the Participants.....	51
4.3 Demographic Information of the Participants.....	52
4.3.1 Distribution of Gender of the Principals	52
4.3.2 Distribution of Gender of the Teachers.....	53

4.3.3 Distribution of the Teachers by Age	54
4.3.4 Distribution of the Principals by Age.....	55
4.3.5 Distribution of Teachers According to Academic Qualifications	56
4.3.6 Distribution of Principals According to Academic Qualifications	57
4.3.7 Distribution of Teachers According to Teaching Experience	58
4.3.8 Distribution of Principals According to Experience	59
4.4 Findings of the Study	60
4.4.1 Principal Supervisory Role and Lesson Study Implementation.....	60
4.4.2 Principal Promotion of Collaborative Practices and Lesson Study Implementation	64
4.4.3 Principal Coordination of Staff Development and Lesson Study Implementation	67
4.4.4 Principal Resource Allocation and Lesson Study Implementation	71
CHAPTER FIVE	75
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	75
5.1 Introduction.....	75
5.2 Summary of the Findings.....	75
5.3 Conclusion of the Study.....	79
5.4 Recommendations of the Study	80
5.5 Suggestions for Further Research	81
REFERENCES.....	83
APPENDICES	89
APPENDIX I: LETTER OF INTRODUCTION	89
APPENDIX II: INFORMED CONSENT FORM FOR PARTICIPANTS	90
APPENDIX III: TEACHERS QUESTIONNAIRE.....	92
APPENDIX IV: INTERVIEW GUIDE FOR PRINCIPALS	100
APPENDIX V: CLEARANCE LETTER.....	103
APPENDIX VI: RESEARCH PERMIT.....	104
APPENDIX VII: LETTER FROM CDE KAJIADO COUNTY	105
APPENDIX VIII: MAP OF KAJIADO COUNTY	106
APPENDIX IX: ORIGINALITY REPORT	107

LIST OF TABLES

Table 1: Sample matrix	49
Table 2: Response Rates for the Study Participants	55
Table3: Principals Supervision and Lesson Study Implementation	64
Table 4: Promotion of Collaboration Practices in Lesson study Implementation	67
Table 5: Staff Professional Development and Lesson Study Implementation	71
Table 6: Resource Allocation and Lesson Study Implementation.....	74

LIST OF FIGURES

Figure 1: Conceptual Framework	17
Figure 2: Gender of Principals	56
Figure 3: Gender of Teachers	57
Figure 4: Age Brackets of Teachers.....	58
Figure 5: Age Brackets of Principals	59
Figure 6: Academic Qualifications of Teachers	60
Figure 7: Principals Qualifications	61
Figure 8: Teaching Experience of Teachers	62
Figure 9: Years of Experience of Principals	63

ABBREVIATIONS AND ACRONYMS

BOM	Board of Management
CEMASTEА	Centre for Mathematics Science and Technology Education in Africa
HOD	Head of Department
ICT	Information Communication Technology
INSET	In-service Education and Training
KEMI	Kenya Education Management Institute
MOE	Ministry of Education
NACOSTI	National Commission for Science, Technology and Innovation
QASO	Quality Assurance and Standards Officers
SMASSE	Strengthening of Mathematics and Science in Secondary Education
TPAD	Teacher Performance Appraisal and Development
TPD	Teacher Professional Development
TSC	Teachers Service Commission

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The instructional leadership role of the school principal has been reported to be critical for effective implementation of a school based education reform markedly the professional development of teachers (Lee & Li, 2015). Lesson study refers to a professional development practice which involves small groups of teachers meeting regularly to engage in a collaborative process of lesson planning, implementation, evaluation and refinement (Kanellopoulo & Darra, 2018; Dudley, 2014). Ngang and Sam (2015) underscore the role of the school principal as an instructional leader in the implementation of lesson study in which the commitment of the principals is to supervise, promote collaborative practices, support staff development of teachers as well as allocate resources.

Lesson study translated from a Japanese word “jugyou kenkyuu,” is traced from the same country as early as 1870s when a normal school in Tokyo had an educational lab attached to teachers who could come together to observe and discuss findings (Sithamparam, 2015). The LS program has assumed formal status in early 20th century and has evolved from a method to create lesson plans with formal steps to one of true inquiry with a goal of continuing education through lifelong learning (Akita & Sakamoto, 2015). To date, lesson study remains a central education policy applied in over 90% of schools in Japan as a core process of professional learning to continually improve the quality of education that experienced teachers provide to students (Takahashi & McDougal, 2016).

Lesson study is now recognized as very strategic to the improvement of capacity of teachers significant to positive teaching and learning outcomes. This has prompted its adoption in Asia, USA, and Europe as well as in Africa (Chen, 2019; Elliot 2019; Nakai, 2016). In Asia, lesson study was recommended by Southeast Asian Ministers of Education

Organization (SEAMEO) out of the need to develop mathematics and science teachers' quality standards that would facilitate students (Tahir & Thien, 2013). In line with the recommendations individual countries have attempted to entrench lesson study in their education practice to improve education outcomes.

In Indonesia, a study by Subadi (2016) on lesson study implementation reported that lesson study had been identified as the means to meet the academic qualification and teacher competency standard outlined in ACT of No 14/2005, to effectively serve in the career. In Singapore, schools are clustered into teach communities depending on their geographical location to facilitate lesson study to enhance teacher effectiveness as professionals (Cheng & Yee, 2012).

In Philippines, University of the Philippines National Institute for Science and Mathematics Development (NISMED) introduced lesson study to elementary and secondary schools aimed at promoting teaching mathematics through problem solving and teaching science through inquiry in 2006. The initiative report showed that teachers and students positively appreciated the effects of lesson study for the opportunities created for them to think independently and deeply as they did research lesson. However, Ronda (2013) cited that teachers often reverted to the old strategies of teaching casting doubt on effectiveness of lesson study implementation, a concern that was addressed in the current study.

In England, a study by Sarah (2019) to investigate challenges experienced in lesson study implementation revealed that it had gained momentum taking a learning focus, engaging teachers in and with research through structured collaboration and mobilization of knowledge among schools. However, Sarah (2019) pointed at looming challenges in lesson study implementation especially on leadership front in the management of change.

In Turkey, a study by Yetkin-Özdemir (2016) on implementation of lesson study reported that since the introduction of lesson study in 2011 professional development of

teachers through active participation and monitoring of their teaching as well as strengthening their collaboration and communication skills was evident. However, the same author cites that lack of leadership support has been reported to hinder effective implementation of the lesson study, a concern that this study investigated in Kenyan context.

In comparison to Asian countries, implementation of lesson study has remained a challenge in America (Jeremy & Komatsu, 2017). However, a study by Leithwood and Jantzi (2008) in America found out that principals who practice effective instructional leadership in school were able to strengthen the learning culture by nurturing teamwork and collaborative practices and staff development characteristic of lesson study. Hence there was need to examine principals leadership in the implementation of lesson study in public secondary schools in Kajiado county in Kenya.

In Sub-Saharan Africa, 22 countries have embraced lesson study engendered in Strengthening of Mathematics and Science Education (SMASE) in Western, Eastern, Central and Southern Africa (JICA, 2015). In Nigeria, a study by Zainab, (2019) identified lesson study as a meaningful professional development of teachers that impacted positively on their teaching ability revealing great improvement in pupils' achievement.

Similarly, in Zambia, a study by Nakai (2016) reported that the introduction of lesson study in 2005 as a two-year pilot program for teachers under the auspices of the SMASE project yielded to increased capacity of teachers. The study attributed the notable success to instructional leadership notably at school level where the school principals took charge of coordination of lesson study activities as well as supervision and resource allocation.

In South Africa, teachers trained on the use of modern ways of teaching through the application of lesson study program rated highly in equipping teachers with instructional competences, whose success was attributed to effective instructional leadership Coe (2010). However, Fitina (2019) in a study on understanding lesson study in Tanzania pointed out that

lack of clear policy and leadership in lesson study led to poor implementation of the program, a concern the current study examined in Kenya.

In Kenya, lesson study was introduced by the ministry of education through Centre for Mathematics Science and Technology Education in Africa (CEMASTEA) as a form of school based teacher professional development to mathematics and science teachers' way back in the year 2011. The aim was to help mathematics and science teachers to collaboratively reflect on the unique problems and challenges they faced in their schools and use the In-service Education and Training (INSET) values acquired to improve their practice (CEMASTEA, 2018).

The adaptation of lesson study to improve teaching of mathematics and sciences by equipping teachers with necessary pedagogical skills was informed by reported poor performance of the subjects over the years. Indeed, a study by CEMASTE (2009) revealed weak instructional practices at classroom level attributed to lack of appropriate pedagogical skills among science and mathematics teachers. Secondly, mathematics and sciences form the core subjects into adaptation of technology to social economic agenda in the country (ROK, 2008). Lesson study was therefore found to be sustainable and effective where teachers under leadership of the principal are expected to implement it in the schools.

To strengthen lesson study, a collaborative framework for lesson study implementation was developed (CEMASTEA, 2018). The model envisages involvement of key stakeholders at national, County, Sub County and at school levels. The framework is very particular about school level where teachers at same school as well as similar subjects meet and collaborate in lesson study design, implementation and evaluation for the purpose of improving their professional competency in teaching and learning (CEMASTEA, 2017).

The role of the school principal as the key pillar of driving education reforms such as lesson study to achieve education goals is further affirmed by Nkoroi (2017), Musungu and

Nasongo (2008) and Wanzare (2013). Indeed, MOE (2015) policy document enlists the following strategies under the auspices of the school principal to implement innovative curriculum initiatives in professional development of teachers; to enhance pedagogical approaches, resource acquisition and allocation and careful supervision. Specifically, in the year 2016, CEMASTEА developed action plans to implement lesson study activities with emphasis at school level in which the role of the school principal as instructional leader was underscored (CEMASTEА, 2017).

CEMASTEА (2016) carried out a study to track effectiveness of the lesson study using a sample of 15 counties including Kajiado. In Kajiado County, the study revealed concerning gaps in the implementation of lesson study. These gaps included lack of management and leadership of the program at school level indicated by poor and late attendance of teachers at county level facilitation programs. Moreover, teachers were not adequately conversant with lesson study and the process guidelines provided in the lesson study manual.

Osman and Mukuna (2013) argue that sometimes school principals do not provide leadership to implement effectively curriculum innovation yet, principals had been trained on their leadership role in the implementation of the lesson study (CEMASTEА, 2016). There is limited literature on principals leadership role and lesson study program implementation. This study therefore bridged this gap by investigating principals' instructional leadership role and the implementation of the lesson study program in public secondary schools in Kajiado County particularly supervision, promotion of collaborative practices, coordination of staff development and allocation of resources.

1.2 Statement of the Problem

A study conducted by Selia, Vries, Ven, Poortman, and Schildkamp (2022) in the Netherlands and another one by Gunawan (2017) in Indonesia indicate seamless relationship between leadership and sustainable implementation of lesson study. Similarly, a study by

Nakai (2016) conducted in Zambia and another one by the University of Rwanda (2020) in Rwanda attribute success of lesson study program to school leadership while Fitina (2019) in a study conducted in Tanzania attributes poor lesson study program take off to lack of effective instructional leadership at school level.

In Kenya, an action plan by CEMASTEА places school principal as the instructional leader at the pivot of the implementation of lesson study (CEMASTEА, 2016). However, an assessment of implementation of lesson study by CEMASTEА (2017) revealed glaring gaps in management and leadership of the program in Kajiado County. This was indicated by late and poor attendance of teachers in county lesson study forums, uncoordinated and unprofessional presentation of lesson study instructional activities and missing record of teachers' experiences during lesson study. This lack of support by school principals has resulted to ineffective implementation of lesson study with teachers not benefiting from it.

Therefore, the noted gaps if unabated could result to continued weak pedagogical skills and poor instructional classroom practices by teachers. Consequently, this could lead to continued poor performance of students in mathematics and science to the detriment of advancement in science and technology critical to industrial take off envisioned in 2030.

Although scholars as earlier alluded link leadership to effective implementation of lesson study, it remains unclear how it can be enacted to sustaining lesson study. To bridge this gap, there was need to investigate how school principals as instructional leaders promoted sustained lesson study practices. Consequently, this study investigated principals' instructional role and lesson study program implementation in public secondary schools in Kajiado County, Kenya.

1.3 Purpose of the Study

The purpose of the study was to investigate principals' instructional leadership role and the implementation of lesson study program in public secondary schools in Kajiado County.

1.4 Specific Objectives of the Study

The study was guided by the following specific objectives;

- i. To investigate principals' instructional supervision role and implementation of lesson study program in public secondary schools in Kajiado County
- ii. To investigate principals' promotion of collaborative practices and implementation of lesson study program in public secondary schools in Kajiado County
- iii. To investigate principals' coordination of staff professional development and implementation of lesson study program in public secondary schools in Kajiado County
- iv. To investigate principals' resource allocation and the implementation of lesson study program in public secondary schools in Kajiado County

1.5 Research Questions

The study was guided by the following research questions;

- i. What is the principals' instructional supervisory role in the implementation of lesson study program in public secondary schools in Kajiado County?
- ii. How do the principals promote collaborative practices in the implementation of lesson study program in public secondary schools in Kajiado County?
- iii. What is the principals' role in coordination of staff professional development in implementation of lesson study program in public secondary schools in Kajiado County?

- iv. What is the principals' role in resource allocation in implementation of lesson study program in public secondary schools in Kajiado County?

1.6 Significance of the Study

The findings of this study will benefit the Ministry of Education (MOE) and Teachers Service Commission (TSC) as blue print will be provided on best lesson study management practices for the purposes of policy reform. CEMASTEAM and Kenya Education Management Institute (KEMI) will also benefit as the findings may form basis of crafting in-service management courses for school principals for the purposes of effective management of lesson study. The study findings will be useful to school principals as they will be able to evaluate themselves on how they manage lesson study for the purposes of instruction improvement. The researcher will benefit as a resource person to guide school principals on effective instructional leadership practices to implement lesson study. The study may also benefit other researchers as it would boost the existing research on management of lesson study at school level. Teachers will also benefit as they will be able to evaluate and understand the school principals' leadership role in the implementation of the lesson study. The findings may lead to improvement of lesson study implementation to the benefit of both students and parents as better academic results may be registered. Furthermore, this study will add to the body of existing literature concerning principals' instructional leadership role and lesson study program implementation.

1.7 Scope and Delimitation of the Study

This study focused on instructional leadership and lesson study implementation in public secondary schools in Kajiado County. The choice of public secondary schools was deliberate because unlike private schools, physical as well as human resource establishment and professional development to improve instructional practices is done at the expense of

public resources. The sample was restricted to principals and, mathematics and science teachers taking part in lesson study. Teachers of other subjects were not included.

The study focused on Kajiado County due to lack of leadership support in implementation of lesson study as earlier noted. Other Counties despite having been reported to experience challenges in lesson study implementation were not considered due to time and financial limitations. The variables covered included instructional leadership roles of the principals; supervisory, resource allocation, promotion of collaborative practices and professional development of teachers which influence the lesson study implementation. Intervening variables which include type of school, policies, attitude of school principals and teachers towards lesson study, were not considered in the study.

1.8 Theoretical Framework

The proposed study was anchored on Carrier's (2014) instructional leadership model, Vygotsky's social cultural development theory and Hallinger & Murphy (1985) model of instructional leadership.

1.8.1 Carrier's (2014) Instructional Leadership Model

This instructional leadership model demonstrates an empirical illustration that deliberates on how the leader and staff engagements lead to effective implementation of an instructional practice to promote effectiveness of teachers in teaching and learning. The instructional leadership model of Carrier (2014) singles out the work of the school principal as an instructional leader and that of the teachers which focus on value of learning for all the learners through developing a school community around a common vision and by entertaining great expectations for teaching and learning practices. The principal should focus on accomplishing desired goals and should be enthusiastic in performing the designated duties to advance teachers capacity to improve instructional practice. The principals' ability to carry out instructional leadership especially in the implementation of instructional programs is modeled by the output of teachers expected to transform teaching and learning.

The model postulates that principals should have clear knowledge of best practices including knowledge of responsive instructional leadership and pedagogy by communicating high expectations for teachers in order for them to realize their full potential that can lead to positive learning outcomes. The principal should focus on learning, communicate high expectation to teachers in order to improve learners' achievement, use data to inform the work of the school and develop a community that is unified around one vision and mission for the school and especially, the needs of teachers and learners to improve curriculum delivery.

1.8.1.1 Strengths of the Instructional Leadership Model

Instructional leadership model main advantage is that it places the principal in a prime position to effectively manage change. The model recognizes the school principal as the determinant to creating suitable conditions successfully manage change characteristic of lesson study as envisaged by scholars Hallinger (2018). The model is in tandem with heavy responsibilities bestowed upon the principal in curriculum instruction in general and lesson study in particular (CEMASTE, 2016; Okumbe, 2007).

1.8.1.2 Weaknesses of Instructional Leadership Model

The main weaknesses of the model is the assumption that the principal is like the sole determinant of successful implementation of school programs, yet teachers as qualified counterparts have potential to promote or derail change. Moreover, using the model gives the school principals too much responsibilities to improve instruction yet other managerial and leadership roles still remain which can be used to check their effectiveness. According to Steinberg (2013) the dominance of the school principal in managing instructional change may lead to tension due to dictatorial tendencies contrary to present day democratic embrace in management of schools. Despite the weaknesses, the strengths of Carrier's (2014)

instructional leadership model far outweigh its weaknesses and thus, the researcher grounded the study on this theory.

1.8.1.3 Application of the Theory

The relevance of Carrier's (2014) instructional leadership model emanates from the fact that the researcher used it to conceptualize principals' role in four distinct but overlying areas as follows: supervision of lesson study programs, promotion of collaborative practices, coordination of staff professional development, and allocation of resources. Moreover, according to CEMASTEVA (2016) lesson study is about creating a professional learning community in which the teachers are expected to form a team at school level, exchange ideas, plan together, observe, evaluate and provide feedback for purposes of improving instructional practices in which the principals' role is integral.

1.8.2 Vygotsky's Social Cultural Development Theory

Vygotsky is one of the proponents of constructivist theory which opines that learning is a process which involves construction of knowledge rather than obtaining it. The learner builds a personal understanding of the world depending on experiences and interactions with people in their environment. According to Vygotsky, community plays an important role in the development of individual knowledge. The way people develop their knowledge, and the way they attach meaning to this knowledge is formed in the social contexts (Purwanti & Hatmanto, 2019). The theory emphasize that the cognitive and affective development of learners are influenced by interactions with peers, teachers and instructional materials.

Vygotsky introduced the concept of Zone of Proximal Development for learning (ZPD). The zone of proximal development includes two levels of learning; the first level is called the actual development level where the learner is able to solve problems independently. The second level is called the potential development where the learner requires the help of peers and the teacher to solve problems. The ZPD is the gap between the

skills and knowledge the learner possess and what they are able to acquire with the help and guidance of the teacher and peers. Vygotsky introduced the concept of scaffolding which is the support given to learner in order to reach ZPD. Scaffolding emphasizes interaction and collaboration.

This theory is important in understanding interactions among teachers during lesson study. Individual teachers possess knowledge and skills which they use during the teaching and learning process. However, the need to bridge some professional gaps requires the teacher to engage in collaborative practices which help them learn from each other as they plan, teach and reflect together.

This theory was used by Ogebo, Gaigher and Salagaram (2019) in their study to investigate teachers' experiences in the teaching of electricity and magnetism during a lesson study intervention in South Africa. They posit that individual teachers are able to acquire more knowledge and become more effective resulting to cognitive growth associated to their social interactions with each other during lesson study implementation.

Purwanti and Hatmanto, (2019) also used the Vygotsky social cultural theory to anchor their study which investigated secondary English teachers' opinions about lesson study. According to their study, social interactions among individuals is facilitated by symbols that include language. They used Vygotsky's social cultural theory due to its emphasis on language as one of the social interaction intervention that teachers use during lesson study implementation.

1.8.3 Hallinger & Murphy (1985) Model of Instructional Leadership.

This study was also informed by Hallinger & Murphy (1985) model of instructional leadership. They proposed three dimensions of instructional leadership role of the principal namely; defining the school mission, managing the instructional program and promoting a positive school learning climate. In managing the instructional program, the principal is

required to focus on coordination and control of instruction. Also, principal need to supervise and evaluate instruction, coordinate curriculum and monitor students' progress. Promoting a positive school learning climate dimension includes protecting instructional time and promoting professional development.

According to the theory, the principal can support professional development of teachers directly or indirectly. Directly by organizing team teaching for teachers who need to acquire new skills and indirectly by making them aware of professional development programs and supporting them for team teaching.

This model was chosen because school principal is an instructional leader who should aim at improving teaching and learning. This includes supporting all activities that promote teachers professional growth and collaboration as well as provision of required resources in lesson study. Munna (2022) used the Hallinger and Murphy (1985) of instructional leadership to investigate instructional leadership and the role of module leaders in England. This model was used due to its focus on curriculum implementation and instructional practices. Munna (2022) concluded that instructional leadership contributes to shared beliefs among module leaders which lead to improved learning.

This model was also used by Lavigne (2018) to examine individual and school level predictors of principal adaptation to teacher evaluation reform in the United States. This study was based on the fact that individual characteristics such as beliefs, capabilities, knowledge and experiences influence leadership as well as barriers and opportunities. In addition, Hassan, Ahmad, and Boon (2019) used Hallinger and Murphy (1985) instructional leadership model in their study on instructional leadership in Malaysia. They evaluated several instructional leadership models and found this model more suitable than those others. This is due to its strength since it has been tested empirically in studies on instructional

leadership. They posit that the model is mostly used in measuring instructional leadership of school leaders with a research instrument which is widely used.

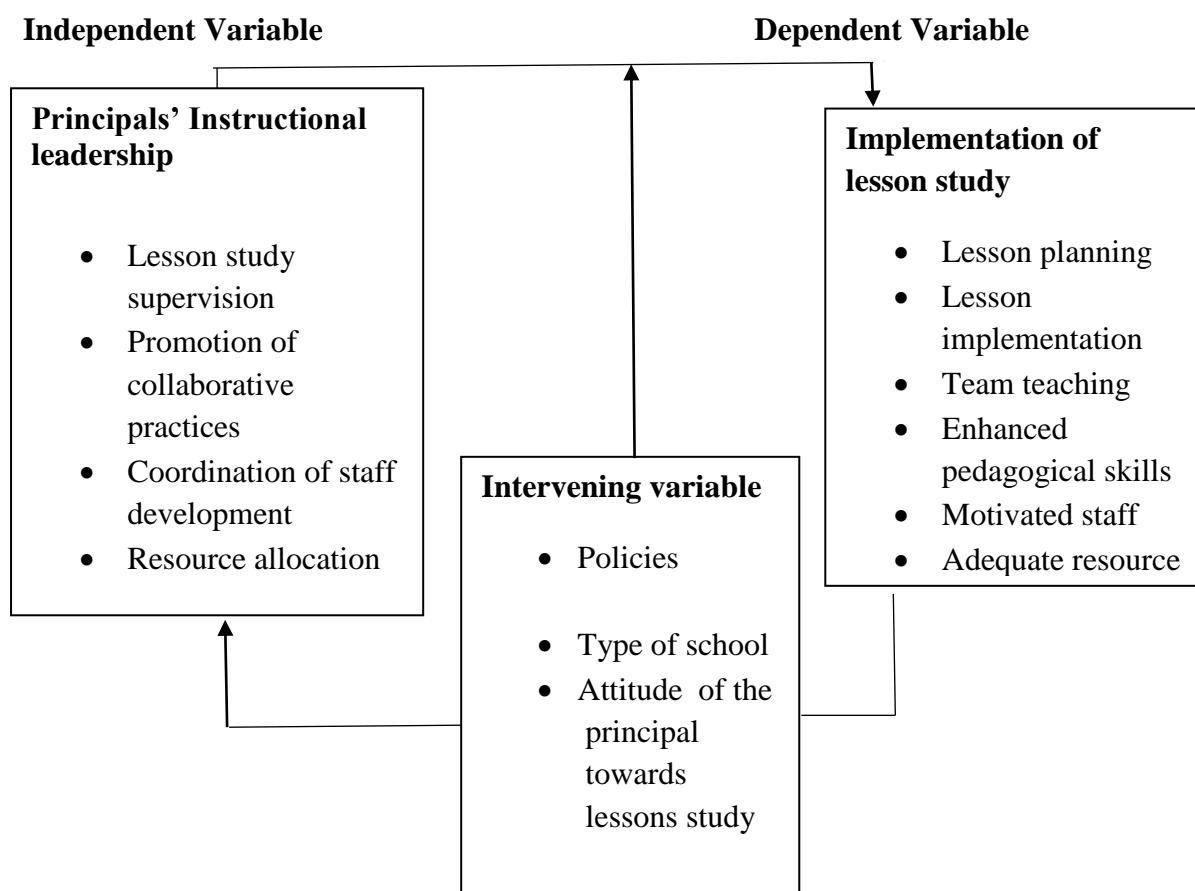
1.9 Conceptual Framework

A conceptual framework refers to a graphic representation of the interrelationship of variables which describes a phenomenon within a system of process (Creswell, 2003).

According to Kothari and Garg (2014), a conceptual framework represents a hypothetical model which identifies the relationship between independent and dependent variables. Figure 1.1 shows relationship among variables

Figure 1

Conceptual Framework Showing Relationship between Independent and Dependent Variable



Source: Researcher, 2023

The independent variable is the principals' instructional leadership role. The indicators of the independent variable include principals' instructional supervision role: This role involves providing direction and monitoring lesson study process during lesson planning, implementation, and reflection thus supporting the goal of instructional leadership which is to improve students' learning. Promotion of collaborative practices enables sharing of ideas during lesson study process which involves planning, implementation and reflection thus enhancing team work and formation of communities of practice among teachers. Coordination of professional development which is the responsibility of the principal enhances teachers' pedagogical competency and motivates teachers. The principal also has a role of allocation of resources that are used during lesson study implementation. These resources are used during lesson preparation, demonstrations and observations during lesson study.

The dependent variable is implementation of lesson study resulting from the input of independent variable which is principal instructional leadership. The indicators of principal instructional leadership are measured in terms of efficiency in directing and monitoring lesson study during lesson planning, implementation and reflection, enhanced pedagogical skills and motivation of teachers arising from staff development, spirit of teamwork and provision of adequate resources. However, the relationship between independent and dependent variables may be affected by intervening variables such as policies, type of school, attitude of school principal and teachers towards lesson study, which were not considered in the study.

1.10 Operation Definition of Key Terms

Collaborative Practices: Teachers working together to plan lessons, teach and reflect to improve student learning during lesson study implementation.

Instructional Leadership: Supervision and support of instruction by a school principal during lesson study implementation.

Lesson Study: A collaborative school based teacher professional development program that focus on student learning.

Resource Allocation: Provision of resources such as time, funds, materials and staff that support teachers during lesson study implementation so as to improve student learning.

Supervision Role: Principal monitoring teachers implementing lesson study so as to improve student learning.

Teacher Professional Development: Instructional programs such as lesson study that help teachers gain professional knowledge that is essential for lesson improvement.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature according to the objectives of the study globally, regionally and locally. Research gaps that the study addressed are also discussed.

2.2 Principals' Instructional Supervision Role and Implementation of Lesson Study

Research related to principals' instructional leadership indicate that school principals' play a key role in effective implementation of lesson study. In Malaysia, Ngang and Sam (2015) conducted a qualitative study on principal support in lesson study. The aim of the study was to explore to what extent principals of elementary schools supported implementation of lesson study. Participants were nine school elementary principals from schools categorized as national, national Chinese type and national Tamil type with five years' experience as principals. Data was collected using in depth interview.

Results of the study indicated an improved school performance after teachers had gone through the lesson study cycles resulting to use of alternative teaching strategies, teachers working collaboratively, supporting students and teacher professional growth. This was associated with support provided by principals in terms of materials, time to plan, implement and revise the lesson. Additionally, results indicated that principals' support to lesson study implementation is associated with improved teacher professional growth and consequently classroom improvement.

The study by Ngang and Sam (2015) is similar to the current study in that it investigates support given by principal in lesson study implementation. However, the study is different in that it adopted a qualitative approach, In addition, the study focused on principals from elementary schools in Malaysia while the current study employed both quantitative and qualitative approaches so as to provide a more comprehensive grasp of principals'

supervisory role and implementation of lesson study program in public secondary schools in Kajiado County.

In the Netherlands Neeske et al., (2022) conducted an in-depth qualitative study on leadership practices and sustained lesson study. The aim of the study was to investigate leadership practices in schools that had a sustained lesson study. Purposeful sampling was used to select the two schools that were involved in the study; one secondary pre-vocational level school and one secondary senior general and pre-university level school. The schools were selected on the criteria that they practiced lesson study and considered it important in school improvement. Data was collected through observation and use of semi-structured interviews thus the two methods serving the purpose of triangulation. Collected data was organized, coded and categorized into themes.

Results revealed that leadership was evident in the two schools that were involved in the study. It also indicated that for sustainability of lesson study in school, there is need for school leadership to play their role effectively which include being knowledgeable on lesson study, having a plan for lesson study, being available during lesson study and selecting a lesson study coordinator. The findings of this study provide important insights on principals' role in implementation of lesson study which coincides with the current study. However, the study adopted a qualitative approach and was conducted in two schools in the context of the Netherlands. The current study adopted both qualitative and quantitative approaches and involved collection of data from a larger sample in a Kenyan context.

Lee and Madden, (2019) conducted a study in the USA to explore how lesson study can broaden content knowledge and affect instructional leadership. This was a collaborative study between one university and eight schools which involved teachers and school principals. Participants were 8 principals and 37 regular and special education high school teachers in English/language arts, social studies/history from five districts. The study used a

mixed method design for purposes of triangulation and corroboration. Data was collected using observation during the lesson study cycle, lesson plans, artifacts from students, discussions by committees and focus group interviews. Qualitative data was organized, analyzed and reported while quantitative data was analyzed using descriptive statistical methods.

Findings indicated that lesson study had impact on the roles of principals as instructional leaders which included being a partner in lesson study, being a coach as opposed to an evaluator and their new understanding of an effective evaluator. The study concluded that partnership between principals and teachers can help solve challenges as they work towards a common goal as they create an inviting climate for learners. This study is similar to the current study since both adopted qualitative and quantitative approaches. However, this study is different from the current study since it was an explored partnership between principals and teachers in implementation of lesson study in USA. The current study aims at investigating principals' instructional leadership in lesson study implementation in public secondary schools in Kajiado County.

Banda, Mudenda, Tindi and Nakai (2015) conducted a study on Lesson Study Practice of Science Teachers in Zambia: Its Effects, Enhancing and Hindering Factors. The study was an impact survey to evaluate the success and factors that enhance and hinder implementation of lesson study in Central province of Zambia. Data was collected using national examination pass rates in science and biology subjects to assess the effect of lesson study while interviews and questionnaires were used for determining factors that enhance and hinder lesson study implementation. This was done in 29 secondary schools in central province and other 6 provinces that did not take part in lesson study. Participants were teachers, facilitators, school heads and grade 12 students.

Results indicated that pass rates for learners in Central province where lesson study was practiced were slightly higher than those of non- implementing provinces which was associated with improved teaching skills of science teachers arising from lesson study. High teaching load and high pupil-teacher ratio were found to be hindering factors to effective implementation while trained facilitators and support from school managers were found to be enabling factors to lesson study implementation. Though the study acknowledges the support of school manager as an enhancement to lesson study implementation, it failed to give the specific role the school manager played for effective implementation of lesson study. This is a gap the current study addressed by exploring principals' instructional leadership role and implementation of lesson study in public secondary schools in Kajiado County.

Sibomana (2020) conducted a study in Rwanda on perceptions of teachers on the instructional leadership behaviors' of secondary school principals in Rwanda. The study aimed at identifying secondary school principals' instructional leadership behaviors and how these behaviors impact professional practices of teachers in Nyamagabe district in Rwanda. The study used a quantitative research method with a descriptive survey design. Sampling techniques used were proportionate, stratified random sampling and purposeful sampling. Participants were 269 teachers selected from a population of 816 teachers from 48 secondary schools. Data were collected using a closed ended questionnaire and analyzed using descriptive statistical method.

Results indicated that teachers perceived principal to engage in instructional leadership behaviors such as instruction supervision, provision and discussion of feedback with teachers. Results further reviewed that principals communicated shared goals as well as supporting teacher professional development and learning resources. The study recommended the need to provide schools with resources and training courses so as to enhance principals' instructional leadership. The study by Sibomana, (2020) is similar to the proposed study since

it explores principal instructional leadership and adopts a quantitative and qualitative approaches with data analysis done using descriptive statistics and thematic analysis. However, the study focused on teachers' perceptions of principals' instructional leadership behaviors in Rwanda while the current study investigated principals' instructional leadership and lesson study in Kenya.

In Nigeria, Egwu (2015) conducted a study on principals' performance in supervision of classroom instruction in Ebonyi state secondary schools. The aim of the study was to explore the performance of the principal in classroom instruction supervision. The study used a descriptive survey design. Participants were 630 secondary school teachers selected from 45 secondary schools from 3 education zones in Ebonyi state. Data were collected using self-developed questionnaire and validated by measurement evaluation and educational administration experts. Analysis was done using both descriptive and inferential statistics.

Results indicated that there was effective supervision of classroom instruction by principals in secondary schools in Ebonyi state in Nigeria. The study recommended the need for principals to carry out effective classroom supervision so as to improve instruction. This study by Egwu, (2015) adopted a quantitative approach and focused on principals' effectiveness on classroom instruction. This coincides with the current study since it investigated principals' instructional leadership but differs in that the current study used both quantitative and qualitative approaches and focused on lesson study which is a program that helps teachers improve classroom instruction. It was therefore important to investigate how principals supports lesson study an initiative that helps improve instruction. Hence the current study on principals' instructional leadership and lesson study implementation in public secondary schools in Kajiado County.

In Kenya, a study was conducted by Mutiso, Kirimi, and Itegi (2020) on the effects of principals' instructional supervisory practices on students' academic performance in public

secondary schools in Machakos County. The aim was to examine the association between the principals' instructional supervisory practices and students' performance in public secondary schools in Machakos County. The study used a mixed method of both qualitative and quantitative research using a descriptive survey design. Sampling methods used were simple random sampling and stratified sampling. Participants included 47 principals, 395 teachers of public secondary schools and 8 sub county QASOs, in Machakos County. Data collection instruments used were questionnaires and interview guides. Quantitative data was analyzed using descriptive and inferential statistics while qualitative data was organized into themes.

Results revealed that principals checked teachers' professional documents. However, principals did not promote instructional supervisory practices such as mentoring, classroom observations and peer teaching among teachers. Though this study is similar to the current study since it adopts both quantitative and qualitative approaches and investigates principals' instructional leadership, it is different because it focused on student academic performance while the current one focused on lesson study. In addition, it recommended the need for principal to support mentoring, classroom observations and peer teaching among teachers. These are tenets of lesson study which contribute to teacher professional growth and consequently improved students' performance. Moreover, the study recommends that the government provides in-service training programs to train teachers on these practices. Lesson study is a school based teacher professional program that helps teachers enhance mentoring, peer teaching and lesson observation of which the principals play a key supervisory role in its effective implementation. Hence the current study on principals' instructional leadership in implementation of lesson study in public secondary schools in Kajiado County.

2.3 School Principal and Promotion of Collaborative Practices in Lesson Study

Research indicates that lesson study allows teachers to work collaboratively as they plan for the research lessons. Richit, Ponte, and Tomasi (2012) conducted a study on aspects

of professional collaboration in lesson study in Rio Grande do Sul state in Brazil. This was a qualitative study that aimed at exploring features of professional collaboration that are important for teacher professional development in lesson study. The study involved 8 public school mathematics teachers. Collection of data was through field notes, questionnaires and interviews.

Results indicated that lesson study promoted relationships and team work among teachers. Results also revealed that lesson study yielded to several features of collaboration that included cooperation in doing tasks, reflection on classroom practice and shared encouragement and support. The authors recommend further research on aspects of collaboration in other contexts. This study is related to the current study since it investigated lesson study and the way it promotes collaboration among teachers. However, the study did not examine how school principals support such collaborations. The current study bridged the gap identified by investigating how school principals support such collaborations during lesson study implementation.

Balyer, Karatas, and Alci, (2015) conducted a study on school principals' roles in establishing collaborative professional learning communities at schools. The study aimed at exploring the principals' role in establishment of communities of practice in Turkey. The study used a qualitative method using ethnographic design so as to have an in-depth understanding of the study. Purposive sampling method was used to select participants who were 15 principals (13 male and 2 female) from 15 state schools in Istanbul province in Turkey. Data was obtained through interviews with semi-structured questions. Data collected was coded, organized and then analyzed using the constant comparative approach.

Findings indicated that school principals have an important role of creating professional learning communities. The findings however indicated that principals did not play this role effectively. Recommendations of this research included the need for principals

to support professional learning communities so as to function effectively. This study differs from the proposed study since it used an ethnographic design while the proposed study adopted a cross-sectional survey. Though the study by Balyer, Karatas, and Alci, (2015) examined principals role in establishing communities of practice, it failed to identify the specific role of the principal in promoting communities of practice which bring collaboration. Lesson study promotes communities of practice. The current study aimed at addressing this gap by exploring principals' instructional leadership and implementation of lesson study in public secondary schools Kajiado County.

In Malaysia, Tahir, Mohammed, Musah and Muhammad, (2022) conducted a study on promoting professional learning communities: discovering principals' support and leadership strategies in Malaysian religious-based secondary schools. The aim of the study was to explore the perception of teachers on the role of school principals in professional learning communities in religious based secondary schools in Malaysia. The study adopted a sequential mixed method which was done in two phases; the first phase involved collection of quantitative data while the second phase involved collection of qualitative data. Participants were 610 teachers selected from 8 religious based public secondary schools in the first phase while in the second phase, participants were 16 teachers from the same schools. The 8 schools were selected using cluster sampling method while the 16 teachers were selected using purposive sampling method to get teachers who participated in professional learning communities actively. Data collection methods included questionnaires for quantitative data and semi-structured interviews for qualitative data. Analysis of data was done using descriptive and inferential statistics while qualitative data was analyzed using thematic analysis procedures.

Findings revealed that principals supported professional learning communities as an important platform for teachers to collaborate, share and work as a team by providing the

necessary resources. The study concluded that school principals influence effective implementation of professional learning communities in the context of religious based public secondary schools in Malaysia. This study is similar to the current study since it used both quantitative and qualitative approaches, they are different in that this study used sequential mixed method which involved collection of data in two phases in religious based schools while the current study adopted a descriptive cross-sectional survey where data was collected at the same point in time in public secondary schools. The researcher explored principals' support in lesson study and how it contributes to teacher collaboration and professional learning communities.

To, Yin, Tam, and Keung, (2021) conducted a study on principal leadership practices, professional learning communities, and teacher commitment in Hong Kong kindergartens. The aim of the study was to explore principal leadership practices, learning communities and commitment of teachers to kindergartens in Hong Kong. Participants were 2,106 teachers from 153 kindergartens. Data were collected using a questionnaire and analyzed using descriptive statistics.

Results revealed that development of teacher professional learning communities at school was facilitated by principals' leadership practices which resulted to commitment of the teacher. The study by To, Yin, Tam, and Keung, (2021) was conducted in kindergartens and focused on professional learning communities in Hong Kong. The current study focused on lesson study as a program that promotes professional learning communities among teachers thus investigated how principals' leadership promotes its implementation in secondary schools in a Kenyan context.

In Nigeria, Isah, Agbe, Odeh, and Adelabu, (2019) conducted a research to investigate the influence of collaborative instructional leadership of principals and teachers on students' academic performance in secondary schools in north central, Nigeria using a survey research

design. Participants were 36 principals and 355 teachers selected from a population of 972 principals and 15699 teachers from 972 public secondary schools respectively. Sampling techniques included multistage sampling, simple random sampling and proportionate stratified random sampling. Data was collected using questionnaires and validated using a trial test in a state outside the area of study and was analyzed using descriptive statistics.

Findings indicated that when principal and teachers work collaboratively in supervising instruction, coming up with the school goal and in protecting instructional time improved student achievement. The study recommended the need for principals and teachers to work together in lesson preparation and lesson supervision so as to improve students' academic performance. This study differs from the proposed study since it adopted a quantitative approach and focused on how collaboration of principal and teachers influence academic performance of the students while the proposed study employed both quantitative and qualitative approaches focusing on principals' promotion of collaborative practices of teachers during lesson study implementation. Lesson study promotes collaboration among teachers and leads to improved students' performance. Hence the current study on principals' instructional leadership and lesson study implementation in public secondary schools in Kajiado County, Kenya.

Irungu, Kagema, and Gachahi (2019) explored the influence of principals' collaborative practices on students' performance in secondary schools in Murang'a and Kirinyaga Counties, Kenya. The study used both qualitative and quantitative methods with a descriptive survey research design. Sampling was done using stratified, purposive and simple random sampling techniques. Participants were 205 principals and 367 teachers. 123 schools from Murang'a county and 80 schools from Kirinyaga County were selected proportionally. Data was collected using questionnaires and interview schedules. Face to face interviews were

conducted with the principals and teachers were given questionnaires. Analyses of data was done using descriptive and inferential statistics.

Results revealed that principals' promotion of collaborative practices was in Kirinyaga County which posted higher examination results than in Murang'a County. The study therefore concluded that students' performance is enhanced by collaborative practices in school. This study recommended the need for principals to support collaborative practices in their schools by involving teachers to network. Lesson study is a form of teacher professional development that allows collaboration among teachers. In this study by Irungu, Kagema, and Gachahi (2019) there is evidence that promotion of collaborative practices enhance students' performance and the principal is key in promotion of collaborative practices. The current study explored principals' instructional leadership and lesson study implementation in public secondary schools in Kajiado County.

In Kenya, Kariuki and Itegi (2019) conducted a study on teacher participation in collaborative professional development and learners' achievement. The study used a convergent parallel mixed methods research design. Sampling techniques included stratified and purposive sampling to select public and private schools and participants who included 194 class eight teachers and twenty head teachers. Data were collected using questionnaires and focus group discussions for the teachers and semi-structured interview guide for the head teacher. Analysis of data was done using descriptive and inferential statistics for the quantitative data and thematically for the qualitative data.

Findings indicated that teachers participated in collaborative activities such as lesson observation, peer coaching, and team teaching. Findings also indicated that head teachers were supportive in creating a favorable school environment that resulted in improved school mean score. However, the findings indicated challenges faced by teachers in trying to engage in collaborative activities such as lack of ICT skills, lack of time and lack of follow up. It

recommended the need for support by various stakeholders and by school administration in promoting teacher collaborative forums. This study is similar to the current study in terms of research methods and sampling methods. However, the current study is different since it used cross-sectional survey design and investigated collaborative practices in lesson study while the study by Kariuki and Itegi (2019) investigated how collaborative practices help improve learners achievement. Lesson study is a collaborative activity which contributes to teacher professional growth and improved learner achievement. The current study bridged the identified gap by exploring how principals support lesson study as a form of collaborative practice.

2.4 Principals' Coordination of Staff Professional Development and Implementation of Lesson Study

Rahim, Sulaiman and Sulaiman (2015) conducted a study on teacher professional development through lesson study in secondary schools. The qualitative study aimed at exploring if lesson study contributed to teacher professional development of English teachers in Malaysia. The study adopted a case study design on a lesson study team from one school in Pahang. Participants were four English teachers from a school which was selected due to its poor performance, one English language officer from district education office, three master English teachers and two experienced English teachers with more than 15 years teaching experiences. Data was collected through classroom observation of two English language lessons for two months by video recording, taking notes, and other professional documents that included lesson plans, reflective reports and students' hand-outs. Analysis of data was done by analytic induction. Triangulation was done through use of different methods, multiple sources of data, and through multiple perspectives of data analysis. Member checking was done so as to determine the accuracy of data.

Findings indicated that collaboration during lesson study helped teachers improve their pedagogical content knowledge and teacher instructional practices thus contributing to professional growth of the teachers. The study also revealed that there are some challenges encountered that included minimal school administration support, time constraint and work overload. The study affirmed that lesson study is a form of school based teacher professional development which contributes to formation of learning communities which is relevant to the 21st century trends.

The study by Rahim, Sulaiman and Sulaiman, (2015) adopted a qualitative approach with a small sample of ten participants. This is different from the current study which used a mixed method approach. While this study explored how lesson study promote teacher professional development, it cited some challenges encountered by the teachers which included minimal support from school administration. The current study therefore addressed this gap by investigating principals' support of teacher professional development through lesson study.

Alamri (2020) conducted a study on the implementation of the lesson study strategy in teaching mathematics in Saudi Arabia. The mixed method study aimed to investigate mathematics teachers' perspectives of lesson study implementation in teaching of mathematics using a sequential explanatory design. Purposive sampling technique was used to select 149 mathematics teachers from public primary schools and who participated in lesson study strategy. Quantitative data was collected using questionnaire while interview with open ended questions were used to collect qualitative data. Validation of the questionnaire was done by experts on teacher professional development in mathematics. Quantitative data was analyzed using descriptive statistics while qualitative data was coded and organized into themes. Results revealed that participation of mathematics teachers in

lesson study contributed to their professional development since it enhanced their content and pedagogical knowledge as well as knowledge of learning process on learners.

The study by Alamri (2020) is similar to the current study since it used mixed method approach and collected data using questionnaires for quantitative data and open ended questions for qualitative data. Though this study is related to the proposed one, it is different in that it focused on mathematics teachers' perspectives of lesson study and how it yielded to teacher professional development. The current study investigated how principals' supports lesson study which is a teacher professional development initiative. Hence, the current study on principals' instructional leadership and implementation of lesson study in public secondary schools in Kajiado County.

In Athens, Chalikias, Sidiropoulos and Zakopoulos (2020) conducted a study on the school principal's role as a leader in teacher professional development: the case of public secondary education in Athens. The aim of the study was to explore leadership role in the school climate and leadership support to the success of teacher professional development in public secondary education for improvement of school quality and learning process. It was a quantitative study that was conducted in public secondary education. Simple random sampling technique was used to select 180 teachers from 8 municipalities of the third public secondary education of Athens which included lower secondary schools, upper secondary vocational and general schools. Collection of data was done using questionnaires while analysis was done using SPSS software. The study revealed that there was a relationship between the school principal training and teacher professional development. The study recommended that the principal need to support and spearhead teacher professional development. This study confirms the importance of principals in supporting teacher professional development. However, it focused on leadership role in school climate and support in teacher professional development and thus differs with the current study whose

focus was on principals' coordination of teacher professional development through lesson study. The current study investigated principals' instructional leadership and lesson study implementation in public secondary schools in Kajiado County.

Slingerland, Eijck, Borghouts, Remmers, Laurijssens and Weeldenburg (2021) conducted a study on teachers' perceptions of a lesson study intervention as professional development in physical education in the south of the Netherlands. This was a mixed method study that involved 51 physical education teachers who were allocated to either control condition or experimental condition. 16 teachers were allocated to a control condition and only went through the lesson study workshop while 35 teachers were allocated the experimental condition and went through the workshop and lesson study intervention. Data was collected using questionnaires for quantitative data and focus group interviews to collect qualitative data. Quantitative data was analyzed using descriptive statistics while qualitative data was analyzed deductively using framework analysis and inductively by coming up with themes.

Results indicated that lesson study contributed to continuous professional development of the teachers since they were able to use the acquired knowledge and skills to their particular contexts. However, although teachers appreciated lesson study as contributing to their professional growth and as a collaborative approach, the study recommended the need to provide time, resources and support by management for lesson study to be implemented effectively. This study by Slingerland, et al., (2021) is similar to the current one since both use mixed methods approach. However this study used experimental and control groups and focused on perceptions of teachers on lesson study as a professional development intervention. Therefore it differs from the current study which investigated principals' coordination of professional development and lesson study implementation. The study recommended the need for support by the school management as well as provision of time

and resources. The school principal is key in provision of resources that are necessary for lesson study implementation. The current study investigated principals' instructional leadership and implementation of lesson study in public secondary schools in Kajiado County.

Venketsamy, Hu, Helmbold and Auckloo (2022) conducted a study on implementing the Japanese Lesson Study as a professional development tool in South Africa. The study explored how Japanese lesson study could help improve quality of teaching in South Africa. The study used a qualitative method with a descriptive research design. Participants were early childhood education grade 1 female teachers drawn from the same school. Classroom observations and semi-structured interviews were used to collect data. Creswell's steps were used in data analysis which involved identifying themes and sub-themes.

Findings showed that the workshop helped participants deepen their understanding of lesson study. They also indicated that participants recognized professional development as an inspiring factor to continue working as a team. The study recommended the need to implement lesson study with teachers from different grades and phases. The study also recommended the need for school leaders to support lesson study in their schools, districts and provinces in order to promote teacher professional development. This study is similar to the current study since it revealed the importance of lesson study in professional development of teachers and the need for the school leader to support it. However, the study is silent on the kind of support the school leaders should provide. Also, the study was conducted in early childhood education in South Africa and cannot be generalized to a Kenyan context. The current study therefore explored principals' instructional leadership in lesson study implementation in public secondary schools in Kajiado County.

In Nigeria, Umar, Kenayathulla, and Hoque (2021) conducted a quantitative research study on principal leadership practices and school effectiveness in Niger State, Nigeria. The

purpose of the study was to explore the extent of principal leadership practices and school effectiveness attributes in secondary schools in Niger State. The study used a survey research design. Sampling technique used was simple random sampling to select participants who included 154 principals, 269 heads of the department and 25 members of staff from Secondary Education Board selected from a population of 852 individuals in Niger State. Data was collected using structured questionnaires. Analysis of data was done using descriptive statistics.

Results revealed that principals' leadership practices were highly related to school effectiveness. The study recommended the need for school leadership to focus on training programs for secondary school teachers in order to improve school effectiveness. It also suggested the need for principals to identify training needs for teachers and support them in teacher professional development. Lesson study is one such training program that teachers can engage in so as to improve school effectiveness. The current study therefore examined principals' instructional leadership and implementation of lesson study in public secondary schools in Kajiado County.

In Kenya, Shikokoti, Okoth, and Chepkonga (2021) carried out a study on principals promoting professional development on teachers' job satisfaction in public secondary schools in Kakamega County, Kenya. The study adopted a survey research design. It used a purposive sampling technique to select five sub counties from a total of 12 sub counties in Kakamega County and stratified sampling to get 64 schools from a total of 324 schools. Participants were 64 principals and 12 TSC officers who were selected using purposive sampling and 300 teachers selected from simple random sampling. Data were collected using questionnaires. A pre-test of the questionnaire was done to ensure validity of data. Analysis of data collected was done using descriptive statistics.

Results revealed that teacher professional development enhances skills development which results to achievement of the school goal. Consequently the study indicated that principals' promotion of teacher professional development helps improve students' performance. This study is similar to the current study in terms of data collection methods, sampling methods and analysis methods and focuses on principals' promotion of teacher professional development. However, it is different in that it focused on principal promotion of teacher professional development and job satisfaction while the current study focused on principal coordination of teacher professional development and lesson study implementation. Since lesson study is teacher professional development initiative that contributes to teacher professional development, there is need to investigate how principals support it. The current study therefore investigated principals' instructional leadership in lesson study implementation in public secondary schools in Kajiado County.

2.5 Principals' Resource Allocation and Lesson Study Implementation

Studies have shown that the school principal as an instructional leader has a role of allocating resources for implementation of teacher professional development initiatives. In the US, Perez, (2022) conducted a study on the role of a school principal's practice of resource allocation and its relationship with a school's culture of collaboration. The aim of the study was to examine the relationship between a principal's practice in resource allocation and how it promotes a school's collaborative culture. A qualitative research design was used in the study. Participants were principals who had taken part in Environmental Survey School Measures element of Effective School Leadership and were selected using purposeful and stratified sampling techniques. The study used an online survey while questionnaires were used to collect data. For validity, the survey questionnaire was reviewed by a district superintendent, six school principals, and one district resource supervisor. Data were analyzed using descriptive and inferential statistics.

Findings indicated that there was an association between principals' provision of resources and a collaborative culture of the school. This study is related to the proposed study since its focus is to investigate principals' resource allocation. However, the two differ in that the study by Perez, (2022) focused on principals' resource allocation and its relationship with the school culture of collaboration while the current study focused on principals' resource allocation in lesson study implementation. Lesson study is teacher professional development initiative that promotes collaboration among teachers during its implementation. The study by Perez, (2022) leaves room for further research to investigate on principals' resource allocation and other programs that promote collaboration like lesson study hence the current study on principals' instructional leadership and lesson study implementation in public secondary schools in Kajiado County.

Shilon, Tamir and Schechter (2021) conducted a study on principals' sense-making of resource allocation within a national reform implementation in Israel. The aim of the study was to investigate the perceptions of high school principals on resource allocation during implementation of a national reform on pedagogy known as the courage to change reform. This was a qualitative study which adopted a phenomenology research design in order to get lived experiences from principals regarding resource allocation in the implementation of the national reform. Participants were 22 high school principals from the Israel's school district who were selected using a maximal differentiation sampling which is purposive sampling technique. Semi structured interviews were used to collect data which was done simultaneously with data analysis. Data analysis went through the process of condensing, coding, and categorizing into themes.

Results indicated that principals' sense making of resource allocation resulted to promotion of students improved performance, enhancing student teacher relationship and coming up with a new pedagogy for learners with a challenging background. The study by

Shilon, Tamir and Schechter, (2021) is different from the current one since it adopted a qualitative approach and used a phenomenology design therefore using a small sample of 22 principals. The current study adopted a mixed method approach with a larger sample that involved different participants namely principals and teachers. Additionally, this study focused on principal sense making of resource allocation in implementation of a national reform and how it impacts students' achievement. The current study investigated principals' resource allocation and lesson study implementation.

Slingerland, et al., (2021) conducted a study on teachers' perceptions of a lesson study intervention as professional development in physical education in the south of the Netherlands. This was a mixed method study that involved 51 physical education teachers who were allocated to either control condition or experimental condition. 16 teachers were allocated to a control condition and only went through the workshop while 35 teachers were allocated the experimental condition and went through the workshop and lesson study intervention. Data was collected using questionnaires to collect quantitative data and focus group interviews to collect qualitative data. Quantitative data was analyzed using descriptive statistics while qualitative data was analyzed deductively using framework analysis and inductively by coming up with themes.

Results indicated that lesson study contributed to continuous professional development of the teachers. However, the study recommended the need to provide time, resources and support by management for lesson study to be implemented effectively. Though this study investigated about teachers perceptions on lesson study as a teacher professional development, there exists a gap in its recommendation on provision of resources and support by management. The school principal is key in provision of resources that are necessary for lesson study implementation. The current study addressed the gap by investigating support given by school principal in implementation of lesson study in a Kenyan context. The current

study therefore investigated principals' instructional leadership and implementation of lesson study in Kajiado County

In South Africa, Ogegbo, Gaigher and Salagaram, (2019) conducted a qualitative study on the benefits and challenges of lesson study: a case of teaching physical sciences in South Africa. The aim of the study was to explore teachers' experiences in teaching electricity and magnetism during lesson study implementation. The research adopted a case study design with a small sample of four teachers; two from rural and two from urban schools. Multiple sources were used for data collection which included lesson observation, observation during lesson study meetings, semi structured interviews, field notes, document analysis and narrative accounts. Analysis of data was done by coding and organizing it into themes.

Findings indicated that teachers found collaborative planning during lesson study helpful in enhancing teaching strategies, networking and lesson planning skills, improving confidence and developing attitudes in teaching. The study also revealed challenges that face lesson study implementation that include time for collaboration, lack of resources, lack of support from the administration among others. Additionally, it recommended the need for policy to support lesson study as a professional development for teachers. This study leaves a gap on how to address the challenge of time and resources as well as support from the administration. The current study therefore bridged this gap by investigating school leadership and provision of resources in lesson study implementation.

Maingi, Maithya and Ronoh (2021) conducted a study on effects of principals' provision of teaching and learning materials on students' performance in mathematics in Kenya certificate of secondary education in Meru County. The aim of the study was to investigate how principals supported mathematics teachers to attend trainings, seminars, workshops and how this support interpreted into students' performance. The study adopted an

ex-post facto design. Sampling techniques included stratified random sampling with proportional allocation to select schools from three categories.

Simple random sampling was used to select schools from each category and also to select respondents who were mathematics teachers and principals. Data were collected using questionnaires for teachers and interview guides for principals. The study used a pilot survey to ensure validity of the instruments while split-half technique was used to check the reliability of the instruments. Analysis of data from the questionnaire was done using Statistical Package for Social Sciences (SPSS) while that from the interview guide was organized into themes. Presentation of data was done using percentages and normal distribution tables. Findings indicated that teaching and learning processes were facilitated by principals' provision of teaching and learning resources. However the study concluded that principals failed to adequately support mathematics teachers to join seminars and workshops due to limited budget allocation.

This study by Maingi, Maithya and Ronoh (2021) is similar to the current study in terms of sampling techniques, data collection instruments and analysis of quantitative data. However the two studies differ in terms of methods and design since the current study used a convergent parallel mixed design while the study in discussion used quantitative method and ex post facto design. This study investigated how principals' provision of resources to mathematics teachers affected learning while the current study investigated principal resource allocation and lesson study implementation in Kajiado County.

2.6 Summary of Literature Review and Research Gaps

In summary, review of related literature clearly demonstrates some research gaps. Some studies reviewed revealed geographical gaps because they were conducted in other countries whose geographical backgrounds are different from the Kenyan settings. There are also several studies that reveal methodology gaps since they adopted a single approach mainly qualitative. In addition, there are also studies that expressed theoretical gaps by

adopting different theories from the ones used in the current study with others not adopting a theory for their study. Also, most of the reviewed studies further revealed knowledge gaps.

From the reviewed literature, it is evident that there exist limited studies on principal instructional leadership and lesson study implementation in public secondary schools in Kenya. Supervision is one of the key roles of the principal in lesson study implementation. Reviewed literature globally indicates that principals' supervision during implementation of lesson study is associated with improved teacher performance and consequently learner improvement (Ngang & Sam, 2015). However, studies that exist regionally and locally on principal instructional leadership fail to focus on lesson study. Notably studies reviewed on principal supervision and support on lesson study mainly used qualitative method with a few using mixed methods. Those that used mixed methods were conducted in different contexts and not in Kenya while others lacked a theory to ground their research.

Research indicates that lesson study allows teachers to work collaboratively as they plan for the research lessons. In addition, principals' promotion of collaborative practices in lesson study implementation is viewed as a boost for teachers implementing lesson study (Balyer, Karatas & Alci, 2015). Reviewed literature revealed that school principals support collaborative practices of teachers during lesson study. However, some studies indicated that teachers had challenges in trying to engage in collaborative practices. Other studies did not focus on lesson study as a form of collaborative practice but used other programs. Most of these studies used qualitative method and were conducted in different context.

Reviewed studies on principal and promotion of teacher professional development focused on other aspects and failed to focus on lesson study (Athens, Chalikias, Sidiropoulos & Zakopoulos, 2020). In addition, most studies have used a different theoretical background than the current study while others failed to ground their studies on a theory. In addition, some studies used qualitative approach with a few using mixed methods. Those that used

mixed methods were conducted in different contexts from the proposed study. Reviewed studies have shown that school principal has a role of allocating resources so as to improve instruction. However, there is paucity of studies on principal resource allocation and lesson study implementation with those that have been reviewed focusing on principal allocation of resources and implementation of other initiatives and not lesson study. Some studies have recommended the need for school principal to allocate resources for instructional improvement. As a result, knowledge as well as geographical gaps have been found.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents the research design and methodology that was used during the current study. It discusses the research design, location of the study, target population, sampling techniques, data collection instruments, validity and reliability, credibility and dependability of qualitative instrument, analysis procedures and ethical considerations.

3.2 Research Design

According to Asenahabi (2019) a research design is a plan that links the conceptual research problem to the relevant and attainable empirical research while Kothari (2004), posits that research design constitutes an outline for data collection, measurement and analysis. This study adopted a mixed method research approach. Use of both quantitative and qualitative approaches help the researcher to have a better understanding of the research problem and research question than when one approach is used (Creswell, 2012).

Specifically, the study adopted a convergent parallel mixed methods design. This design enables the researcher to collect both quantitative and qualitative data in one phase. Convergent parallel mixed methods design entails the researcher collecting both quantitative and qualitative data concurrently, analyze the two components separately, and interpret the results together to find out if they are similar or if they contradict (Cresswell & Pablo, 2011). Descriptive survey method was used under the quantitative design while case study was used under the qualitative design. This study adopted this design because it enabled the researcher to triangulate the two methods by comparing both quantitative and qualitative findings as well as providing a broad analysis of the research problem (Demir & Pismek, 2018).

3.3 Location of the Study

The current study was conducted in public secondary schools in Kajiado County. Kajiado County is located about 80km from Nairobi the capital city of Kenya. The county occupies an area of approximately 21,871km². It borders Nairobi, Nakuru and Kiambu to the north, Narok to the west, Makueni and Machakos to the east and Taita- Taveta to the south. It is divided into six sub counties and it is very vast. It has a total of 95 public secondary schools. It is semi- arid and most of its area is dry.

The choice of Kajiado County was due to poor leadership by the school principals during lesson study implementation that led to ineffective implementation occasioned by late and poor attendance of teachers in county lesson study forums, uncoordinated and unprofessional presentation of lesson study instructional activities and missing records of teacher's experiences during lesson study (CEMASTE, 2017). Since leadership is linked to effective implementation of lesson study this study investigated secondary school principals' instructional leadership role and lesson study program implementation in public secondary schools in Kajiado County.

3.4 Target Population

According to Cresswell (2012) target population is a group of people or organizations with characteristics that the researcher seeks to identify and investigate. Target population can also be referred to as the whole group that a researcher is interested in investigating (Mugenda & Mugenda, 2003). In the current study, the total target population was all the public secondary schools from Kajiado County, Kenya. Participants were principals and mathematics and science teachers. The principals were included in this study because of the important role they play as instructional leaders in the implementation of lesson study program hence there was need to investigate how they support the program. Mathematics and science teachers were included because they are at the center of lesson study

implementation and therefore it was important to get their views about principals' support during lesson study implementation. Kajiado County has a total of 95 public schools and 651 mathematics and science teachers (Kajiado County TSC-CDE office, 2022). This study therefore targeted a total population of 746 respondents which include 95 principals and 651 mathematics and science teachers from 95 public secondary schools from Kajiado County

3.5 Description of Sample and Sampling Procedures

According to Cresswell (2012), a sample is a subset of the whole population that the researcher targets to investigate and it is used to generalize about the target population. Sampling involves the researcher coming up with a procedure for selecting items for the population (Kothari, 2004). In this study, both probability and non-probability sampling methods were used.

3.5.1 Sampling of Schools

According to Kothari and Garg (2014) a sample of ten to thirty percent of the total population is sufficient for generalization in a study. Kajiado County has 95 public secondary schools (Kajiado county TSC-CDE office, 2022). Therefore, a sample size of 30% of the total population resulted to 29 schools. A total of 29 schools were sampled from a population of 95 schools (14 boys, 22 girls and 59 mixed schools). Probability sampling were used to select schools. Particularly stratified sampling was used to select schools from the categories of boys' secondary schools, girls' secondary schools and mixed secondary schools. Stratified sampling involves separation of subgroups with unique characteristics and ensures adequate representation of each category. In addition, random sampling was used to draw a sample of 4 boys, 7 girls and 18 mixed secondary schools from categories of 14 boys' secondary schools, 22 girls' secondary schools and 59 mixed secondary schools respectively. This was achieved using 30% of each category.

3.5.2 Sampling of Principals

Non probability sampling particularly purposive sampling was used to select 29 principals from the selected secondary schools. Purposive sampling was chosen because it is suitable when the researcher focuses on a small sample with particular characteristics.

3.5.3 Sampling of Teachers

In this study, the researcher investigated 248 mathematics and science teachers sampled from a population of 651. The researcher ensured that the number of mathematics and science teachers from each selected school was proportionate to the total population of mathematics and science teachers in that school. To realize this, proportionate sampling was done with the help of the formula designed by Yamane (1967) to calculate the sample size of students per school as follows:

$$n = \frac{N}{1+N(e)^2}$$

Whereby:

n= is the sample size

N= is the size of the population (651)

e= is the desired level of confidence (0.05)

The sample size was computed as follows:

$$n = 651 \div (1 + 651 \times 0.05^2)$$

$$n = 651 \div (1 + 1.6275)$$

$$n = 651 \div 2.6275$$

$$n = 248 \text{ teachers}$$

Therefore, a sample size of 248 mathematics and science teachers was distributed proportionally among the 29 schools in Kajiado County. Simple random sampling was used to sample teachers from each of the schools. The researcher used score cards which were

labeled yes or no. They were folded and put in a bucket and teachers were asked to pick at random. Those who picked yes took part in the study.

Table 1

Sample Matrix

Category	Target population	Sample Technique	Sample Size	%
Schools 30%	95	Stratified and Simple Random	29	
Principals 30%	95	Purposive	29	
Teachers 38%	651	Proportionate and Simple Random	248	
Total 37%	746		277	

3.6 Description of Data Collection Instruments

According to Cresswell (2012), a research instrument is a tool used to observe, measure and document research data. Questionnaires and interview guides were used to collect data. A questionnaire helps collect large amount of data and results are more reliable and dependable since it is free of bias from the researcher (Kothari, 2004). Interviews offer important information and allow respondents to give a detailed and in-depth description of their personal experiences (Cresswell, 2012). Interviews also allow interviewers to seek for clarification by asking probing questions.

3.6.1 Questionnaire for Teachers

Questionnaires containing both closed ended and open ended items were used to collect data from the teachers. The questionnaire was divided into 5 parts; A, B, C, D and E. Part A was on demographic information which included gender, age, teaching experience and level of education. Data for each research objective were collected in part B, C, D and E as

follows: Part B; principals' supervisory role and lesson study implementation, Part C; principals' promotion of collaborative practices and lesson study implementation, Part D; principals' coordination of teacher professional development and lesson study implementation and Part E; principals' resource allocation and lesson study implementation.

3.6.2 In-depth Interview Guide for Principals

Interview guide with semi-structured questions was used to collect data from the principals. This allowed the researcher to collect comprehensive data through face to face interaction and further probing. The interview guide had 5 parts; A, B, C, D, and E. Part A was on demographic information which included gender, years of experience as principal and academic experience. Data was collected in part B, C, D, and E according to the research questions as follows: Part B; principals' supervisory role and lesson study implementation, Part C; principals' promotion of collaborative practices and lesson study implementation, Part D; principals' coordination of teacher professional development and lesson study implementation and Part E; principals' resource allocation and lesson study implementation.

3.7 Validity of the Research Instruments

Validity is the extent to which an instrument measures what it is supposed to measure. According to Sangosen, Hellman and Hill (2013) face validity is the clarity, conciseness and completeness of a research instrument while content validity is the extent to which items of a research instrument are related to the topic and their relevance to objectives of the test. To determine content validity, judgement of experts with good knowledge and mastery of the subject being investigated was used. The opinion of the experts was used to modify the items of the instrument. The researcher used supervisors and experts with knowledge on instructional leadership from Catholic University of East Africa and Tangaza University College.

3.8 Pilot Testing of Research Instruments

The instruments for this study were piloted in two public secondary schools which had characteristics similar to those of the study school but were not used in the current study. The aim of the pilot testing was to help the researcher to detect problems that the respondents could encounter as well as to correct errors the items could have. According to Mugenda and Mugenda (2012), a sample of one to 10 percent of the target population is adequate for the pilot study. The pilot study that was done in two public secondary schools was an equivalent of 10 percent of the sample size. Questionnaires were administered to seven mathematics and science teachers from the two schools selected for pilot testing. After the responses from the respondents, all the items of the questionnaires were retained with few changes from a few items.

3.9 Reliability of the Study Instruments

According to Mugenda and Mugenda (2003), reliability is the consistency of a research instrument. Reliability helps the researcher to detect ambiguities and inadequacies in the items of a research instrument. In this study, split-half technique was used to determine reliability of the research questionnaire. The instrument was administered to the respondents in the sample group. The instrument was then split into two parts; one part consisting of the odd number items and the other part consisting of even number items. The results of one half was compared with those of the other half. The reliability of the instruments was determined using Spearman- Brown formula:

$$\text{Reliability} = \frac{2r}{1+r} \quad r \text{ is the correlation between the two parts.}$$

The value ranges from 0 to 1. According to Sürücü and Maslakçı (2020) a value of 0.7 and above indicates a strong correlation and therefore is acceptable. For this study, the correlation between the two parts was 0.928. This indicates that there was a strong correlation between the two parts.

3.10 Reliability of Qualitative Instrument

The level of confidence in data interpretation and methods that are used to guarantee quality of a research study is referred to as trustworthiness or rigor of a study (Connelly, 2016). According to Gunawan (2015), trustworthiness is judged in terms of credibility, dependability, transferability and confirmability. Credibility refers to participants' perceptions of what the researcher portrays of them in terms of what they think, feel and do while dependability is stability and steadiness of data over time. Confirmability is accurate representation and interpretation of the information that participants provide without the interference of the researcher (Elo, Kääriäinen, Kanste, Pölkki, Utriainen & Kyngäs, 2014). Transferability is the extent to which findings of one study can be useful to other different contexts determined by those who wish to compare their studies (Connelly, 2016; Shenton, 2004). In this study, triangulation was used as one way of ensuring trustworthiness of data. According to Stahl and James King, (2020) triangulation is use of numerous sources of data from the field to establish recognizable patterns. Specifically data triangulation was used. Data triangulation involves use of data collected from multiple sources. In addition, the researcher used member checking by asking the supervisors and experts to validate researchers' explanations and also by returning the report to the participants to confirm if the findings were accurate.

3.11 Description of Data Collection Procedures

The researcher ensured that the required procedures were followed before embarking on data collection. These included presentation of signed copy of proposal to the directorate of post graduate study and research, Tangaza University College to enable the researcher get a clearance letter. The clearance letter and a signed research proposal were used to apply for a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). The researcher used this permit to get permission from the Kajiado County

Director of Education to collect data from the public secondary schools in the County. The researcher informed the County Director of Education the intention of the study in the County. Prior to administration of questionnaires, the researcher communicated to the principals of the sampled schools about the visit to conduct the study. The researcher also informed the teachers and the principals the purpose of the research and requested them to sign the consent form. The researcher then oversaw the filling of the questionnaires by the teachers and conducted the principals' interviews.

3.12 Description of Data Analysis Procedures

The process of ordering, structuring and giving meaning to the bulk of information collected is referred to as data analysis (Mugenda & Mugenda, 2013). Since the current study adopted a mixed method approach, analysis procedures involved both quantitative and qualitative data. To analyze quantitative data, the researcher used descriptive statistics. Descriptive statistics are procedures that summarize and describe characteristics of a sample and allow for data presentation for ease of understanding (Conner, 2017). Fisher and Marshall (2009) postulate that descriptive statistics describe the measures of central tendency which include mean, median and mode, as well as the measures of dispersion which include the variance. Specifically, frequency distributions and percentages were used. These were generated using Statistical Package for Social Sciences (SPSS) version 25 and data was presented in form of bar graphs, pie charts and tables.

For analysis of qualitative data gathered through interviews and open ended questions, the researcher read through in order to remove any ambiguities. Data was coded and organized into themes and sub themes and reported as narratives and direct quotes based on research questions.

3.13 Ethical Considerations

In adherence to ethical considerations, the researcher got a recommendation letter from the department of postgraduate studies at Tangaza University College. This letter was used to help the researcher secure a research permit from National Commission for Science, Technology and Innovation (NACOSTI). This permit was used to request permission from the Kajiado County Director of Education to conduct research in the public secondary schools in the area.

The researcher informed the principals of the study prior to collection of data from the participants. Participants were assured of anonymity, confidentiality, privacy and safety, and they were treated with dignity and respect. This was done by researcher briefing the participants on the intention of the study and explaining to them that they would take part in the study out of will and may pull out at any moment. The researcher also explained to the participants how the data obtained would be used. The researcher gave participants time to read and sign a consent form before filling the questionnaire.

The researcher also ensured that there was no falsification, fabrication and manipulation of data and findings were reported without bias. The raw data was also securely kept. The researcher acknowledged both primary and secondary sources of information to avoid plagiarism. In addition, the researcher followed American Psychological Association (APA) format.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSION OF THE FINDINGS

4.1 Introduction

This chapter presents both quantitative and qualitative data analysis, presentation, interpretation and discussion of findings on principals' instructional leadership role and lesson study program implementation in public secondary schools in Kajiado County. It includes the response rate of the study participants, demographic data of the participants, and analysis of the study variables in accordance with the objectives of the study.

4.2 The Response Rate of the Participants

To collect data that informed this study, the study issued 248 questionnaires to teachers and conducted interviews to 20 principals. The return rate is as indicated in Table 2.

Table 2

Response Rates of Study Participants

Category	Target Participants	Response Rate	Percentage (%)
Principals	29	20	69
Teachers	248	202	81.4
Total	277	222	89.5

Table 2 indicates that out of the 248 questionnaires distributed to the teachers 202 (81.4%) were dully filled and returned. Some questionnaires were returned unfilled while others were partially filled. The researcher attributed this to the ongoing co curriculum activities such as games and music festivals that made some teachers absent from their school. This made the return rate for teachers to be less by 46 (18.6%). Additionally, Table 2 shows that out of the 29 principals who were sampled for the study 20(69%) were available for the interview. Seven of them were not available since they were absent from schools

attending to official matters while two were attending a BOM meetings. This lowered the response rate for the principals by 9 (31%). The total response rate was 222 (89.5%).

According to Mugenda and Mugenda, (2013) a response rate of 50% is adequate for analysis and reporting of data, 60% is good and above 70% is excellent.

4.3 Demographic Information of the Participants

The study sought to find out the demographic information of the teachers and principals in terms of gender, age, education level, and teaching experience. The demographic information is important because it enables the researcher to understand the type of participants for information purposes.

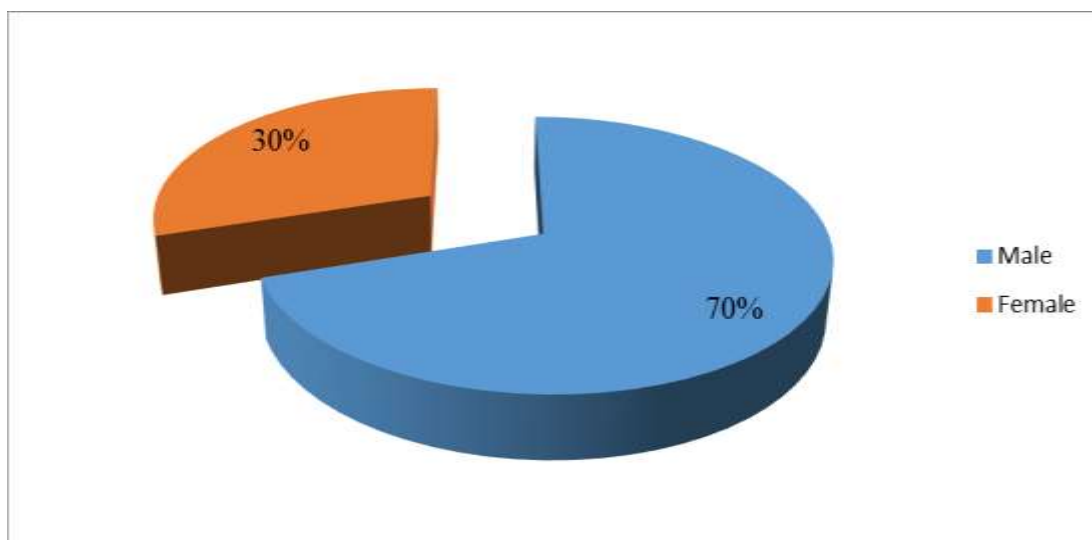
4.3.1 Distribution of Gender of the Principals

The researcher asked principals to indicate their gender. The results are indicated in Figure 2.

Figure 2

Gender of the Principals

no = 20



The results of Figure 2 indicate that a high percentage 14 (70%) of principals who responded to the questionnaires were male while a small percentage of 6 (30%) were female.

This points out a gender imbalance of principals in Kajiado County which did not affect the response to the interview. Nevertheless, both genders were represented in responding to the interview guide and provided valuable information for the study. Similarly, there was a disparity in terms of gender in a study on the role of principal's practice on resource allocation by Perez (2022) where majority of principals were female 43 (80%) and male were 11 (20%). However, this did not affect the findings of the study.

4.3.2 Distribution of Gender of the Teachers

The researcher asked teachers to indicate their gender as they were filling the questionnaire. The results are indicated in Figure 3.

Figure 3

Gender of Teachers

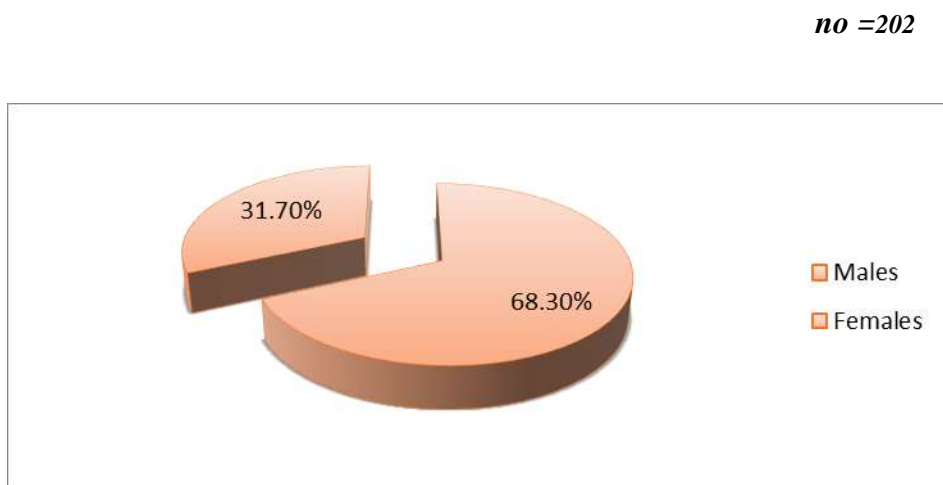


Figure 3 indicates that most of the teachers who responded to the questionnaire were male 138 (68.3%) while the rest 64 (31.7%) were female. This implies that there was a gender imbalance in mathematics and science teachers who responded to the questionnaire. Nonetheless, Figure 2 shows that both genders were represented and provided data information consistently. The imbalance is not likely to affect the findings on principals' role in lesson study program implementation since all principals have knowledge on lesson study.

The results also indicate that there was gender imbalance in teachers of mathematics and science in Kajiado County.

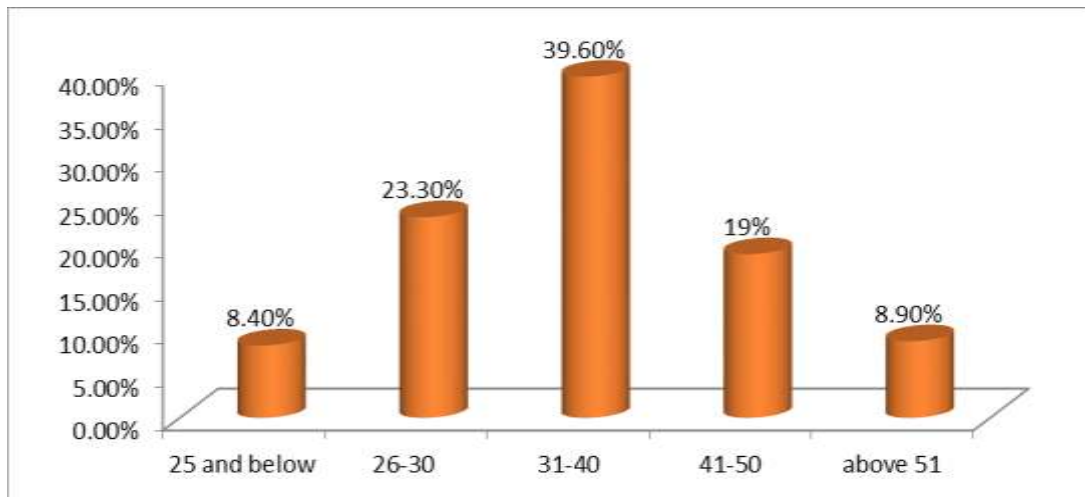
4.3.3 Distribution of the Teachers by Age

The study sought to establish teachers' age and they were invited to fill the questionnaire indicating their age category. Results are shown in Figure 4.

Figure 4

Age Bracket of Teachers

no = 202



Results from Figure 4, indicate that 80 (39.6%) of teachers fell in the age bracket of 31-40 years, those in the age bracket of 26-30 were 47 (23.3%). The percentage of teachers in the age bracket of 41-50 years was 40 (19.8%), 18 (8.9%) fell under age bracket of above 51 years while 17 (8.4%) were at the age of 25 and below years of age. This implies that most of the respondents were in the age bracket of 31-40 years suggesting that they have gained adequate experience in the teaching profession and have gained knowledge on lesson study. Nevertheless, all age brackets were represented indicating different experiences that are needed for an effective team.

4.3.4 Distribution of the Principals by Age

The study sought to establish principals' age as they responded to the interview guide.

The results are indicated in Figure 5.

Figure 5

Age Brackets of the Principals

no = 20

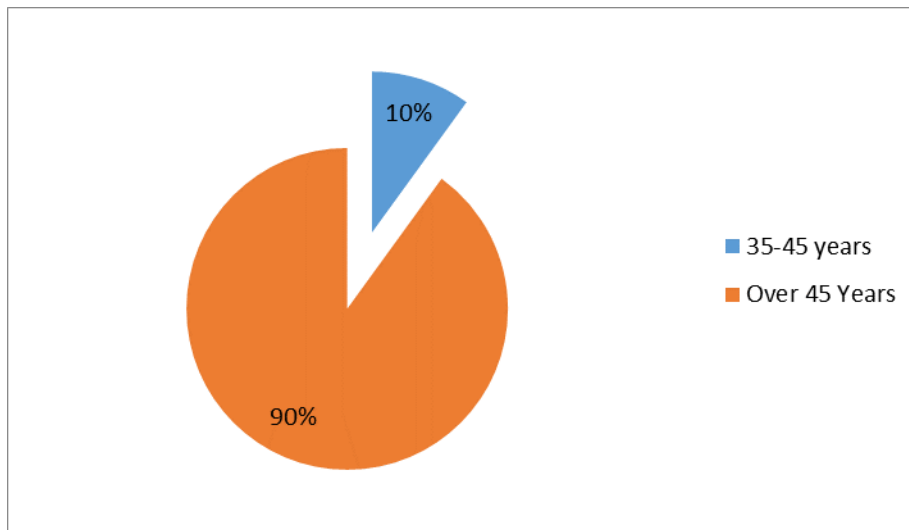


Figure 5 indicates that 18 (90%) of principals fall in age category of over 45 years of age while 2 (10%) are in the age category of 35-45 years. From the findings, most of the respondents were above 45 years of age. The results imply that the respondents are mature adults who have gained experience in teaching profession over the years.

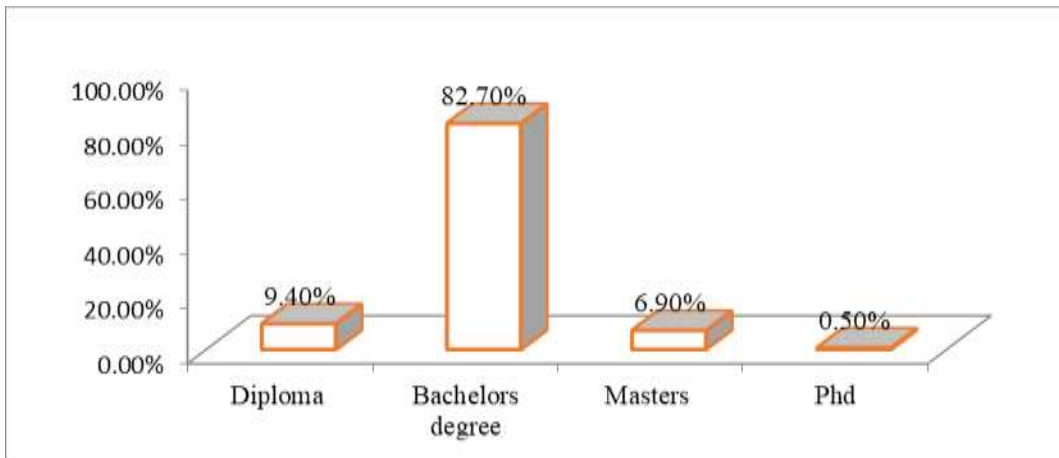
4.3.5 Distribution of Teachers According to Academic Qualifications

The study also sought to establish the academic qualifications of the teachers. The results are presented in Figure 6.

Figure 6

Academic Qualifications of the Teachers

no =202



The results from Figure 6 show that 167 (82.7%) of teachers had a Bachelor's degree. The percentage with a diploma was 19 (9.4%) while that with master's degree was 14 (6.9%). A small percentage 1 (0.5) had a Ph.D. This implies that teachers have the right qualifications for effective implementation of teaching and learning which is required by the TSC.

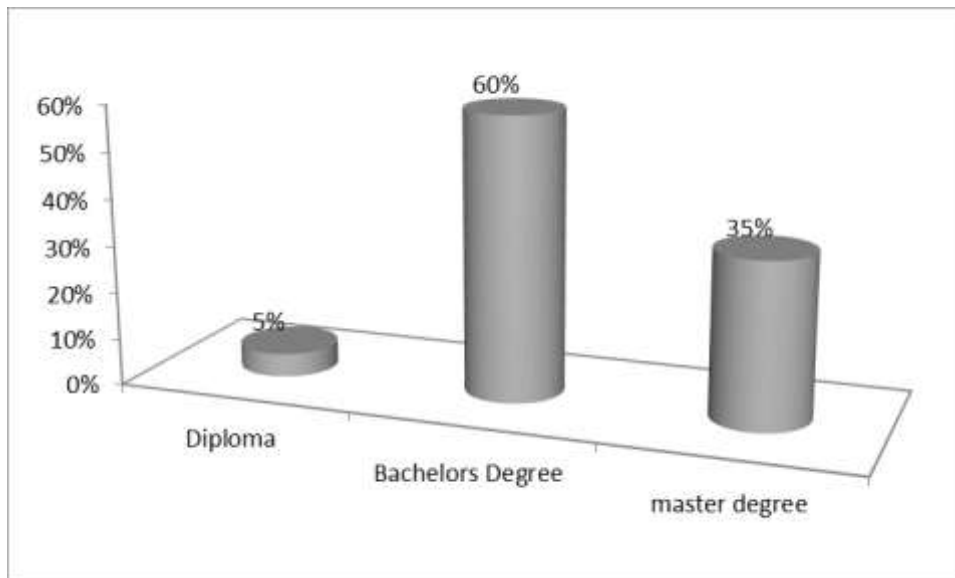
4.3.6 Distribution of Principals According to Academic Qualifications

The principals were asked to indicate their professional qualification to find out if they had the required competence to enable them support lesson study implementation. The principals' responses are shown in Figure 7.

Figure 7

Principals' Academic Qualifications

no = 20



The results of Figure 7 show that 1 (5%) of principals had a diploma, 12 (60%) had a bachelor's degree while 7 (35%) had a master's degree. The results imply that principals' have acquired the necessary competence, knowledge and skills to help them serve in the teaching profession as required by TSC and to carry out their roles which include instructional leadership.

4.3.7 Distribution of Teachers According to Teaching Experience

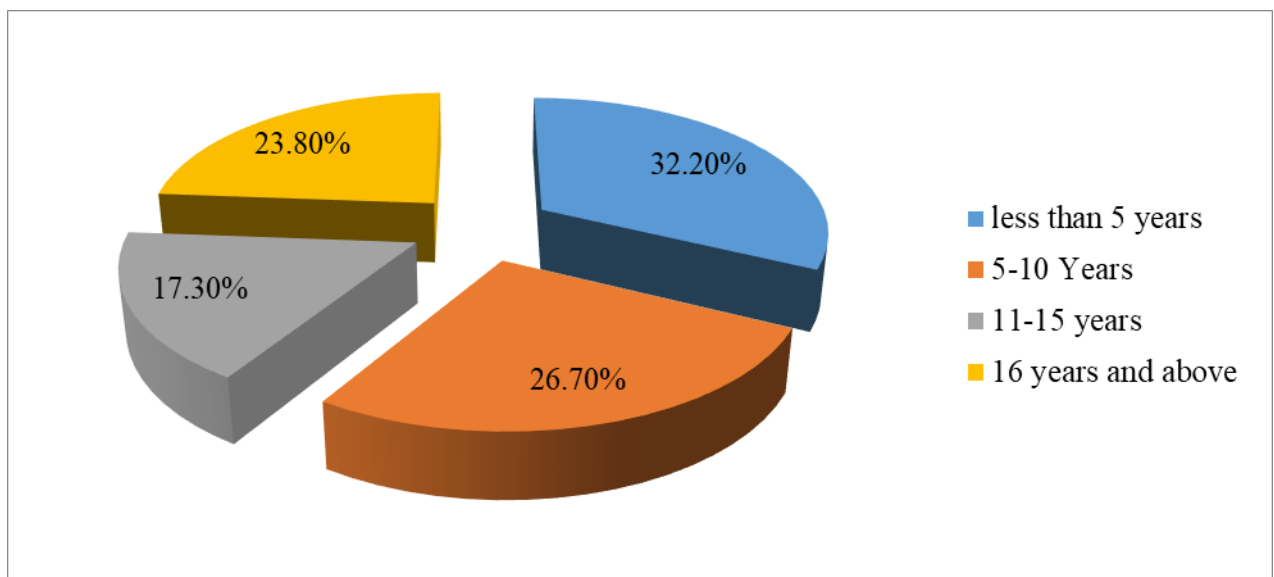
The researcher asked teachers to indicate the category of their teaching experience. The results are indicated in Figure 8.

Figure 8

Teaching Experience of Teachers

no =

202



Results from Figure 8 indicate that teachers are spread across the different categories of teaching experience. The percentage of teachers with less than 5 years of experience was 65 (32.2%). Those with 5 to 10 years of experience were 54 (26.7%). The percentage of those with 11-15 years of experience was 35 (17.3%) while that of 16 years and above was 48 (23.8%). The results in Figure 3 point out that a higher number of teachers have a teaching experience of less than 5 years. However, teaching experience by teachers is spread across the categories. This implies that there is varied teaching experience which is important especially when forming teams for lesson study implementation. Teachers who fall at 5 years

of age and below could benefit from the experience of those with teaching experiences from the other categories.

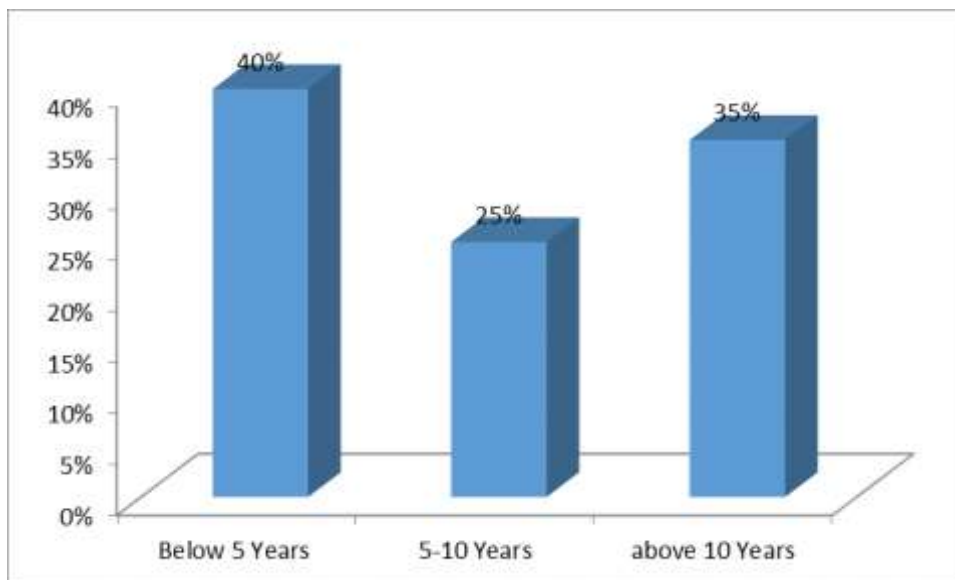
4.3.8 Distribution of Principals According to Experience

The study sought to establish the years of experience of the principals to determine whether they had the necessary knowledge and skills that could help them support the implementation of lesson study program. The results are indicated in Figure 9.

Figure 9

Years of Experience as a Principal

no = 20



From Figure 9 the proportion of principals who have served below 5 years is 8 (40%), between 5-10 years is 5 (25%) while those who have served above 10 years is 7 (35%). The results point out that a large number of principals have an experience of below 5 years. This implies that those in this category are newly appointed as principals. This could mean that some of them may not have been sensitized of their role in implementation of lesson study program. However, principals in all age categories took part in the interview and provided

valuable information for the study meaning they were aware of their instructional leadership role despite the short experience as a principal.

4.4 Findings of the Study

This section deals with the findings of the study based on the objectives which include: to investigate principals' supervisory role and lesson study implementation, to investigate principals' promotion of collaborative practices and lesson study implementation, to investigate principals' coordination of staff professional development and lesson study implementation and to investigate principals' allocation of resources and lesson study implementation.

4.4.1 Principal Supervisory Role and Lesson Study Implementation

Teachers were required to show their level of agreement or disagreement with the statements about principals' supervisory role and lesson study implementation in public secondary schools in Kajiado County. The scale used by teachers to respond to the questions was; Strongly Disagree, Disagree, Not sure, Agree, Strongly Agree. The findings are shown in Table 3.

Table 3***Principal Supervision in Lesson Study Implementation***

Statement	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree	
	f	%	f	%	f	%	f	%	f	%
My school principal carries out supervision during lesson study implementation	-	-	20	9.9	20	9.9	125	61.9	37	18.3
My principal asks for the lesson study implementation plan	1	0.5	9	4.5	16	7.9	124	61.4	52	25.7
My principal monitors the lesson study using the implementation plan	1	0.5	13	6.4	27	13.4	126	62.4	34	16.8
My principal states the aim of supervision during lesson study implementation	1	0.5	7	3.5	32	15.8	128	63.4	34	16.8
My principal checks lesson plans and lesson notes to be used during lesson study implementation	1	0.5	11	5.4	15	7.4	125	61.9	47	23.3
My principal meets with the lesson study group to discuss lesson study implementation	1	0.5	17	8.4	40	19.8	120	59.4	24	11.9
My principal ensures that lesson study objectives are consistent with the school goal	1	0.5	6	3.0	29	14.4	128	63.4	38	18.8
My principal observes lessons during lesson study implementation	-	-	19	9.4	37	18.3	112	55.4	34	16.8
My principal provides honest, open and constructive feedback during lesson study implementation	1	0.5	8	4.0	33	16.3	86	42.6	74	36.6
Principal offers suggestions to improve instruction during lesson study implementation	-	-	9	4.5	29	14.4	93	46.0	71	35.1
My principal ensures that the lesson study group keeps to the allocated instructional time	2	1.0	7	3.5	28	13.1	109	54.0	56	27.7
Principal discusses challenges encountered during lesson study implementation	6	3.0	7	3.5	33	16.3	94	46.5	62	30.7

The results from Table 3 indicate that majority of teachers 125 (61.9%) agreed that the school principal carries out supervision during lesson study implementation. Also, the findings reveal that most of the teachers 126 (62.4%) were in agreement that the principal monitors lesson study using an implementation plan. This is affirmed by one of the respondents' face to face interview who stated that; *"I ask teachers to do action planning for implementation then check it when I want to know the progress"*. Responding to the same interview question, another respondent had this to say: *"I ask the HOD to spearhead and call for consultation meetings and give me feedback on the progress"*.

Additionally, it emerged that most 128 (63.4%) of the teachers agreed that the principal states the aim of supervision during lesson study implementation while 125 (61.9%) agreed that the principal checks lesson plans and lesson notes to be used during lesson study implementation. One principal through the face to face interview indicated that he checks the lesson plans to be used for the lesson study and gives his inputs before the team implements the lesson in class. This is supported by Lee and Madden (2019) who posit that a school principal as an instructional leader becomes more knowledgeable by working together with teachers through the process of lesson study implementation. Another majority of teachers 120 (59.4%) agreed that the principal meets with the lesson study group to discuss lesson study implementation, 24 (11.9%) strongly agreed with this statement while 40 (19.8%) were not sure. During face to face interview, one interviewee said; *"Sometimes I normally attend the lesson study, I ask teachers to take videos as evidence of the lesson and use during the reflection meeting, when I am not available I follow the video and advice the team"*.

Further, Table 3 findings reveal that majority of teachers 128 (63.4%) were in agreement that the principal ensures that lesson study objectives are consistent with the school goal. In addition, majority of teachers 112 (55.4%) agreed that the principal observes lessons during lesson study implementation while 33 (16.8%) strongly agreed with this

statement. This is in line with principals' face to face interview response which indicated that principals do lesson observation and give feedback to the teachers in order to improve. One interviewee responded, "*I assist the deputy in lesson observation and check on the departmental lesson study files*". Further, it emerged that majority of the teachers 86 (42.6) % agreed that the principal provides honest, open and constructive feedback during lesson study implementation while 74 (36.6%) strongly agreed with this statement.

Also, most teachers 94 (46%) were in agreement that the principal discusses challenges encountered during lesson study implementation, while 62 (30.7%) strongly agreed with this statement. These findings are supported by those of Banda, Mutenda, Tindi and Nakai (2015) who investigated effects, enhancing and hindering factors in lesson study practice of science teachers in Zambia and found out that though lesson study helps improve teaching skills of teachers and improves students pass rates, it is faced with challenges which include heavy work load for teachers and large classes.

Overall, the findings of Table 3 indicate that teachers are in agreement that the school principal plays the role of supervision during lesson study implementation. This implies that secondary school principals are making effort to supervise lesson study implementation in different ways such as checking implementation plans, observing lessons and giving feedback, offering suggestions to improve instruction as well as discussing with the teachers the challenges they encounter while implementing lesson study. This is in line with the findings of Egwu (2015) whose study on principals' performance in supervision on classroom instruction revealed that effective supervision of teachers by the principal improves classroom instruction. However, the findings contradict those of Mutiso, Karimi and Itegi (2020) who in their study on effects of principals' instructional supervisory practices on students' academic performance revealed that principals did not support supervision in terms of classroom observation, peer teaching and mentoring in their schools.

4.4.2 Principal Promotion of Collaborative Practices and Lesson Study Implementation

The second objective of this study was to investigate principals' promotion of collaborative practices and lesson study implementation in public secondary schools in Kajiado County. Teachers rated the items using the scale: Strongly Disagree, Disagree, Not Sure, Agree and Strongly Agree. The teachers' responses are presented in Table 4.

Table 4

Promotion of Collaborative Practices in Lesson Study Implementation

Statement	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree	
	f	%	f	%	f	%	f	%	f	%
My principal encourages interaction and teamwork among teachers during lesson study implementation	2	1.0	4	2.0	11	5.4	105	52.0	80	39.6
My principal gives me opportunity to collaborate with my colleagues during lesson study implementation	2	1.0	4	2.0	12	5.9	116	57.4	68	33.7
My principal supports me to work with teachers from other schools in lesson study implementation	2	1.0	10	5.0	44	21.8	99	49.0	47	23.3
My principal encourages teachers to assist one another in areas of difficulties during	2	1.0	4	2.0	15	7.4	102	50.5	79	39.1
My principal engages teachers in networking and linkages that promote collaboration	2	1.0	8	4.0	18	8.9	121	59.9	53	26.2
My principal involves teachers in making decisions concerning lesson study implementation	2	1.0	6	3.0	19	9.4	111	55.0	62	31%
My principal puts a mechanism in place to ensure a harmonious Working relationship among teachers during lesson study implementation	3	1.5	8	4.0	26	12.9	101	50.0	64	32%

Based on the findings of Table 4, majority of the teachers 105 (52%) agree that the principal encourages interaction and team work among teachers during lesson study implementation while 80 (39.6%) strongly agreed with the statement. This is affirmed by the principals' responses from the face to face interview that they supported teachers in team work while planning for the lessons, team teaching and peer lesson observation. Asked what forms of collaborative practices exist in the school, one of the participant responded; *"lots of team teaching, a lot of networking with other departments and even with other schools especially in Maths"*. Yet another principal had this to say; *"normally we have WhatsApp group based on subjects in school and WhatsApp group based subjects in sub-county."* Another respondent mentioned that pair-share and networking with other schools as forms of collaboration. Principals were asked how they support such collaborations. Their responses included; providing time for lesson study after classes and supporting teachers to go back to their home, creating time and rooms for the groups to meet, giving moral support, by providing offices for departments to allow conversations and work collaboratively and meeting virtually.

Additionally, it emerged that most of the teachers 116 (57.4%) were in agreement that principals gave them opportunity to collaborate with colleagues during lesson study implementation with 68 (33.7%) strongly in agreement with this statement. This is affirmed by the findings of Venketsamy, Hu, Helmbold and Auckloo (2022) which revealed that teachers acknowledged that they gained new skills as a result of collaborative practices resulting from lesson study. Also, most teachers 102 (50.5%) agreed that principal encourages them to assist one another in areas of difficulties during lesson study implementation while 79 (39.1%) strongly agreed with the statement. This is supported by one of the principals' response who stated that:

I encourage my teachers to do team teaching. Though I am not basically a science teacher I demonstrate to them how working with each other can help improve their classroom practice. I plan a lesson and ask teachers in my department to come and observe, then we sit down and discuss. Next I tell one to plan a lesson and I and the others observe. This collaboration has helped improve the mean of my subject- French significantly. I use my deputy whose teaching subject is mathematics to spearhead lesson study and he gives me feedback and slowly my students are improving in mathematic (Interview, 15th July 2023).

The results also show that most teachers 98 (48.5%) agreed that principals encourage them to work with colleagues during lesson study implementation and 84 (41.6%) strongly agreed with this statement. This is in line with principals' responses who indicated that they support teachers to work as departmental teams when marking examinations, planning lessons and implementing and reflecting on the lessons. This is supported by the findings of Okoth and Yambo (2022) who conducted a study on principals' building collaborative cultures on academic performance of secondary schools in Kisumu County and found out that principals built collaborative culture among teachers which significantly influenced academic performance of students in secondary schools.

It is also clear from the results of Table 4 that 121 (59.9%) of teachers were in agreement that the principal engages them in networking and linkages that promote collaboration while 53 (26.2%) strongly agreed with this statement. From the principals' responses, use of WhatsApp forum and provision of Wi-Fi was cited as a means that makes the networking and linkages possible. It also emerged that 99 (49%) agreed that principals support them to work with teachers from other schools in lesson study implementation while 47 (23.3%) were strongly in agreement with this statement. However, 44 (21.8%) of teachers were not sure about this statement. This is in line with a response from one of the respondents

who indicated that; “Sometimes it is difficult to collaborate with teachers from other schools during lesson study due to time factor given the tight school schedule and other co curriculum activities”.

Further, majority of teachers 111 (55%) were in agreement that principals involve them in making decisions concerning lesson study implementation while 62 (31%) strongly agreed. This is in agreement with principals’ responses which indicated that they involve teachers in developing a plan for lesson study implementation, in determining resources required and time to implement the lesson study.

The results in Table 4 are a clear indication that secondary school principals promote collaborative practices that are required for effective implementation of lesson study program. The forms of collaborative practices include team teaching, peer lesson observation, networking and linkages among departments and with teachers from other schools and in making decisions concerning lesson study. This is in agreement with the findings of Richit, Ponte and Tomasi (2021) who in their study on aspects of professional collaboration in lesson study in Portugal found out that lesson study enhanced different forms of collaboration which include encouraging and supporting each other, team work and reflection. The findings further reveal that principals provided support in terms of ICT, time for collaboration and offices to enable teams to meet. This is supported by the findings of Steyn (2015) who conducted a study on creating a teacher collaborative practice in South African primary schools and found out that it is important for principals to support teachers in collaboration to enable them share their intellectual property.

4.4.3 Principal Coordination of Staff Development and Lesson Study Implementation

The teachers were asked to indicate their level of agreement or disagreement with the statements regarding principals’ coordination of staff development and lesson study implementation. The findings are shown in Table 5 using a Likert scale of: Strongly Disagree, Disagree, Not Sure, Agree, and Strongly Agree.

Table 5***Staff Development and Lesson Study Implementation***

Statement	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree	
	f	%	f	%	f	%	f	%	f	%
My principal supports teachers to participate in lesson study as a school based teacher professional development activity	-	-	6	3.0	14	6.9	118	58.4	64	31.7
My principal supports professional development activities initiated by teachers	-	-	6	3.0	18	8.9	95	47.0	83	41.1
My principals encourages teachers to take responsibility of their own professional growth	-	-	2	1.0	22	10.9	95	47.0	83	41.1
My principal together with teachers plan for professional development activities including lesson study	-	-	8	4.0	22	10.9	101	50.0	71	35.1
My principals facilitates teachers' professional growth through lesson study	2	1.0	10	5.0	30	14.9	104	51.5	56	27.7
My principal provides resources to enhance teachers' professional development through lesson study	3	1.5	6	3.0	31	15.3	93	46.0	66	32.7
My principal organizes school based INSET such as lesson study	3	1.5	11	5.4	35	17.3	107	53.0	46	22.8
My principal motivates teachers to take part in lesson study as a form of teacher professional development	2	1.0	6	3	16	7.9	108	53.5	68	33.7

Based on the findings of Table 5 it is clear that most of the teachers 118 (58.4%) agreed that principals supports teachers to participate in lesson study as a school based teacher professional development activity. This was followed by 64 (31.7%) who strongly agreed

with the statement. This finding is supported by responses from principals' face to face interview. This is what one of the respondents said; *"I attend departmental meetings and lesson study is always an agenda and find out how to support them I do this by planning for these activities at the beginning of the term"*. Responding to the same interview question, this is what another respondent had to say:

I determine the opportunities available then I allocate teachers for training such as SMASE and SBTSS. I do this by responding to the CDE letters requesting for teachers to be trained. I try to be fair by giving the opportunities in a balanced way. I also give those who are trained an opportunity to share with the others. (Interview, July 13, 2023).

These findings were further supported by those of a study conducted by Isah, Agbe and Ityokya (2019) on impact of collaborative instructional leadership of principals and teachers on students' academic performance who found out that supporting teachers professional development influenced performance of students in secondary schools. Additionally, it emerged that majority of teachers 95 (47%) agreed that principals support professional development activities initiated by teachers while 83 (41.1%) strongly agreed with this statement. It was further established that majority of teachers 101 (50%) were in agreement that principals together with teachers plan for professional development activities including lesson study while 71 (35.1%) strongly agreed with this statement. This is in line with a response from the face to face interview where one of the principals indicated that:

I ask teachers to come up with areas of improvement, I refer the weak teachers for peer lesson observation and lesson study and to other available opportunities like the SMASE training. I also pay for teachers to attend the TPD training by TSC (Interview, July 6, 2023).

Findings also indicated that majority of teachers 93 (46%) were in agreement that the principals provide resources to enhance teacher professional development through lesson study with 66 (32.7%) strongly agreeing to the statement. Further it emerged that most of the teachers 108 (53.5%) agreed that principals motivate teachers to take part in lesson study as a form of teacher professional development while 68 (33.7%) strongly agreed. Principals were also asked to indicate how their teachers benefited from lesson study. They reported that their teachers benefit in different ways that include: new teaching methodologies, acquiring new skills from the team work, students benefit from better teaching and new skills, boosts team work. The following is a response from one respondent: *“It depends on individual teacher, some don’t want to learn but some want to learn and they benefit from feedback to improve their teaching, students get interested in the lesson and they participate actively and change their attitude”*.

Based on the findings from Table 4, it is clear that secondary school principals support teachers to take part in lesson study. This is done by asking them to identify their areas of weakness through TPAD and then organizing for lesson study and other TPD programs. Teachers are also supported to attend SMASE trainings and other TPD programs that are organized by TSC. Though, the findings are contradicted by those of Irungu, Kagema and Gachahi (2019) who in their study on principals’ role in promoting teacher professional development and learners’ performance, found out that there was no relationship between the role of the principal in supporting teacher professional development and performance of learners. TPD is important in enhancing pedagogical knowledge of teachers and consequently classroom practice. This is supported by findings of Rahim, Suleiman and Suleiman (2016) who in their study on teacher professional development through lesson study in secondary schools found out that teachers can enhance their professional development through lesson study as an alternative form of INSET and be able to solve unique problems in their classrooms collaboratively.

Responses from the principals indicated that teachers benefit from lesson study by acquiring new teaching approaches, improvisation and change of attitude. This is affirmed by findings of Venketsamy, Hu, Helmbold and Auckloo (2022) that teachers enhanced their knowledge and skills in teaching after participating in lesson study.

4.4.4 Principal Resource Allocation and Lesson Study Implementation

Teachers were asked to indicate their level of agreement or disagreement with the statements regarding principals' resource allocation and lesson study implementation. The findings are shown in Table 5 using a Likert scale of Strongly Disagree, Disagree, Not Sure, Agree, and Strongly Agree.

Table 6***Resource Allocation and Lesson Study Implementation***

Statement	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree	
	f	%	f	%	f	%	f	%	f	%
My principal provides resources required during lesson study implementation	-	-	4	2.0	17	8.4	131	64.9	50	24.8
My principal discusses with teachers materials required for lesson study implementation	2	1.0	7	3.5	32	15.8	118	58.4	43	21.3
My principal helps in selecting appropriate teaching/learning resources for lesson study implementation	2	1.0	11	5.4	44	21.8	100	49.5	45	22.3
My principal appoints teachers to take part in lesson study implementation	2	1.0	13	6.4	32	15.8	106	52.5	49	24.3
My principal appoints a coordinator for lesson study implementation	-	-	8	4.0	34	16.8	106	52.5	54	26.7
My principal provides release time for teachers during lesson study implementation	-	-	4	2.0	37	18.3	114	56.4	44	21.8
Principal provides funds to facilitate lesson study implementation	4	2.0	13	6.4	32	15.8	94	46.5	59	29.2
Discusses with teachers challenges experienced during lesson study implementation	2	1.0	8	4.0	26	12.9	101	50.0	65	32.2

The results from Table 7 indicate that majority of teachers 131 (64.9%) agreed that principals provide resources required during lesson study implementation, with 50 (24.8%) strongly agreed. This is in line with the responses from principals' face to face interview where they indicated that they provide resource that include teachers to take part in lesson study and senior teachers to lead, time, projectors and laptops, lesson study coordinators, lunch and teaching aids and they purchase materials to be used. In addition, findings revealed that most of the teachers 118 (58.4%) agreed that principals discuss with teachers materials required for lesson study implementation while another majority 100 (49.5%) agreed that principals help in selecting appropriate teaching and learning resources for lesson study implementation with 45 (22.3%) strongly in agreement with the statement. However, 44 (21.8%) were not sure of this statement. This could be due to the fact that some of principals do not have a mathematics and science background and therefore may not help in selecting the materials.

It also emerged that most teachers 106 (52.5%) agreed that principals appoint teachers to take part in lesson study implementation and the same proportion agreed that principals appoint a coordinator for lesson study implementation. It was further established that a high proportion of teachers 114 (56.4%) agreed that the principals provide release time for teachers during lesson study implementation while 44 (21.8%) strongly agreed with this statement. This is in line with responses of principals' face to face interview where most indicated that they provide time for teachers to do lesson study. One respondent had this to say: *"I ensure that the time table is structured in such a way that mathematics and science teachers are allocated lessons at the same time to enable them meet to discuss lesson study"*.

Results also indicated that a high proportion of teachers 94 (46.5%) agreed that the principals provide funds to facilitate lesson study implementation. Similarly, majority of teachers 101 (50.0%) agreed that principal discusses with teachers challenges experienced during lesson

study implementation with 65 (32.2%) strongly in agreement with the statement. This is in agreement with the responses of the principals' face to face interview who indicated that lesson study implementation is faced with challenges such as time due to high work load by teachers and competing programs such as games as well as lack of funds to buy resources. They also indicated that some teachers especially newly appointed do not understand lesson study while some especially those with many years of teaching experience are uncooperative. This is the response from one of the respondents:

One challenge is uncooperative teachers those that feel they are too experienced to meet with other new teachers with less teaching experience, they wonder what is this new teacher going to tell me you find they make collaboration difficult (Interview, July 5, 2023).

Principals also indicated that procedures involved in borrowing materials to use during lesson study implementation from well-established schools take time. The findings are in line with the findings of a study conducted by Maingi, Maithya and Ronoh (2021) to investigate effects of principals' provision of teaching and learning materials on students' performance and found out that principals were not able to support teachers of mathematics to attend in-service trainings due to challenges that include lack of funds and inadequate resources.

Overall, it is clear from the results of Table 7 that teachers agreed that principals provide resources that are required for lesson study implementation. These include time, learning materials, and human resource which include teachers and coordinators of lesson study, books and ICT equipment. The findings are supported by Banda, Mutenda, Tindi and Nakai (2015) whose findings indicated that support by school principals in terms of resources and allocation of qualified trainers enhance effective implementation of lesson study.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and recommendations of the study which are related to the research questions and the findings of the study. It also presents suggestions for further research and makes policy recommendations.

5.2 Summary of the Findings

The purpose of this study was to investigate the principals' instructional leadership role and lesson study implementation in public secondary schools in Kajiado County. Carrier's instructional leadership model, Vygotsky's social cultural development theory and Hallinger and Murphy model of instructional leadership guided the study. The study adopted a mixed method approach with a blend of both quantitative and qualitative methods. In particular, convergent parallel mixed methods design was used. The target population comprised all principals and mathematics and science teachers from public secondary schools in Kajiado County. The study adopted both probability and non-probability sampling techniques to select schools and the respondents. The instruments used were questionnaires for teachers and interview guides for principals. Descriptive statistics were used to analyze quantitative data and presentation was done using frequency distribution tables, bar graphs and pie-charts. Qualitative data were analyzed using direct quotes and narratives. The summary of study findings is presented based on the four research questions.

The first research question sought to investigate principals' supervisory role in lesson study program implementation in public secondary schools in Kajiado County. Under this objective, the findings revealed that teachers agreed that the school principal carries out supervision during lesson study implementation. These findings are in line with Carrier's (2014) instructional leadership model which emphasize on the role of school principal as an

instructional leader in supporting instructional programs that enhance learning outcomes such as lesson study. The findings also indicated that most respondents were in agreement that the principal monitors lesson study using an implementation plan which is important because it gives a road map for lesson study implementation which was affirmed by the principals. Additionally, it emerged that most of the teachers agreed that the principal states the aim of supervision during lesson study implementation and checks lesson plans and lesson notes to be used during lesson study implementation. The findings further confirmed that majority of teachers agreed that the principal meets with the lesson study group to discuss lesson study implementation and ensures that lesson study objectives are consistent with the school goal. Additionally, majority of teachers agreed that the principal observes lessons during lesson study implementation and provides honest, open and constructive feedback.

The second research question sought to establish how secondary school principals promote collaborative practices in lesson study program implementation in public secondary schools in Kajiado County. The findings under this objective revealed that majority of the teachers agreed that the principal encourages interaction and team work among teachers during lesson study implementation. Additionally, it emerged that most respondents agreed that principals gave them opportunity to collaborate with colleagues and encourages them to assist one another in areas of difficulties during lesson study implementation. These interactions are entrenched in Vygotsky's social cultural development theory which opines that community through social interactions plays an important role in the development of individual knowledge. Teachers possess knowledge and skills which they use during collaborations as they learn new knowledge from the interactions with their colleagues.

It was the opinion of most teachers that the principals engage them in networking and linkages that promote lesson study. Such collaborations and linkages are done through the use of WhatsApp forum and provision of Wi-Fi by the principal. Findings further indicated that

most teachers agreed that the principal supports them to work with teachers from other schools in lesson study implementation. However, a small proportion did not agree with this statement which was associated to challenges such as time constraint and the tight school schedule and other co curriculum activities. Further, it was established that majority of teachers were in agreement that principal involves them in making decisions concerning lesson study implementation. The study noted that teachers are involved in deciding on the time and duration of lesson study by developing a plan for implementation, in determining resources required and time to implement the lesson study. The findings also revealed that principals indicated that new teachers benefited from the experienced teachers through collaboration during lesson study implementation.

The third research question sought to examine secondary school principals' role in coordination of staff professional development and lesson study program implementation in public secondary schools in Kajiado County. Under this objective, it was established that most of the teachers agreed that principals support teachers to participate in lesson study as a school based teacher professional development activity. Principals also affirmed this finding by indicating that they support teachers to attend teacher professional development. Additionally, it emerged that majority of teachers agreed that principals support professional development activities initiated by teachers. It was further established that majority of teachers were in agreement that principals together with teachers plan for professional development activities including lesson study which was supported by the principals who indicated that they ask teachers to come up with areas of weaknesses and are supported to attend TPD programs such as lesson study, SMASE programs as well as TSC TPD programs.

Findings also indicate that majority of teachers were in agreement that the principals provide resources to enhance teacher professional development through lesson study which include funds, resources and time required for professional development. From the findings

principals indicated that teachers benefited by taking part in lesson study by gaining new teaching methods of content delivery, engaging learners using activities and in developing spirit of team work where they support each other in building new skills. These findings are in line with Hallinger & Murphy (1985) Model of Instructional Leadership which postulates that principals' need to supervise instruction and coordinate curriculum as well as promotion of a positive learning school climate which includes professional development of teachers.

The fourth research question sought to examine principals' resource allocation role and implementation of lesson study program in public secondary schools in Kajiado County. Findings indicated that majority of teachers agreed that principals provide resources required during lesson study implementation. Principals also indicated that they provide resources such as time for lesson study, appointing teachers to take part in lesson study and senior teachers to lead, providing projectors and laptops, lesson study coordinators, lunch and teaching aids and other resources. Additionally, findings revealed that most of the teachers agreed that principals discuss with teachers materials required for lesson study implementation while another majority agreed that principals help in selecting appropriate teaching and learning resources for lesson study implementation. However, a small proportion were not sure of this statement which could be associated with the fact that some of principals do not have a mathematics and science background and therefore may not help in selecting the materials.

It also emerged that most teachers agreed that principals appoint teachers to take part in lesson study implementation and the same proportion agreed that principals appoints a coordinator for lesson study implementation. It was further established that a high proportion of teachers agreed that the principals provide release time for teachers during lesson study implementation. Similarly, majority of teachers agreed that principals discuss with teachers challenges experienced during lesson study implementation. Principals also indicated that

there were challenges experienced during lesson study implementation such as time, lack of funds to buy resources, high work load by teachers and competing programs such as games. Principals also indicated that some teachers especially newly appointed who did not understand lesson study and that there were uncooperative teachers especially those with many years of teaching experience. Principals also indicated that procedures involved in borrowing materials to use during lesson study implementation from well-established schools take time.

5.3 Conclusion of the Study

Based on the findings of this study and guided by the research questions, it is reasonable to conclude that public secondary school principals in Kajiado County are making effort to supervise lesson study implementation in different ways. These include checking implementation plans, observing lessons and giving feedback, offering suggestions to improve instruction as well as discussing with the teachers the challenges they encounter while implementing lesson study.

Also, it can be concluded that secondary school principals promote collaborative practices that are required for effective implementation of lesson study program such as team teaching, peer lesson observation, networking and linkages among departments and with teachers from other schools and in decision making on matters concerning lesson study. Principals provided support for such collaborations in terms of ICT, time and offices to enable teams to meet, lunch and teaching and learning resources.

Additionally, it can be concluded that secondary school principals support teachers to take part in lesson study as a teacher professional development program by asking them to identify their areas of weaknesses and through TPAD and then organizing for lesson study and other programs. Teachers benefited from lesson study in different ways such as acquiring

new teaching methods of content delivery, engaging learners using activities and building a spirit of team work by supporting each other in learning new skills.

Further, the study concluded that principals provide resources that are required for lesson study implementation. These include time, learning materials, and human resource such as teachers and coordinators of lesson study, books and ICT equipment. However, the study concluded that there were challenges experienced during lesson study implementation such as time for teachers to meet, lack of funds to buy resources, high work load by teachers and competing programs such as games.

5.4 Recommendations of the Study

Based on the findings, the study made recommendations as follows:

5.41 Recommendations for Practice

The study recommends that CEMASTEА organizes training on lesson study for mathematics and science teachers with a teaching experience of below five years. The study found out that some teachers did not have a clear understanding of lesson study process and this was associated with teachers who had a teaching experience of below five years. It is suggested that these teachers are trained during the regular training of mathematics and science teachers which is usually conducted during the school holidays and also by use of virtual platforms which is done after teaching hours. Additionally, CEMASTEА should also organize training for secondary school principals who are newly appointed. The study indicated that there was a large proportion of principals with less than 5 years of experience. It is suggested that workshops be organized by CEMASTEА to sensitize new principals on their role in the implementation of lesson study. This can be done during the regular sensitization workshops CEMASTEА holds for secondary school principals.

The study also recommends that since KEMI is mandated to develop the capacity of school principals in leadership and management it organizes training for the newly appointed

principals. It is suggested they be trained on their role as instructional leaders during their regular trainings for the school managers.

Further, the study recommends that the Ministry of Education provides adequate resources that are required for effective implementation of lesson study. Since the MOE funds INSET through the capitation fund, it is suggested that it increases the capitation fund with a consideration for lesson study implementation at the school level.

5.42 Recommendation for Policy

Moreover, the study recommends that the MOE develops a clear policy for lesson study implementation at the school level. It is suggested that a policy to guide and enforce lesson study implementation by schools and to support its supervision by the school principals and the QASOs is developed.

The study also recommends that the TSC posts more female teachers to schools in Kajiado County. The study found that there was a gender imbalance among mathematics and science teachers in the County. It is therefore suggested that while filling the vacant positions for mathematics and science teachers in the schools TSC should consider posting female teachers.

5.5 Suggestions for Further Research

Based on the study findings, the following suggestions are made for further research.

- i. This study focused on principals' instructional leadership role in public secondary schools in Kajiado County. A study to investigate principals' instructional leadership role in public secondary schools in other counties is suggested.
- ii. This study focused on principals' instructional leadership role in public secondary schools in Kajiado County. It is important to investigate the same in private secondary schools.
- iii. A study to examine the QASO who are trained on their role to supervise lesson study

implementation in public secondary schools is important.

- iv. A study to investigate lesson study and students' academic performance is suggested.

REFERENCES

- Aimah, S & Purwanto, B. (2018). Indonesian Teachers' Perception on the Implementation of Lesson Study: Exploring Teachers' Awareness of Pedagogical Knowledge. *Arab World English Journal*, 9 (4), 380 -391.
- Alamri, N. M. (2020). The Implementation of the Lesson Study Strategy in Teaching Mathematics: Teachers' Perspectives. *Education Research International*, 1-8. doi:doi.org/10.1155/2020/1683758
- Akita, K., & Sakamoto, A. (2015). *Lesson study and teachers' development in Japan*. Sithamparam, S. (Ed.), Wood, K. (Ed.). Realizing Learning. London: Routledge.
- Asenahabi, B. M. (2019). Basics of Research Design: A Guide to selecting appropriate research design. *International Journal of Contemporary Applied Researches*, 6(9), 76-89.
- Balyer, A., Karatas, H., & Alci, B. (2015). School Principals' Roles in Establishing Collaborative Professional Learning Communities at Schools. *Social and Behavioral Sciences*, 1340-1347.
- Banda, B., Mudenda, V., Tindi, E., & Nakai, K. (2015). Lesson Study Practice of Science Teachers in Zambia: Its Effects, Enhancing and Hindering Factors. *Perspectives in science education*, (pp. 1-5). Lusaka.
- Carrier, L.L. (2014). *Putting the leadership back in instructional leadership: What does an effective model of instructional leadership look like in practice when we place a value on both the work and leadership of principals?* Plymouth: Plymouth University.
- CEMASTE A (2009). *Enhancing learner growth in mathematics & science through innovative activities*. Nairobi: CEMASTE A
- CEMASTE A (2017). *Report on secondary school based inset through lesson study 2016*. Nairobi: CEMASTE A
- CEMASTE A. (2018). *Lesson study, A practical, Guide for implementation*. Nairobi: CEMASTE A
- Cheng, L. P. & Yee, L. P. (2012). A Singapore case of lesson study. *The Mathematics Educator*, 21(2), 34-57.

- Cheung, A.K.L. (2014). Probability Proportional Sampling. In: Michalos, A.C. (eds) Encyclopedia of Quality of Life and Well-Being Research. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-0753-5_2269.
- Coe K.L (2010). *The process of lesson study as a strategy for the development of teaching in primary schools: A case study in the Western Cape Province, South Africa*. PhD dissertation. Stellenbosch, South Africa: Stellenbosch University
- Connelly, L. M. (2016). Trustworthiness of qualitative research. *Jannetti Publications*, 25(6), 435-436.
- Conner, B. (2017). Descriptive statistics. *American Nurse Today*, 12(11), 52-55.
- Creswell, J. W. (2005). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (2nd ed.). Upper Saddle River, NJ: Pearson.
- Creswell, J. W. (2009). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Crutzen, R., & Peters, G. J. (2017). Scale quality: Alpha is an inadequate estimate and factor-analytic evidence is needed first of all. *Health Psychology Review*, 11(3), 242-247.
- Demir, S. B., & Pismek, N. (2018). A convergent parallel mixed-methods study of controversial issues in social studies classes: A clash of ideologies. *Educational Sciences:Theory&Practice*,18,119–149. <http://dx.doi.org/10.12738/estp.2018.1.0298>
- Dudley, P. (2013) Teacher learning in Lesson Study: What interaction-level discourse analysis revealed about how teachers utilized imagination, tacit knowledge of teaching and fresh evidence of pupils learning, to develop practice knowledge and so enhance their pupils' learning. *Teaching and Teacher Education* 34 (2013) 107-121.
- Egwu, S. O. (2015). Principals' Performance in Supervision of Classroom Instruction in Ebonyi State Secondary Schools. *Journal of Education and Practice*, 6(15), 99-105.
- Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative Content Analysis: A Focus on Trustworthiness. *Sage*, 1-10. Doi: 10.1177/2158244014522633
- Fuji, T. (2014). Implementing Japanese lesson study in foreign countries: misconceptions revealed. *Mathematics Teacher Education and Development*, 16 (1), 1–18.
- Fisher, M. J., & Marshall, A. P. (2009). Understanding descriptive statistics. *Australian Critical Care*, 93-97.

- Gunawan, I. (2017). The application of instructional management based lesson study and its impact with student learning achievement. *2nd International Conference on Educational Management and Administration (CoEMA 2017)* (pp. 4-12). Malang: Atlantis press.
- Gunawan, J. (2015). Ensuring trustworthiness in qualitative research. *Belitung Nursing Journal*, 10-11.
- Hassan, R. B., Ahmad, J., & Boon, Y. (2019). Instructional Leadership in Malaysia. *International Journal of Engineering and Advanced Technology*, 8(6S3), 2249 – 8958.
- Irungu, C., Kagema, J., & Gachahi, M. (2019). Influence of Principals' Collaborative Practices on Students' Performance in Secondary Schools in Murang'a and Kirinyaga Counties, Kenya. *4(2)*, 111-124.
- Isah, J., Agbe, J. I., Odeh, R. C., & Adelabu, S. B. (2019). Influence of Collaborative Instructional Leadership of Principals and Teachers on Students' Academic Performance in Secondary Schools in North Central, Nigeria. *IJRDO - Journal of Educational Research*, 4(10), 44-55.
- JICA. (2016). *Lesson Study Continuous Professional Development for Teachers A case from Zambia*. 9th International Policy Dialogue. Dec 6, 2016.
- Kanellopoulou, E. M., & Darra, M. (2019). Benefits, difficulties and conditions of lesson study implementation in basic teacher education: A review. *International Journal of Higher Education*, 8(4), 18–35.
- Kariuki, D., & Itegi, F. (2019). Teacher participation in collaborative professional development and learners' achievement in Kenya. *International Journal of Advanced Research*, 8(3), 977-988.
- Kivunja, C. (2015). *Teaching, learning and assessment: Steps towards creative practice*. Melbourne, Vic: Oxford University Press.
- Kothari, C. R. (2004). *Research Methodology Methods and Techniques*. New Delhi: New Age International Publishers.
- Kothari, C & Garg, G. (2014). *Research Methodology*, Third Edition, New. Age International Publishers, New Delhi.
- Kothari, C. R. (2004). *Research Methodology Methods and Techniques*. New Delhi: New Age International Publishers.

- Lee, H., & Li, M. F. (2015). Principal leadership and its link to the development of a school's teacher culture and teaching effectiveness: A case study of an award-winning teaching team at an elementary school. *International Journal of Education Policy & Leadership*, 10(4) pp 26-32
- Lee, V., & Madden, M. (2019). "We're in This Together": Principals and Teachers as Partners and Learners in Lesson Study. *SAGE*, 103(1), 51-64.
- Leithwood, K., & Mascal, B. (2008). Collective leadership effects on student achievement. *Educational Administration Quarterly*, 44(4), 529-561.
- Maingi, H. K., Maithya, P., & Ronoh, A. (2021). Effects of principals' provision of teaching and learning materials on students' performance in mathematics in Kenya certificate of secondary education in Meru County. *International Journal of Education*, 9(3), 25-32.
- Mugenda, O. M., & Mugenda, A. G. (2012). Research methods: Quantitative and qualitative approaches. Nairobi: Acts Press.
- Munna, A. S. (2022). Instructional Leadership Instructional Leadership Module Leaders. *International Journal of Educational Reform*, 32(1), 38-54. Doi: 10.1177/10567879211042321
- Musungu, L. L. & Nasongo, J. W. (2008). The head-teacher's instructional role in academic performance in secondary schools in Vihiga district, Kenya. *Educational Research and Review*, 3(10), 316-323
- Mutiso, K. B., Kirimi, F., & Itegi, F. (2020). Effects of principals' instructional supervisory practices on students' academic performance in public secondary schools in Machakos County Kenya. *International Journal of Advanced Research*, 8(3), 621-631.
- Neeske, S., Vries, S., Veen, K., Poortman, C., & Schildkamp, K. (2022). Leadership practices and sustained lesson study. *Educational Research*, 64(3), 295-316.
- Ngang, T. K., & Sam, L. C. (2015). Principal Support in Lesson Study. *6th World conference on Psychology Counseling and Guidance* (pp. 134-139). Penang: Elsevier Ltd. DOI: 10.1016/j.sbspro.2015.09.040
- NACOSTI (2021). *Priorities in scientific, technological and innovation activities in Kenya*. Nairobi: NACOSTI
- Nakai, K. (2016). *Lesson Study in Zambia: Practice of Finance for Scaling Up*. Presentation given to the Global Compact on Learning Donor Network, April 7.

- Gang, T.K., & Sam, L.C. (2015). Principal Support in Lesson Study. *Procedia - Social and Behavioral Sciences*, 205, 134 – 139.
- Nkoroi, M. P. (2017). Relationship between principals’ instructional leadership and students’ academic achievement in Kenya Certificate of Secondary Education in Meru and Tharaka Nthi Counties .Doctoral dissertation, Kenyatta University
- Ogegbo, A. A., Gaigher, E., & Salagaram, T. (2019). Benefits and challenges of lesson study: A case of teaching Physical Sciences in South Africa. *South African Journal of Education*, 39(1), 1-9.
- Okoth , E. A., & Yambo, J. O. (2022). Principals’ Building Collaborative Cultures on Academic Performance of Secondary Schools in Kisumu County. *Journal of Advances in Education and Philosophy*, 419-426. doi:DOI: 10.36348/jaep.2022.v06i07.009
- Osman A, Mukuna T. E (2013). Improving Instructional leadership in schools through building Principals Capacity. *Journal of Education Practice*. 4(2):41-47.
- Purwanti, E., & Hatmanto, E. D. (2019). Understanding EFL Teachers’ Beliefs about Lesson Study and Their Knowledge Development Viewed from Social Cultural Theory of Vygotsky. *English Language Teaching Educational Journal*, 2(2), 50-61.
- Rappleye, J., & Komatsu, H. (2017). How to make lesson study work in America and worldwide: A Japanese perspective on the onto-cultural basis of (teacher) education. *Research in Comparative and International Education*, 12, 398–430.
- Richit, A., Ponte, J. P., & Tomasi, A. P. (2021). Aspects of Professional Collaboration in a Lesson Study. *International Electronic Journal of Mathematics Education*, 16(2), 1306-1330.
- Salazar, H. (2014). *The relationship among principal instructional leadership, collective teacher efficacy, student academic achievement, and socioeconomic status in Appalachia eastern Kentucky High Schools*. Masters Research Project, University of Kentucky.
- Sangoseni, O., Hellman, M., & Hill, C. (2013). Development and validation of a questionnaire to assess the effect of online learning and behaviors, attitudes and clinical practices of physical therapists in the United States regarding evidence-based clinical practice. *The Internet Journal of Allied Health Sciences and Practice*, 11(2), 1-12.
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 63-75.

- Shilon, S. G., Tamir, E., & Schechter, C. (2021). Principals' sense-making of resource allocation within a national reform implementation. *Educational Management*, 49(6), 921-939. doi:<https://sagepub.com/journals-permissions>
- Sibomana, I. (2020). Perceptions of teachers on the instructional leadership behaviours of secondary school principals in Rwanda. *Educational Management*, 1-17. doi:<https://doi.org/10.1177/1741143220938365>
- Stahl, N. A., & James King, J. R. (2020). Expanding Approaches for Research: Understanding and Using Trustworthiness in Qualitative Research. *Journal of Development Education*, 44(1), 26-28.
- Steinberg, M. P. (2013). *Leadership and decentralized control of school*. Regional Education Laboratory: ICF International.
- Sürücü, L. & Maslakçı, A., Validity and Reliability in Quantitative Research, BMIJ, (2020), 8(3): 2694-2726, doi: <http://dx.doi.org/10.15295/bmij.v8i3.154>
- Swanson, R. A. (2013). *Theory building in applied disciplines*. San Francisco, CA: Berrett-Koehle
- Takahashi, A., & McDougal, T. (2016). Collaborative lesson research: Maximizing the impact of lesson study. *ZDM Mathematics Education*, 48(4), 513–526
- Tahir, L. M., Mohammed, A. M., Musah, M. B., & Mohammad, A. S. (2022). Promoting Professional Learning Communities: Discovering Principals' Support and Leadership Strategies in Malaysian Religious-Based Secondary Schools. *Leadership and policy in schools*, 1-23.
- Timperley, H. S. (2005). Instructional Leadership Challenges: The Case of Using Student Achievement Information for Instructional Improvement. *Leader. Pol. Sch.* 4 (1), 3-22
- To., K. H., Yin, H., Tam, W. W., & Keung, C. P. (2021). Principal leadership practices, professional learning communities, and teacher commitment in Hong Kong kindergartens: A multilevel SEM analysis. *Educational Management*, 1-23. doi:<https://sagepub.com/journals-permissions>.
- Venketsamy, R., Hu, Z., Helmbold, E., & Auckloo, P. (2022). Implementing the Japanese Lesson Study as a professional development tool in South Africa. *Journal for the Education of Gifted*, 10(3), 349-362.
- Wanzare, Z. (2013) Skills and Attributes of Instructional Supervisors Experience from Kenya. *Academic Journals*, 3, 8, pp 70-80.

APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

TANGAZA UNIVESTY COLLEGE

(THE CATHOLIC UNIVERSITY OF EASTERN AFRICA)

CHRIST THE TEACHER INSTITUTE FOR EDUCATION

NAIROBI,

KENYA

Tel: 0721352957

Dear Participant,

RE: COLLECTION OF SURVEY DATA

I am a student at Tangaza University, a constituent college of the Catholic University of Eastern Africa (CUEA), pursuing a master's degree in Educational Leadership and Administration. I am conducting a research aimed at investigating principals' instructional leadership and lesson study implementation in public secondary schools in Kajiado county Kenya. I kindly request you to respond to the research instrument. The sole purpose of the instrument is to help in collection of data required for this study. The information you provide will be treated with the utmost confidentiality and will only be used for this study. Kindly assist by filling the questionnaire and providing true information.

Yours faithfully

Rahab Chiira

APPENDIX II: INFORMED CONSENT FORM FOR PARTICIPANTS

This study aims to investigate principals' instructional leadership and lesson study implementation in public secondary schools in Kajiado county Kenya. It is in partial fulfilment of the requirement of a master's degree in educational leadership and administration at Tangaza University College, a constituent college of the Catholic University of Eastern Africa (CUEA).

Benefit of the taking part in the study

By participating in this study, you will help us collect data on how principals support lesson study implementation in public secondary schools. The success of lesson study implementation will benefit Kajiado county and the entire country in realizing the goals of education. Your participation in this study will therefore not lead to any monetary benefits.

Cost or Payment Involved

You will not incur any cost by participating in this study. Participation is free and voluntary and you can pull out any time you wish.

Sharing of Study Results

This study is not meant to test your competency in your work. The findings of this study are intended to bridge a gap in literature and also add to the body of knowledge on principal instructional leadership and lesson study implementation. Therefore, the results of this research will not be given to individual participants but will be published and will be available in the journal after publication.

Rights of participants

You have a right to call the researcher for any clarification or any concerns related to the filling the questionnaire.

Contact person

If you have any questions or matter regarding the study, please contact the researcher using the number below.

Rahab Chiira -0721352957

Consent and signature

I accept to participate in the study under the conditions described.

Signature:

APPENDIX III: TEACHERS QUESTIONNAIRE

Introduction

You are requested to take a few minutes and respond to this questionnaire as honestly as possible. There are five sections, A, B, C, D and E. Respond to questions in all the sections by putting a tick (✓) in the appropriate space. **Remember, no answer is necessarily correct or wrong.** Therefore, feel free to give answers you consider appropriate. The information obtained will be treated with confidence and will not be used for other purposes other than this research. You need not write your name.

SECTION A: Demographic Information

1. What is your gender
Male ()
Female ()
2. To what age group do you belong?
25 years and below ()
26 - 30 ()
31- 40 ()
41- 50 ()
Above 51 ()
3. What is your highest professional qualification?
Diploma ()
Bachelor's degree ()
Masters ()
PhD ()
4. Indicate your years of teaching experience
Less than 5 years ()
5-10 years ()
11- 15 years ()

16 years above ()

SECTION B: Principal Supervisory Role and Lesson Study Implementation

The following statements are on principal supervisory role and lesson study implementation. Indicate the extent to which you agree or disagree with each statement by putting a tick (✓) in the appropriate column.

Use the following Key:

Key: 1=Strongly Disagree, 2=Disagree, 3=Not Sure, 4=Agree, 5= Strongly Agree,

	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1.	My school principal carries out supervision during lesson study implementation					
2.	My principal asks for the lesson study implementation plan					
3.	My principal monitors the lesson study using the implementation plan					
4.	My principal states the aim of supervision during lesson study implementation					
5.	My principal checks lesson plans and lesson notes to be used during lesson study implementation					
6.	My principal meets with the lesson study group to discuss lesson study implementation					
7.	My principal ensures that lesson study objectives are consistent					

	with the school goal					
8.	My principal observes lessons during lesson study implementation					
9.	My principal provides honest, open and constructive feedback during lesson study implementation					
10.	Principal offers suggestions to improve instruction during lesson study implementation					
11.	My principal ensures that the lesson study group keeps to the allocated instructional time					
12.	Principal discusses challenges encountered during lesson study implementation					

5. Give suggestions that can be used to improve lesson study supervision by the principal during lesson study implementation

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SECTION C: Principal Promotion of Collaborative Practices and Lesson Study Implementation

The following statements are on principal promotion of collaborative practices and lesson study implementation. Indicate the extent to which you agree or disagree with each statement by putting a tick (√) in the appropriate column.

Use the following Key:

Key: 1=Strongly Disagree, 2=Disagree, 3=Not Sure, 4=Agree, 5= Strongly Agree,

	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1.	My principal encourages interaction and team work among teachers during lesson study implementation					
2.	My principal gives me opportunity to collaborate with my colleagues during lesson study implementation					
3.	My principal encourages me to work with my colleagues during lesson study implementation					
4.	My principal supports me to work with teachers from other schools in lesson study implementation					
5.	My principal encourages teachers to assist one another in areas of difficulties during lesson study implementation					
6.	My principal supports team work during lesson study implementation					

7.	My principal engages teachers in networking and linkages that promote collaboration					
8.	My principal involves teachers in making decisions concerning lesson study implementation					
9.	My principal puts a mechanism in place to ensure a harmonious working relationship among teachers during lesson study implementation					
10.	My principal enhances collaborative practices among departments implementing lesson study					

6. Explain collaborative measures that the principal has put in place in your school

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.....

SECTION D: Principal Coordination of Staff Development and Lesson Study Implementation

The following statements are on principal coordination of staff development and lesson study implementation. Indicate the extent to which you agree or disagree with each statement by putting a tick (√) in the appropriate column.

Key: 1=Strongly Disagree, 2=Disagree, 3=Not Sure, 4=Agree, 5= Strongly Agree,

	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1.	My principal supports teachers to participate in lesson study as a school based teacher professional development activity					
2.	My principal supports professional development activities initiated by teachers					
3.	My principals encourages teachers to take responsibility of their own professional growth					
4.	My principal together with teachers plan for professional development activities including lesson study					
5.	My principals facilitates teachers' professional growth through lesson study					
6.	My principal provides resources to enhance teachers' professional development through lesson study					
7.	My principal organizes school based INSET such as lesson study					
8.	My principal motivates teachers to take part in lesson study as a form of teacher professional development					

Section E: Principal Resource Allocation and Lesson Study Implementation

The following statements are on principal resource allocation and lesson study implementation. Indicate the extent to which you agree or disagree with each statement by putting a tick (√) in the appropriate column.

Key: 1=Strongly Disagree, 2=Disagree, 3=Not Sure, 4=Agree, 5= Strongly Agree

	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1.	My principal provides resources required during lesson study implementation					
2.	My principal discusses with teachers materials required for lesson study implementation					
3.	My principal helps in selecting appropriate teaching/learning resources for lesson study implementation					
4.	My principal appoints teachers to take part in lesson study implementation					
5.	My principal appoints a coordinator for lesson study implementation					
6.	My principal provides release time for teachers during lesson study implementation					
7.	Principal provides funds to facilitate lesson study implementation					

8.	Discusses with teachers challenges experienced during lesson study implementation					
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7. Explain the role your principal plays in provision of resources for lesson study implementation

.....

8. What challenges do you experience during lesson study implementation process?

.....

Thank you

APPENDIX IV: INTERVIEW GUIDE FOR PRINCIPALS

SECTION A

1. What is your gender?

Male ()

Female ()

2. To what age group do you belong?

Below 25 years ()

26 – 35 years ()

36 – 45 years ()

Over 46 years ()

3. What is your highest level of education?

Diploma ()

Bachelor Degree ()

Master’s degree ()

Post graduate diploma PhD level ()

Other (specify)

4. For how long have you served as a principal?

Below 5 years ()

5-10 years ()

Above 10years ()

SECTION B: Principal Supervisory Role and Lesson Study Implementation

5. What supervision strategies do you use during lesson study implementation in your school?

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.....
.....

Probe further on how checks implementation plan, lesson plans, meets lesson study group and checks if objectives are met and how teachers are involved during supervision of lesson study implementation

SECTION C: Principal Promotion of Collaborative Practices and Lesson Study Implementation

7. Explain the forms of collaborative practices that exist in your school?

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.....

8. How do you promote such collaborative practices during lesson study implementation in your school?

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.....

Probe further on networking among departments and other schools, support for team work, involvement of teachers in decisions concerning lesson study.

SECTION D: Principal Coordination of Staff Development and Lesson Study Implementation

9. How do you ensure your teachers engage in teacher professional development activities such as lesson study?

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Probe further on support for TPD, plans for TPD, fair opportunities for TPD

10. Explain how your teachers benefit by taking part in lesson study as a school based teacher professional development activity

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Probe further on improved pedagogical skills, how student's have benefited.

SECTION E: Principal Resource Allocation and Lesson Study Implementation

11. What kind of resources have you put in place to ensure effective implementation of lesson study?

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.....

Probe further on funds, time, staff and coordinator for lesson study.

12. What challenges do you and your teachers encounter during implementation of lesson study?.....

.....
.....
.....
.....

Thank you

APPENDIX V: CLEARANCE LETTER



TANGAZA UNIVERSITY COLLEGE

The Catholic University of Eastern Africa

OFFICE OF THE DIRECTOR OF RESEARCH & POST-GRADUATE STUDIES

E-mail: dir.pgsr@tangaza.ac.ke

Website: www.tangaza.ac.ke

OUR Ref: DPGSR/ER/06/2023

Date: 5th June 2023

Rahab Wangari Chiira
Christ the Teacher Institute for Education
School of Education
Tangaza University College

Dear Rahab,

RE: ETHICS CLEARANCE FOR RAHAB WANGARI CHIIRA, REG. NO. CMLA 1706

Reference is made to your letter dated 26th May 2023 requesting for ethical clearance of your research proposal to carry out a study on "*Principals' instructional leadership role and the lesson study program implementation in public secondary schools in Kajiado County*".

I am pleased to inform you that, your research proposal has been reviewed and you can apply for research permit from the National Commission for Science, Technology and Innovation (NACOSTI). This should be done before commencing the data collection. You are also advised to adhere to the code of ethics as regards the protection of human subjects during the entire process of your study.

This approval is valid for one year from **5th June 2023**.

Please, ensure that after the data analysis and final write up, you submit a soft copy of the thesis to the Director of Research & Post-Graduate Studies – Tangaza University College for records purposes.

Yours sincerely,



DR. DANIEL M. KIFONGA (Ph.D.)
Director, Research & Post-Graduate Studies
Tangaza University College

CC: **Sr. Dr. Kinikonda Okemasisi** – Programme Leader, M.Ed, Leadership & Administration (CTIE)

APPENDIX VI: RESEARCH PERMIT

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 624037	Date of Issue: 30/June/2023
RESEARCH LICENSE	
	
<p>This is to Certify that Ms.. Rahab Wangari Chira of Tangaza University College, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kajindo on the topic: PRINCIPALS' INSTRUCTIONAL LEADERSHIP ROLE AND LESSON STUDY PROGRAM IMPLEMENTATION IN PUBLIC SECONDARY SCHOOLS IN KAJIADO COUNTY, KENYA for the period ending : 30/June/2024.</p>	
License No: NACOSTI/P/23/27087	
624037 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
<p>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</p>	
See overleaf for conditions	

APPENDIX VII: LETTER FROM CDE KAJIADO COUNTY



REPUBLIC OF KENYA
MINISTRY OF EDUCATION
State Department for Basic Education

Email: kajiadocde@gmail.com
When replying please quote

County Director of Education
Kajiado County
P.O. Box 33-01100
KAJIADO

Ref: KJD/C/R.3/III/66

5th July, 2023

Ms. Rahab Wangari
Tangaza University College

RE: RESEARCH AUTHORIZATION

Reference is made to the letter from National Commission for Science, Technology and Innovation **Ref. No. NACOSTI/P/23/27087** dated 30th June, 2023.

Authority is hereby granted to you to conduct your research on **"Principals' Instructional Leadership Role and Lesson Study Program Implementation in all Public Secondary schools in Kajiado County** for the period ending 30th June, 2024.

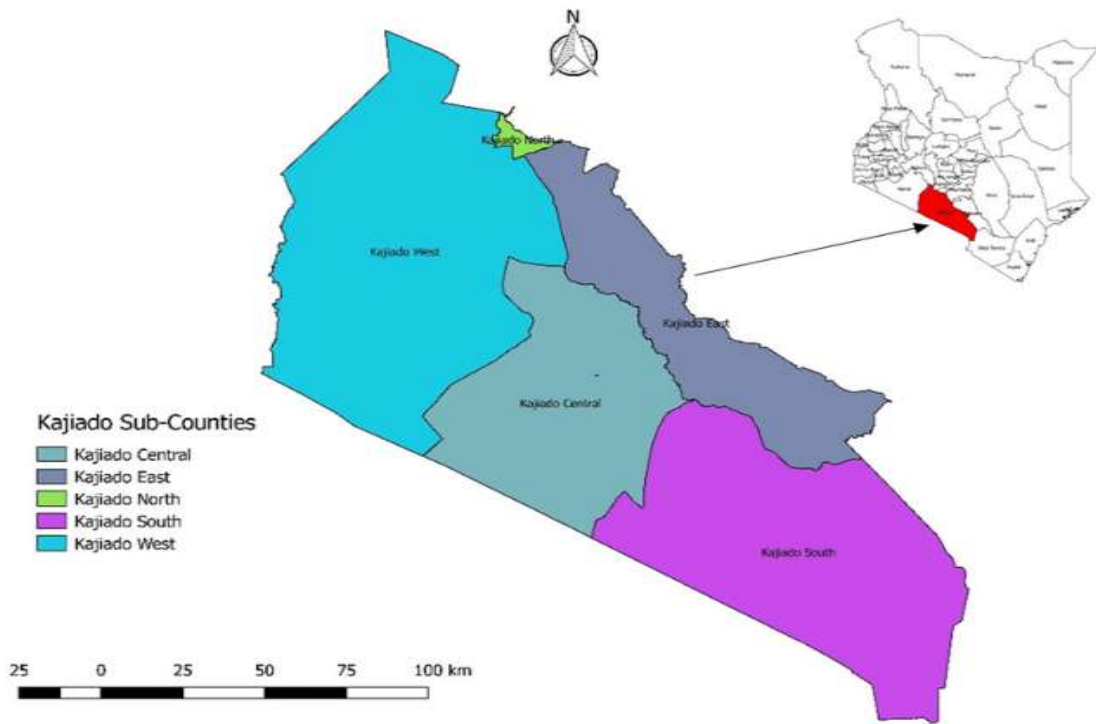
On completion of the research, you are expected to submit **a copy** of the thesis to the County Director of Education's office.

A handwritten signature in blue ink, appearing to read 'Dr. Martin Cheruiyot'.

Dr. Martin Cheruiyot
COUNTY DIRECTOR OF EDUCATION
KAJIADO

CC: All Sub-County Directors of Education:
Kajiado County

APPENDIX VIII: MAP OF KAJIADO COUNTY



APPENDIX IX: ORIGINALITY REPORT

4/13/23, 11:02 AM Turnitin - Originality Report - PRINCIPALS' INSTRUCTIONAL LEADERSHIP AND LESSON STUDY IMPLEMENTATION IN ...

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PRINCIPALS' INSTRUCTIONAL LEADERSHIP AND LESSON STUDY IMPLEMENTATION IN PUBIC SECODARY SCHOLS IN KAJIAD COUTY, KEYA By Chiira Rahab

TANGAZA UNIVERSITY COLLEGE,
 Catholic University of Eastern Africa,
 Chief Librarian
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Géraldine Escriva-Boulley, Damien Tessier, Nikos Ntoumanis, Philippe Sarrazin, "Need-Supportive Professional Development in Elementary School Physical Education: Effects of a Cluster-Randomized Control Trial on Teachers' Motivating Style and Student Physical Activity.", Sport, Exercise, and Performance Psychology, 2018

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