INFLUENCE OF PRINCIPALS’ INSTRUCTIONAL SUPERVISION ON STUDENTS’ ACADEMIC PERFORMANCE IN PUBLIC SECONDARY SCHOOLS IN MACHAKOS COUNTY, KENYA

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A THESIS SUBMITTED FOR EXAMINATION IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE MASTERS OF EDUCATION IN THE DEPARTMENT OF EDUCATIONAL MANAGEMENT, POLICY AND CURRICULUM STUDIES IN THE SCHOOL OF EDUCATION, KENYATTA UNIVERSITY

AUGUST, 2021
DECLARATION

I declare that this research report is my original work and has not been presented in any other University/institution for consideration in any certification. This research report has been complimented by referenced sources duly acknowledged. Where text, data (including spoken words), graphics, pictures or tables have been borrowed from other sources, including internets, these are specifically accredited and references cited using current APA system in accordance to anti-plagiarism regulations.

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Supervisors’ Declaration
This research thesis has been submitted with our approval as university supervisors.

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DEDICATION

The study was devoted to my late father, Benedict Kavita who passed on in the course of this study. The reason is because he believed in me and encouraged me to seek more knowledge. May his soul rest in eternal peace.
ACKNOWLEDGEMENT

Much appreciation goes to my creator, for enabling me with sound mind to undertake the inquiry. Secondly, I wish to appreciate my supervisors Dr. Florence Itegi and Dr. Francis Kirimi because of the motivation they offered me during this study. Lastly I also thank my beloved wife, Tabitha Mwende for encouragement she offered me during the investigation.
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<tr>
<td>ICT</td>
<td>Information, communication and Technology</td>
</tr>
<tr>
<td>KCSE</td>
<td>Kenya Certificate of Secondary Education</td>
</tr>
<tr>
<td>MOESDEL</td>
<td>Ministry of education, state department of early learning and basic Education</td>
</tr>
<tr>
<td>QASO</td>
<td>Quality Assurance and Standards officer</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<td>TSC</td>
<td>Teachers Service Commission</td>
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<td>UNAIDS</td>
<td>United Nations Programme on HIV/AIDS</td>
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ABSTRACT

While principals’ instructional supervision is an important predictor of students’ academic performance, principals’ supervision in Machakos County has been characterized by inappropriate supervisory practices, insufficient provision of instructional resources and lastly teachers perceive it negatively. In spite of the government efforts to provide in-service Programmes to principals on supervision, students’ performance in this county remains low from 2016 to 2019. It is not clear what has been causing such performance. In light of this performance, this descriptive inquiry explored the influence of supervision of instruction by head teachers on educational achievement of the learners. Objectives of the inquiry were: to find out the various instructional supervision practices used by principals during supervision and their influence on students’ performance, to establish the perception teachers have towards principals instructional supervision and its influence on students’ performance, to determine teaching materials availed by head teachers during supervision with reference to educational achievement of learners, and lastly, to establish interventions which may be taken to enhance effective principals’ supervision and their influence on learners’ educational achievement. Descriptive design was adopted by the study. 366 principals, 5,535 teachers and 8 Quality and Standards Officers were incorporated as the population. Machakos County was purposely selected as a study locale. All the eight sub county QASOs and their respective sub counties were sampled for this inquiry. Schools were categorised as single gender schools, mixed day and lastly mixed boarding /day. Stratified sampling was adopted for school categorisation. The inquiry sample involved 45 principals, 362 teachers and 8 Quality and Standards Officers. Questionnaires and interview guides acted as research instruments. Respondents and instruments triangulation enhance research validity. Split half technique established study reliability. Numerical data was first keyed in the SPSS version 21.0, then organized it. Tables and figures were employed in presenting quantifiable data. Further, narratives and verbatim presented qualitative data. Analysis of numerical data was done by using frequencies, percentages, averages, t-test and chi square. Thematic analysis was carried out for qualitative data. Eventually, it emerged out that, principals failed to practice diverse supervisory practices effectively, teachers perceived supervision by principals negatively and also there was insufficient provision of teaching and learning resources by instructional supervisors. The study concluded that, firstly, instructional supervision by principals was inadequate and insufficient. Secondly, principals’ instructional supervision in Machakos influenced educational achievement of learners. Eventually, the study recommended that, principals should have frequent in servicing programmes on how they should enhance mentoring, peer teaching among teachers as key supervisory practices. Secondly, Ministry of education should provide sufficient resources in terms of money, in order to boost knowledge acquisition process in secondary schools.
CHAPTER ONE
INTRODUCTION AND BACKGROUND

1.1 Introduction
The aforementioned chapter presented firstly, background to the study, secondly, statement of the problem, thirdly, the study aim followed by objectives and research questions. Later on, the significance of the study followed by limitations and delimitations were also presented. Lastly, the assumptions of the study, theoretical frame work and conceptual framework were indicated.

1.2 Background to the Study
Education remains to be the most robust agent for the enhancement of economic sustainability, poverty eradication and gender equality, not only at personal level or national level, but also at global level (Mohamed, 2015; Balansang, 2018 and republic of Kenya, Basic education act, 2013). Sadly, people who are illiterate are two to three times less likely to get a gainful employment compared to more educated people (World Bank, 2018). It is therefore not a surprise that education has been declared as a human right (Republic of Kenya, constitution, 2010; Republic of Kenya, Basic education act, 2013 & World Bank, 2018). As a consequence, the debate on understanding factors determining the attainment of quality education has received considerable attention in the recent past.

While it is true that there could be many factors impacting on the attainment of quality education, there exists a general consensus that there could be a link between principals’ instructional supervision and students’ academic performance (Muthoka, 2014; Musyoka, 2018; Nascimento, 2014 and Njeru, 2016). So then,
what is instructional supervision?, Wanzare (2013) views instructional supervision as a process of continuous improvement, in terms of instruction and knowledge acquisition so as to attain educational goals. Further, Namunga (2017) sees supervision of instruction as a process where a teacher is guided on teaching methodology. In the context of this study, instructional supervision was defined as a process, where a principal guides other teachers by providing various supervisory practices, availing adequate instructional resources in a collaborative manner with a purpose of improving students’ performance. In any organization, supervision plays a key role in ensuring that organization goals are efficiently achieved. Indeed, supervision maintains group unity, increases group morale and feedback between the workers and management (Mutuku, 2018; Namunga, 2017 and Shukia, 2020).

In order to effectively teach secondary school students, it is critical that teachers undergo through an effective principals’ instructional supervision. Importantly, this instructional supervision entails provision of sufficient teaching materials, enhancement of diversity of instructional supervisory practices and lastly collaboration between teachers and principals during supervision. However, instructional supervision especially in the 21st century has been associated with principals who exercise excess authority over teachers during supervision, avail insufficient teaching materials and also do not enhance variety of instructional supervisory practices (Musyoka, 2018; Namunga, 2017 and Anike, Eyiene & Egbai, 2015).
The use of regular instructional supervisory practices like peer teaching and classroom observation improves students’ academic performance (Huffaker, 2020 and Nasib, 2016). Nevertheless, globally, instructional supervisory practices by principals have not been carried out effectively. For instance, professional developments for teachers in Nepal and South America are represented by a scarce in-service trainings with limited use of various instructional supervisory practices like mentoring and peer teaching (Nascimento, 2014 and Dhakal, 2017). Such limited programmes may discourage effective teacher development with regard to teaching because teachers may not be given an opportunity to learn various supervisory practices like classroom observation and checking of teaching professional documents. The reason is because significant association exists between students’ educational achievement and utilization of various supervisory practices (Anike, Eyiene, & Egbai, 2015). Teachers’ limitations in teaching may not be addressed and this means they may not be conversant with new teaching skills leading to ineffective teaching which eventually may manifest itself as a low students’ achievement in academics.

There exist a general agreement that instructing and knowledge attainment materials are critical in knowledge acquisition, because they provide in depth learning based on evidence besides guiding in understanding of abstract concepts (Amadioha, 2017; Dhakal, 2016 and Huffaker, 2020). However, it emerged that, many principals in Africa are unable to sufficiently provide instructional materials to tutors especially in Ghana, Nigeria and South Africa (Bizimana & Orodho,
2014; Dangara, 2017 and Anike, et al., 2015). Indeed, laboratory apparatus and reagents for science subjects, instructional ICT materials like computers, projectors were not adequately provided to the knowledge acquisition activity. Such findings raises great concern because instructional materials are so critical for they promote interactive learning (Amadioha, 2017 and the national academies of sciences and engineering medicine, 2021). Interestingly, provision of teaching resources by supervisors and its association with students’ performance remains largely understudied especially in Machakos hence necessitating the need for this study. It is important to note that, a positive correlation between employee perception and organization’s productivity has been established by scholars (Research clue, 2017).

Nevertheless, there is an overwhelming evidence that in Kenya, numerous teachers perceive instructional supervision by principals negatively and as a fault finding mission by principals who are just out to punish teachers (Korir, 2018; Njeru, 2016 and Samoei, 2014). Additionally, according to Mwaniki and Guantai, (2018), teachers perceived it as an interference and not meant for improvement of teachers’ competences in instruction. The question that naturally comes out is whether, teachers embrace instructional supervision or they see it as a punitive exercise from their supervisors. Since perceptions gives direct insights in ones behaviour (West, 2017), it may therefore be inferred that, teachers may not benefit from supervision of instruction because one may not benefit from what s/he dislikes. In light of these findings, it implies that the negative perception of instructional supervision by teachers makes them to benefit in a small way on how to instruct
which eventually may be manifested in the form of students’ academic performance. Perception of teachers on principals’ supervision and its association with students’ performance in Machakos is not well established thus prompting the need for this study.

Interventions in any organization enhances its effectiveness with regard to its performance (Watere, Njuguna & Maina, 2020). However, Studies by Musyoka (2018) and Muthoka, (2014) which were carried out within Machakos County established that, in order for the principals’ supervision to be effective, they should spend more time in instructional supervision compared to managerial responsibilities. Such an interventions remain controversial and needed a further investigation because several studies have revealed the opposite (Korir, 2018; Namunga, 2017 and Samoei, 2014). A necessity therefore arose to carry out this scientific investigation within Machakos County and explore the amount of time to be invested in instructional supervision against the managerial duties, the number of times in servicing programmes for principals should be enhanced and lastly, establishment of the best relationship between supervisors and supervisees.

Numerous studies have focussed on instructional supervision at the primary school level (Muthoka, 2014 and Dechassa, 2015). Further, external supervision by the QASOs and their effect on instructors’ efficacy is still studied extensively (Mwaniki & Guantai, 2018 and Korir, 2018). Additionally, instructional supervision and teachers’ efficacy at secondary school level has been studied as well (Adimasu, 2014 and Namunga, 2017). It therefore emerged that, instructional
supervision by the heads of secondary schools and its influence on students’ educational outcome especially in Machakos County, was largely unexplored. Therefore, the need for this study became clearer. The inquiry acknowledged that, it’s highly likely that other factors may influence students’ classroom achievement like students’ intelligent quotient (IQ), parents’ level of education, parents’ financial ability and also Teachers Service Commission (TSC) policy on teacher performance and appraisal (TPAD). The study held all these extraneous variables constant in order to explore the effect of supervision of instruction by principals on learners’ classroom achievement.

1.3 Statement of the Problem

Effective principals’ instructional supervision entails provision of sufficient teaching materials, enhanced collaborative relationship during supervision between principals and instructors and varied utilization of supervisory practices. While the Kenyan government has been spending a lot of public funds through Ministry of Education, state department of early learning and basic education (MOESDEL) in organizing in service programmes to capacity build principals on instructional supervision, the feedback on its influence on learner performance remained unclear. In spite of the aforementioned efforts by the government, from 2016 to 2019, the principals’ instructional supervision inefficiency rate at Machakos County has been 16% (Mumo, Misia & Kadenyi, 2017) compared to only 13% (Kieleko, Konari & Mugambi, 2017) at the national level. In fact, it has been characterised by limited use of various instructional supervisory practices, limited
collaboration between principals and teachers during supervision and lastly teachers have been perceiving it negatively.

Indeed, basing on the information from Machakos County education office, the target mean score for the county from 2016 to 2019 has been 6.0, yet the mean performance has remained as 3.247 for the aforementioned period. This grading is out of the 12 points as graded by KNEC. If the manner in which principals’ instructional supervision is not addressed, effective teaching and learning may not be realised which in return may lead to low academic standards. Low learner classroom achievement may not only limit the students’ future career choices but also defeat the government effort in the eradication of poverty (Sustainable Development Goal number one) and access to quality education (Sustainable Development Goal number four).

Therefore, this descriptive study aimed at exploring the rarely addressed influence of principals’ instructional supervision in Machakos County in order to provide insightful interventions on how to ensure supervision by principals is effectively carried out in schools. The findings may also be useful to TSC and MOESDEL for evidence based formulation on how to enhance effective principals’ instructional supervision.

1.3.1 Purpose of the Study

The main aim of this descriptive inquiry was to investigate the influence of supervision of instruction by the heads of secondary schools on learners’
educational achievement of public secondary schools within Machakos County, in order to establish the most viable recommendations for policy formulations within MOESDEL and TSC.

1.3.2 Study Objectives

The objectives of the aforementioned scientific inquiry were to:

(i) Establish supervisory practices of instruction which principals use and its influence on learners’ educational achievement in Machakos.

(ii) Determine the perception instructors have towards supervision of instruction by principals and its influence on learners’ educational achievement within Machakos.

(iii) Determine types of teaching materials which principals provide and its influence on learners’ educational achievement within Machakos.

(iv) Establish measures which can be undertaken to enhance effective instructional supervision by principals and influence it has on students’ educational achievement within Machakos.

1.3.3 Research Questions

This scientific inquiry was directed by the subsequent research questions:

(i) Which supervision of instruction practices are used by principals and its influence on learners’ educational achievement in Machakos?

(ii) Which are the perceptions instructors have on principals’ supervision of instruction and their influence on students’ learning achievement in Machakos?
(iii) Which types of teaching materials are availed by heads of secondary schools and their influence on learners’ educational attainment within in Machakos?

(iv) What interventions can be undertaken to enhance effective principals’ instructional supervision and its influence on learners’ educational attainment in Machakos?

1.4 **Significance of the Study**

The Ministry of education, state department for early learning and basic education (MOESDEL) may use the findings of this study to address challenges raised by principals including the areas of deficits in their annual in-service training programmes. For instance they may be made aware of the limited instructional resources to schools hence increase their funds allocation for the schools to buy more of such resources. In the same breath, Quality and assurance officers (QASOs) who work under Ministry of education, might utilize the same data to confirm the actual implementation of the laid down policies by Ministry of education with regard to instructional supervision.

Secondly, Teachers Service Commission (TSC) might find this data useful especially in policy formulation when organizing for teachers’ in-service programmes tailored to improve their teaching skills. In line with this, The Kenya Management Institute (KEMI) may also gain insights on the challenges faced in instructional supervision by principals hence plan training programmes to address
identified challenges. Other researchers may also be motivated to study the field of instructional supervision because of added findings as they review related literature.

Principals may be able to identify areas of inadequacies for teachers in instructional supervision hence seek ways on how to improve it. In light of this, the principal Data from this inquiry may help head of secondary school to enforce areas he/she underperforms like provision of teaching resources and promotion of collaboration in the course of his supervisory duties with teachers.

On the side of teachers, the data from the aforementioned inquiry may probably guide them by knowing instructional functions entrusted to principals hence be able to seek support from instructional supervisors effectively. This will enhance effective teaching in class hence promoting learners’ educational attainment.

1.5 Limitations and Delimitation of the Study

1.5.1 Limitations of the Study

Kombo and Tromp (2006) observe limitations as elements which affect a given scientific investigation negatively, in addition to affecting the generalizability of the inquiry evidence. Mugenda and Mugenda (2013) indicates that limitations comprise of threats to external validity of the study findings. The limitations to this study were:
Firstly, funds available for data collection were insufficient to enhance adequate data collection for the researcher. However, the researcher obtained a loan from a bank to ensure that travelling to schools is enhanced hence collecting adequate data to respond appropriately to research questions. This eventually led to valid study findings.

Four principals in the schools tried to deny access of the researcher to collect data from respondents. However, upon production of the official permit from NACOSTI and from Machakos county director to conduct research, access to respondent was granted. This ensured that the researcher gained easy access to respondents thus collecting adequate data which enhanced representative of the study findings.

Twenty three respondents were unwilling to respond to research tool because they were suspicious that principals may victimise them. Nevertheless, the investigator confirmed that inquiry data was to be strictly private and that it was purposely used for the study only. This assurance ensured respondents gave reliable information.

1.5.2 Delimitations of the Study

Delimitations for an inquiry is a boundary limitation (Orodho et al., 2016b). These are the choices a researcher makes in terms of types of respondents, research design, sampling procedures and study locale. Delimitations to this study were:
Firstly, the study confined itself to Principals as instructional supervisors because they are entrusted to supervise all teachers on instruction in their schools. This is because they were in a position to provide more insights on how teachers perceived instructional. Further the study delimited itself to principals and teachers as respondents. This is because teachers work under principals and deal with students on daily basis hence the study took it that they have reliable information on how principals conduct instructional supervision.

The inquiry delimited itself to only secondary institutions which were public in nature. Owing to the fact that, public secondary schools are uniformly supported by government in the recruitment of teachers in addition to other learning materials. Additionally, the supervision structure is uniform in all public schools hence making comparison of various schools was easy.

The scientific inquiry on supervision of instruction by principals and its impact on learners’ educational attainment was delimited within Machakos County. This was because of the limited time to conduct it. Further, this particular county has been performing dismally in KCSE in the last five years hence the need to delimit it for this vital study. Indeed, evidence from the office of education in Machakos indicated that, the mean score for 2018 was 2.404, 2017 was 3.101 out of the Possible 12 points. This was way below average hence need to establish the cause for such low performance.
The study focused on instructional supervision within the school, thus it did not deal with external supervision which is conducted by QASOs, owing to the limited time and resources for the study.

1.6 Assumptions of the Study

According to Mugenda and Mugenda (2013), assumptions to a study are facts taken to be true without scientific prove. Assumptions provide a level playing field for the study and that they enable the researcher to justify the study (Orodho et al, 2016b). Thus assumptions for this study will be as follows:

Informants included in the inquiry possessed the data required for the investigation and were honest and willing to respond to the research instruments. This is because the researcher enhanced confidentiality and anonymity of the information by using pseudonyms instead of the respondents’ real names in the data collection tools. Further, informants had the right to pull out from the investigation in case of any discomfort when giving information.

All principals whose institutions were involved in the inquiry had to permit the investigator to access the instructors in order to collect data. This is because the analyst had obtained the permit to conduct research from NACOSTI.

Two categorised groups (principals and teachers) were independent to one another in their views. This is because each group has different roles from the other with regard to instructional supervision. This assumption was used to justify the
analysis of data using independent t-test to establish whether the two groups differed in their average rating.

1.7 The study Theoretical and Conceptual Framework

1.7.1 Research Theoretical Framework

The inquiry was directed by scientific management theory as postulated by Taylor (1911) in its attempt to explain the impact of head teachers’ supervision of instruction on educational attainment of earners within Machakos. As revealed by Robbins, Bergman and Coulter (2006), in order to ensure maximum efficiency and output in production in any organisation, classical scientific management theory postulates that, workers should be selected scientifically, trained and taught to the greatest efficiency. Secondly, management ought to employ cooperative approaches employees so that responsibilities may be performed according to the principles of science. Thirdly, if enhanced efficiency has to be realised, management must be innovative in delivering its duties and responsibilities.

Firstly, basing on the first principle, workers (principals) should be scientifically selected, trained, taught and developed to their greatest efficiency (students’ performance). The study examined whether instructional supervisors (principals) in public secondary schools within Machakos County facilitated teachers to attend in servicing programmes on supervisory practices. As guided by the aforementioned theory, limited in servicing sessions for supervisory practices among teachers was
taken to imply that the low student performance had been influenced by it. This was used to respond to objective number one.

Secondly, basing on the second tenet that management should cooperate with employees, then, duties should be conducted within science principals. This investigation determined whether, teachers and instructional supervisors cooperated or embraced collegiality during supervision process. Limited collaboration between teachers and supervisors was taken to imply that principals could not be approached with ease by teachers to guide on effective instruction which might have led to negative perception of the teachers’ towards principals’ supervision. This implied that ineffective teaching could be attributed to low performance by learners. This helped to respond to objective number two.

The third principle is that, the management should embrace new techniques of carrying out duties in order to improve efficiency. The study investigated whether instructional supervisors enhanced innovation and creativity in teaching and learning among the teachers. This included improvisation of teaching aids during the knowledge acquisition process. This was used to respond to objective number three which entailed establishment of the types of instructional resources provided by instructional supervisors to teaching and learning process. Limited provision, innovation and creativity of learning resources was therefore attributed to low students’ performance.
Lastly, it was hoped that the classical management theory was also to provide solution on how effective instructional supervision was to be conducted. According to Robbins et al., (2006), instructional supervisors should be competent in supervision, enhance innovation and creativity and also relate in a collegial manner with supervisees. These stated features of a supervisor helps to enhance effectively skills on teachers who also interact in a healthy way with learners thus instructing in a better manner and probably enhancing learner performance. This helped to respond to objective number four because it sought to establish measures which once undertaken might have enhanced effective instructional supervision.

Classical management theory by Taylor (1911) has been supported by Nhema (2015) who asserts that it enables public institutions to adapt to the changing demands of their countries’ citizens in terms of theory and practice. It was taken that the management theory guided the study to explore the manner in which principals effectively conducted instructional supervision in the wake of changing technology in an attempt to improve students’ academic performance.
1.7.2 Conceptual Framework

Independent variable

**Instructional supervisory practices:**
- Number of classroom observation sessions in a term
- Percentage of teachers involved in peer teaching,
- Percentage of teachers mentored,
- Percentage of teachers who prepared teaching professional documents.

**Perception of teachers towards principals’ instructional supervision:**
- Percentage number of teachers speaking positively on supervision,
- Percentage of teachers who saw it as a way of improving teachers’ competency
- Percentage of teachers who view it as a way of improving students’ performance.

**Instructional resources availed by head teachers:**
- Number of computers within schools,
- Ratio of student to textbook,
- Percentage of teachers involved in innovation of teaching materials,
- Number of times the principal procures laboratory reagents and apparatus within a year.

**Interventions to enhance effective principals’ instructional supervision:**
- Percentage of teachers agreeing supervision as a collaboration process
- Percentage of teachers agreeing to regular in-servicing programmes for teachers
- Percentage of teachers agreeing to improvisation of learning resources.

Dependent variable

**Students’ academic performance**

KCSE mean score for the school

Motivation of teachers towards teaching,
**Motivation** of learners towards learning

Intervening variable

Figure 1.1: Conceptual Framework
Educational attainment was conceptualised to be influenced by how instructional supervision is conducted by principals in their respective schools. Students’ academic which was contextualised as the average school mean score from 2016 to 2019 (dependent variable) was the function of how supervision of instruction are carried out. When percentage of teachers who had undergone instructional supervisory practices like peer teaching, clinical supervision, mentoring and checking of teaching professional documents was high, students’ academic performance was deemed to increase. Further in the event that the number of computers and projectors in the schools was high, principals provided and improvised sufficient instructional resources then student classroom achievement was bound to go up.

Additionally, when teachers perceive instruction by principals positively and as a helping activity to teaching and learning, learners’ academics may also go up. The perception of teachers towards principals’ supervision was conceptualised as the percentage of teachers who speak positively about supervision, see it as a way of improving teaching competency and students’ performance. The use of various supervisory practises, perception of teachers towards principals’ supervision, supply of instructional materials and last interventions aimed at boosting principals’ supervision was indicated as independent variable. This is because its variation explains the change in students’ academic performance (dependent variable) (Kombo & Tromp, 2006).
The intervening variable was represented by students’ motivation towards learning and also teachers’ motivation towards teaching. The reason is that, since intervening variable explains the causal effect from independent variable to dependent variable (Mugenda & Mugenda, 2013), then, if supervision of instruction by principals was done effectively, teachers were therefore motivated in teaching process thus improving their teaching efficacy and consequently the learners achievement.

1.8 Operational Definition of Key Terms

**Academic performance:** It was represented by academic achievement attained by schools Expressed in terms of mean grade in KCSE from 2016 to 2019.

**Instructional supervision:** A process where the principal enhanced various supervisory Practices in a collaborative manner to teachers.

**Supervisory practices:** These were approaches employed by principals during supervision of Instruction. They included peer teaching, mentoring, classroom observation and Checking teaching professional documents. Measured by the number of times they were practised within a term (three months).

**Perception:** It was the teachers’ attitude towards principals’ supervision. It was Measured by the percentage of
teachers who agreed to the fact that, instructional supervision was meant to help in improving knowledge acquisition process, besides instructors’ percentage whose attitude towards instructional supervision was positive.

**Mentoring:**
It was a process where a teacher with more teaching experience guides teachers with less teaching experience on how to effectively teach in a public secondary school. It was measured by the percentage of teachers who had been mentored.

**Peer teaching:**
It was a process where a group of teachers instructed as others observed and subsequently advised each other on areas of inadequacies in order to improve. It was measured by the percentage of teachers who had participated in peer teaching process.

**Principals:**
These were teachers who were mandated to oversee knowledge acquisition process within secondary institutions. They were represented by the 366 principals within Machakos County.

**Public schools:**
These were government aided schools in terms of teacher provision and other teaching and learning resources in Kenya. 366 public secondary schools
within Machakos County were represented in the scientific inquiry.

**Interventions:**

These were strategies aimed at enhancing effective instructional supervision by Principals. They were represented by the percentage of teachers who implemented innovation and creativity of available teaching resources, number of times teachers were in serviced on supervisory practices and lastly, percentage of teachers who talked positively on supervision of instruction by principals.
CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This aforementioned chapter critically examined relevant studies on instructional supervision guided by research objectives. Firstly, it presented various definitions of instructional supervision, investigated diverse instructional supervisory practices and how they are implemented in relation to students’ academic performance. Next, the study found out the teachers’ perception towards principals’ instructional supervision in with regard to learner classroom outcome besides establishing the types of instructional resources principals provided to instructors during knowledge acquisition procedure. Lastly, the scientific investigation examined various measures which may enhance effective supervision of instruction. The study in conclusion established knowledge gaps in other related studies and demonstrated how it teased them out.

2.2 Concept of Instructional Supervision

Numerous educationists have defined supervision of instruction in differing ways. Oyewole and Ehinola (2014) define instructional supervision as the organized process of enhancing the act of teaching in a collaborative manner between supervisor and supervisee. The key understanding drawn from this definition is that, collaboration and collegiality between the supervisor and supervisee is critical if effective instructional supervision has to be achieved. The study therefore explored as to whether principals and teachers relate in a collaborative manner
during supervision within public secondary institutions based in Machakos and investigate the effect it has on learners’ educational outcome.

In a different circumstance, Anike et al., (2015) observe supervision of instruction to be a collegial process where an experienced teacher in the teaching profession less experienced teacher to learn better instructional methods. It is therefore important to note from this definition that, principal as an instructional supervisor ought to have more knowledge on supervision to enhance effective realisation of instructional supervision to teachers hence making teachers help learners achieve lesson objectives effectively. The reason is because, a correlation between principals’ instructional knowledge on supervision of instruction and instructors’ role effectiveness has been established (Ali, Anwer & Abasi, 2015).

Lastly, Wanzare (2013) views instructional supervision is an activity which incorporates all the activities focussed majorly towards the enhancement of effective instruction in learning institutions. Such a definition also points out the role of instructional supervision as primarily involved with all activities in a school aimed at enhancing improvement students’ performance. The key understanding drawn from this definition is that, the end product of any supervision is enhancement of students’ classroom performance. Perhaps such definition may be aligned to the fact that there exist a general consensus that instructional supervision impacts on the learners’ classroom outcome (Muthoka, 2018; Nascimento, 2014; Samoei, 2014 and Kirui, 2016).
It is evident that, supervision of instruction experts have defined it in varied ways. However, the nature of relationship between supervisor and supervisee and the purpose of supervision have dominated in all the above definitions. It therefore seems to be clear that, from those definitions, principals’ supervision of instruction is meant to help a teacher improve teaching efficacy, collaborate with the teacher in order to improve teaching process. This study therefore adopted a working definition of principals’ instructional supervision as a process where, the principal in a collaborative manner guides teachers by enhancing various supervisory practices and availing sufficient teaching and learning resources.

### 2.3 Instructional Supervision Practices and Students’ Performance

There are diverse supervisory practices conducted by supervisors in a school setting. These include: classroom observation, mentoring, peer teaching and ascertaining of teaching professional documents. According to Anike, Eyiene and Egbai (2015) who used ex post facto design, it emerged that, significant and a positive association between supervisory practices and instructors’ role efficacy was revealed in their scientific inquiry. This understanding is significant because enhanced instructional supervisory among teachers makes them more capable of effectively acquiring teaching skills which eventually perfects their classroom teaching (Wanzare, 2013). Although Anike et al., (2015) employed ex-post facto research design in their study, admittedly, it demonstrated causal relationship between teachers’ effectiveness and supervisory practices (Kothari, 2004), one may however object that participants in the ex post facto research design did not
come from random sample hence limiting on the generalizability of the study findings (Orodho et al. 2016b).

The findings would have been more illustrative if the study employed descriptive survey design with an intention of describing accurately the role of instructional supervisory practices on learners’ classroom achievements as it is (Kombo and Tromp, 2006) which was one of the study’s purpose. This objective established the types of instructional supervision practices which were available and examined how effective they are practiced.

2.3.1 Classroom observation by instructional supervisors and learners’ performance

Classroom observation is a well-planned process which starts outside the classroom before the actual teaching and ends outside the classroom after the teaching. It’s comprised of three stages. Firstly as pointed out by Kirui (2016), Pre observation conference as the first stage involves the supervisor developing rapport with the teacher by way of greeting him/her and receiving the lesson plan which then guides the lesson presentation. This stage in other words creates friendly environment thus making the supervisor approachable. Secondly, in the observation conference, the supervisor sits in a class and observes the teacher as he/she delivers. The teacher is evaluated on teaching methodology, chalkboard use and mastery of the content in class. Eventually in the post observation is carried out after the lesson is concluded. Here the supervisor advises the supervisee on
areas of improvement. This stage happens on a private place where the teacher is
advised on areas of improvement during subsequent lessons.

The use of classroom observation helps a teacher to have confidence and deliver
well the content during teaching (Samoei, 2015 and Musyoka 2018). This delivery
of classroom content ensures that lesson objectives are effectively achieved within
the stipulated time hence helping the learner improve academically. A study by
Wanzare (2013) which sampled 213 informants established that, supervisors in
Kenya failed to implement post observation seminar immediately after the
classroom observation. Further, the study indicated that, a case where this post
observation conference was held, it is always dominated by the supervisor, leaving
the teacher with limited time to point out areas which he/she thought required
improvement. Arguably, in a situation where an instructor’s opportunity to express
an area of difficulties in teaching and learning is denied, then, it implies that those
areas of inadequacies won’t be addressed fully, leading to ineffective teaching in
class.

Despite the usefulness of the study by Wanzare (2013) which sampled 213
participants, a study which adopted relatively larger sample would have been more
elaborative on the description of the manner in which classroom observation was
carried out. This study therefore selected relatively larger sample of 415
informants who included principals, teachers and QASOs to explore the manner in
which clinical supervision is conducted and its influence on learner performance in
Machakos County. This adequate sample ensured that the findings on how
classroom observation was conducted in relation to students’ performance in Machakos County was well generalised (Kothari, 2004 and Orodho et al., 2016b). Samoei (2014) who conducted a study in Nandi north district within Kenya and adopted psychological theory of supervision in its theoretical frame work established that, 66.7% of the principals never conducted classroom observation among teachers. This finding is so significant because it drew our attention to the limited frequency with which classroom observation is conducted. Insufficient classroom observation sessions by principals raised concerns on the quality and effectiveness of such an important supervisory practice. The teaching efficacy was compromised because a correlation between utilization of classroom observation and students’ academic performance was established (Chidobi, 2015; Anike et al., 2015 and Adimasu, 2014). It therefore implies that there is a possibility that, teachers were not in a position to learn from the wealth of experience from those supervisors on how to instruct effectively and improve on their teaching skills after the feedback.

While the study by Samoei (2014) was guided by psychological theory of supervision, arguably, the study did not exhaustively address the influence of collaboration and innovation of instructional resources with regard to learner performance. The findings would have been more elaborative if the study could have been anchored on management theory by Taylor (1911). This study thus adopted classical theory of management by Taylor (1911) which helped to explore whether efficiency in teaching is being achieved by use of principals’ creativity,
innovation and training and retraining of teachers in instructional practices within Machakos County.

2.3.2 Mentoring as Instructional Practice on Students’ Performance

According to Abiddin (2006), mentoring is a process which comprises a self-development, growth in professional endeavour. Interestingly, the mentor guides as well as facilitating learning among the learner. In the context of this study therefore, a mentor is an experienced teacher who teaches a fairly less experienced teacher on how to embrace high quality teaching which in extension may enhance good students’ academic performance. The highly experienced teachers happens to be the principals who should guide supervisee by guiding them on their efficacy with an aim of enhancing their instruction.

Dechassa (2011) who adopted descriptive survey design, used 182 respondents (teachers and supervisor committee) established that, 34.7% of the teachers in Ethiopia were never provided with mentoring. This understanding is crucial because limited mentoring posts a serious limitation in teaching and learning because there is much need for principals who have fairly many years in teaching service to guide new teachers at a close range and on a long term basis on how effective teaching and learning should be done. A case where mentoring is insufficient implies that there is a probability that teachers may not offer quality teaching and learning which ultimately may manifest itself on decline in students’ achievement. This assertion is based on Abera (2014) study that, having a mentor contributes to mentee job satisfaction and later enhance quality teaching which
eventually may determine learners’ academic performance. The study by Dechassa (2011) was conducted in Ethiopia whose findings can only be applicable within Ethiopia. It hence remained speculative as to whether mentoring as supervisory practice was carried out in Machakos County. It was therefore necessary to carry out an inquiry within Machakos and explore various supervisory practices like mentoring by principals to teachers and whether it affected learners’ academic achievement.

In a study on problems of mentoring, Abdullah (2016) argues that, many participants know little about decent mentoring, have limited interest on the role of mentoring and lastly, no criteria seem to be applied in the selection of mentors. In that regard, it may be understood that with limited knowledge about the significance of mentoring on teaching methods, it is highly likely that teachers rarely benefit from this supervisory practice hence impacting negatively on students’ performance. A need therefore arose to establish as to how mentoring as instructional supervisory practice is conducted by the principals in Machakos County. This scientific inquiry explored the competency level of mentors in addition to establishing whether teachers had the knowledge on the role of mentoring as an instructional supervision in relation to students’ performance.

According to Abera (2014), one of the major challenges facing mentoring is unhealthy mentee to mentor relationship. A very significant understanding drawn here is that, a case where the teacher (mentee) doesn’t relate well with the mentor (principal) means that it may be quite hard for the teacher to seek guidance from
the mentor because of the fear hence leading to poor teaching process which may later spill over to students’ performance. It was therefore necessary to examine how teachers and principals relates and whether this relationship influenced students’ academic performance in a classroom setting. Additionally, Abera (2014) too agrees that there is limited feedback on the mentor to mentee on their progress in instruction process. Limited feedback from the mentor to mentee may suggest that corrective measures are not likely to be addressed leading to the teacher failing to know the areas to improve his/her instruction. It was therefore critical to find out, in the event that mentoring has been conducted, then how has been the frequency of feedback between the principal and the teacher in Machakos County public secondary schools.

2.3.3 Peer Observation as Instructional Practice and Students’ Performance

Peer observation is a mutual agreement where teachers with the same teaching experience work together with feedback as a key element (Benshoff, 1992). It is therefore a process where the principal as instructional supervisor organizes teachers inform of groups to observe each other as they teach in classes, give feedback to each other and encourage one another on continuous improvement in teaching process. Carrol and Gilbert (2005) insist that, peer observation has several advantages like, one may hear the work of group members which may be different from his/hers hence gaining knowledge by proxy, enables meaningful networking, helps to develop a professional identity and lastly other group members may well have knowledge and experience that the rest of the group members may not have.
Examining the above definition, peer observation involves majorly teachers in the same level in terms of teaching experience, who come together to complement each other in a group set up. Each teacher is given a chance to teach while others take notes on his/her teaching methodology to advice after the class. Ali, Anwer and Abbas (2015) demonstrated that, peer teaching in Pakistan improves the learner to get attention and self-confidence. It therefore implies that, when teachers peer teach each other, they are free and open to correct each other hence attaining better teaching skills which later on may improve learners’ classroom performance. Despite the importance of the study by Ali et al., (2015), the findings could only be generalised within Pakistan and not in other places like Machakos, hence making the necessity of this study clearer to be carried out in Machakos, Kenya.

Carroll and Gilbert (2005) however cautious that peer supervision may often face various challenges. These may include: groups lacking structure and degenerating into gossip sessions, chatting or discussing groups, other demands on peoples’ time impacting on the attendance and people demoralised or criticized hence discouraging them. The study sought to find out in case peer teaching had been facing above mentioned problems, what could be the possible intervention in order to achieve enhance knowledge acquisition process.

2.3.4 Checking Teachers’ Professional Documents and Learners’ Performance

Teaching professional documents entails systematic documentation which reveals evidence that teaching and learning was realized. They include students’
attendance registers, teachers’ plans on lesson presentation among others (Nasib, 2016). Principal as instructional supervisor is mandated to ensure that all teachers prepare the above said documents (Samoei, 2014). The teaching professional documents helps the teacher to plan well, guide on learner evaluation and spent time effectively during lesson presentation (Barrington, 2020).

In spite of the expected manner in which teachers ought to have sufficient professional documents, according to a study by Samoei (2014) which was carried out in Nandi County, Kenya and adopted descriptive statistics to analyse data established that, 65% of teachers do not prepare lesson plans and records of work covered. Additionally, lesson plans were substituted with teachers’ guide books. The key implication revealed here is that, limited use of lesson plans probably discourages quality teaching and learning process because limited use of lesson plans implied that retaining learners’ attention and adequate organization of teaching time was not realized (Nasib, 2016).

While the study by Samoei (2014) used descriptive statistics only to analyse data which reliably summarised sample data accurately (Oso and Onen, 2005), it was considered that a study findings would have been more elaborative if the study employed inferential statistics in data analysis. Therefore it was the goal of this study to not only adopt descriptive statistics but also inferential statistics (independent t-test) in data analysis to enhance robustness and generalizability of findings and reduction of type one error in hypothesis testing (Orodho et al., 2016a).
2.4 Perception of Teachers towards Instructional Supervision and Students’ Performance

Perception is the manner in which teachers understand supervision by principals, attaching more emphasis on whether teachers embraced it or not (Samoei, 2014). Interestingly, perception is critical because it directs on how people understand a particular phenomenon thus helping to assess the needs of the group and eventually providing frameworks on their problem solving (Erickson, 2013). Despite the aforementioned significance of perception, numerous studies have demonstrated that, the perception of teachers towards principals’ supervision is negative especially in Africa. For example, in Ethiopia, South Africa and Rwanda, teachers perceived supervision by head teachers as an opportunity where principals endeavoured to find instructors doing wrong and punish them later (Mohhamedsiraj 2015; Vilakazi, 2016 and Bizimana & Orodho, 2016).

This finding was so significant because it clearly painted a picture on how teachers in the aforementioned countries negatively perceived instructional supervision. The key implication drawn from this finding is that, such a negative attitude implied that teachers feared instructional supervisors hence could not approach their principals to seek assistance with regard to improvement of instruction. Fear to approach supervisors with ease may eventually lead to ineffective delivery in the classroom because there is statistically significant association between perception and organization performance (Research clue, 2017).
However, a claim that these findings by Mohhamedsiraj (2015), Vilakazi, 2016 and Bizimana & Orodho, 2014 apply beyond Ethiopian, South African and Rwandan context seem unfounded. The reason is because the findings may be limited within the said study locale limiting generalizability to other places. What would have shone more light on this relationship between teachers and principals’ supervision was a descriptive study in Kenyan context in Machakos, exploring how teachers perceived principals’ supervision and its impact on learners’ performance. The study was so pivotal because it not only brought insights on the attitude teachers have towards principals’ supervision but also its effects on students’ performance.

According to a study conducted in Nigeria by Oye (2009), the perception of instructors with regard to the role of advanced training, seminars and continuing education for teachers was that, it helped instructors improve instruction skills, gave more information on subject matter which made teaching easier. This finding was so crucial because it highlighted the key functions of supervision as a helping activity to teachers as perceived by the informants. The understanding revealed here was that, teachers’ positive perception towards supervision of instruction improve on instructional skills because probably instructional supervision enhances the principal to relate in a collegial way with teachers, making it easier to be approached by the teachers as they seek solutions for instructional problems. The reason is because embracing and perceiving supervision positively improves
the relationship between outcome and expected output in any organization (Research clue, 2017).

The study by Oye (2009) was both conclusive and influential because it utilized questionnaire in data collection, enabling economical and relative enormous facts accumulation within limited duration (Kothari, 2004). On the other hand, one may arguably indicate that the findings were not adequately reliable because it utilised only one data collection instrument (Oso and Onen, 2005) as opposed to several instruments. It therefore became imperative to conduct this study which utilised both questionnaire and interview guides for they sought confirmation of the apparent findings and also enhanced completeness (Adami, 2005) on the data collected on how teachers perceive internal supervision in Machakos county.

A study by Tshabalala (2013), who sampled 48 teachers established that in Zimbabwe, teachers perceived classroom observation positively. In spite of this positive attitude they had towards supervision, it also emerged that they had become resentful in the manner in which it was carried out. These findings were very significant because they brought on board very crucial insights on the attitude of teachers towards classroom supervision. The question which therefore needed to be asked is, although teachers appreciated the benefits of classroom supervision, then why did they chose to be resentful to the real process. It is highly likely that principals did not collaborate with teachers during supervision, a situation which discouraged them from embracing supervision. Failure to embrace collegiality during classroom supervision implied that teachers faced challenges especially
those associated with emerging issues in teaching and therefore affecting adversely teachers’ commitment to teach (Research clue, 2017).

Touching on the other side, the study by Tshabalala (2013) focussed on a sample of 48 teachers. One may therefore object that the sample was relatively smaller which might have compromised the validity and reliability of his study findings (Oso & Onen, 2005 and Kombo & Tromp, 2006). This limited sample size therefore compromised representative of study findings thus making it reasonable to carry out this scientific inquiry. The study therefore sampled 415 informants for the study. The decision to select a relatively adequate sample was guided by opinion from Mugenda and Mugenda (2013) that, larger samples enhances the typicality of study findings and subsequently enhancing reliability of data.

In a study by Muthoka (2014) which used ex-post facto research design, supervision by the head teachers in Machakos is perceived negatively by the teachers. This finding was crucial because it clearly demonstrated the attitude teachers at primary school level had on supervision. Since perception of teachers’ towards principals’ instruction influences efficacy of instructional supervision (Njeru, 2016), the question that however needs to be addressed is whether teachers benefited from such supervision. It may therefore be logical to argue that, when teachers perceive instructional supervision negatively, it becomes hard for them to gain from the benefits of supervision like those of enhanced classroom observation, peer teaching, mentoring and induction. In the long run, the benefits which come from such instructional supervision practices may not be transferred to
teachers leading to poor quality of instruction which may manifest itself on learners’ achievement.

Despite the usefulness of the study by Muthoka (2014), more than six years had elapsed since the time it was carried out. From the year 2014 to the year 2021, when he conducted his study in Machakos County, much might have changed in the manner in which teachers perceived instructional supervision therefore underscoring the need for this study. It was therefore important to conduct a study which established whether there were new trends in teachers’ perception on instructional supervision.

2.5 Adequacy of Instructional Materials and Learners’ Performance

Instructional resources involved all teaching and learning materials like textbooks, laboratory science apparatus and reagents for science subjects, teaching aids and ICT integration in learning (Amadioha, 2017). There is a general consensus that instructional materials helps students to get deeper information based on evidence and accelerate understanding of classroom content (Huffaker, 2020). However, several studies in Kenya indicates that, numerous heads of secondary schools as supervisors of instruction are unable to avail adequate teaching resources to instructors (Muthoka, 2014; Samoei, 2014 and Namunga, 2017)). Instructional materials incorporated adequate textbooks, laboratory reagents for science subjects, computers and projectors for assimilating ICT in instructing. Indeed, a situation where the head teacher fails to supply adequate teaching resources,
effective teaching is hindered. The reason is because they aid in comprehending conceptual content (Huffaker, 2020).

Inadequate instructional resources discourage productive knowledge acquisition process because, instructional materials make learning real and meaningful to the learner (Amadioha, 2009). The question that needs to raised is whether, although the Kenyan government has been allocating significant amount of funds for acquisition of teaching materials, then have the principals in Machakos availed them sufficiently? In the wake of poor performance in this county, the relationship between teaching materials and learner performance remained speculative. It therefore became imperative to establish the aforementioned relationship owing to the fact that, a difference in performance between student instructed with teaching materials and those taught without them exists with regard to educational attainment. (Ajoke, 2017).

The studies by Muthoka (2014), Samoei (2014) and Namunga (2017) were significant because they employed descriptive statistic (mean, standard deviation and percentages) on their data analysis thus enhancing accurate summary of the sample findings (Oso and Onen, 2005). However, one may have objected about the generalizability and robustness of study finding from the sample to population could be limited. This inquiry involved descriptive statistics (standard deviation, averages and percentages) and also deductive statistics (chi-square and t-test) for the purpose of analysing both qualitative and quantitative data. The inclusion chi-square was critical especially in the accurate determination of any significant
association between learner performance and instructional materials (Kombo & Tromp, 2006).

Interestingly, in Rwanda, it was determined that, teaching materials like laboratory reagents for science subjects, apparatus, computers and radios were limited in schools (Bizimana and Orodho, 2014). Owing to the fact that there is an association between teaching resources and students’ educational attainment (Amadioha, 2017), insufficient supply of instructional resources could have led to decline in academic achievement of learners. The reason could be that, because productive learning require in-depth learning based on facts which is the key function of instructional resources (Huffaker, 2020) which may be lacking in learning which is deficient of instructional resources.

Admittedly, the study by Bizimana and Orodho (2014) was very crucial because it brought insights on the relationship between teaching resources and teachers’ effectiveness. In spite of this relationship being revealed, one may object that the study did not adequately address the causative factors between teachers’ effectiveness and provision of teaching resources (Oso and Onen, 2005). A descriptive study which explored on the influence of instructional materials brought more insights on the adequacy of teaching materials and its effects on students’ performance in Machakos County. Adopting descriptive design was because it largely aided to express accurately the amount of teaching resources availed by principals (Kombo & Tromp, 2006) in the study locale, a case which was largely understudied.
Given that education is a basic human right (Republic of Kenya, the constitution, 2010), the government of Kenya is mandated to supply a substantial instructional resources like text books, laboratory reagents for science subjects, computers among others. However, there are numerous studies revealing that, funds from the government has been delayed in many occasions (Samoei, 2014 and Muthoka, 2014 and Musyoka, 2018). In other words, budgeting which is done by the same instructional supervisors (Basic education act, 2013) is not effectively carried out. To put it in another way, although the principal may be competent in allocation of teaching resources, insufficient supply of instructional resources by government will lead to decline in learners’ educational outcome because purchasing of stationeris, books and audio-visual resources may not be done in time. Thus it became imperative to carry out this inquiry and establish the efficiency with which government supports instructional supervisors in the provision of teaching resources with regard to the educational attainment of the learner.

A scientific inquiry by Musyoka (2018) which was carried out in Machakos besides being directed by a theory called education production established that, teachers were not adequate compared to the number of teachers. Arguably, the inquiry delimited itself on teachers as a human resource leaving other instructional resources being largely understudied. It is worth to note that, insufficient teachers as a human resource meant that student-teacher ratio was significantly low and individual needs of the learners may not have fully addressed. Low student-teacher ratio might have impacted negatively on students’ performance. While the study by
Musyoka (2018) was anchored on education production theory, a study which used management theory by Taylor (1911) would provide valuable information especially in the prediction of how innovation and improvisation of teaching resources was enhanced in Machakos. It was taken that, it would have been more elaborate if an inquiry which was anchored on a theory of scientific management to investigate the adequacy and improvisation of physical resources like books, ICT resources and other teaching aids in this study locale.

2.6 Measures to Enhance Effective Instructional Supervision and Students’ Performance

Interventions as indicated by Diksha (2021) are critical in establishing possible solutions to a phenomena. As revealed by the review of related literature, studies in Machakos County on the proposed strategies on how to enhance efficacy of instructional supervision are significantly insufficient. A study conducted by Muthoka (2014) which adopted ex post facto research design in Masinga district within Machakos indicated that, in-service courses offered to principals needed to be increased from one session per year to three session per year. Cognisance of the fact that, the more time a supervisor spends supervising teaching, the higher the performance of the learner (Samoei, 2014), understandably, when principals are not regularly engaged in these in-service programmes, then skills on how to conduct classroom observation, teacher induction and peer teaching may not be achieved effectively. This situation means that the principals are unable to help
teachers perfect their teaching skills which at the end of the day may be directed to students in form of low academic achievements.

The recommendations by Muthoka (2014) were very insightful because by using ex-post facto research design, the inquiry revealed accurately the causative effect of supervisory time and educational outcome of the learner (Kothari, 2004). In a different circumstance, one might object that the sample might not have been considered random and so generalisation was limited (Mugenda & Mugenda, 2013). Provision of evidence based findings on the specific number of in servicing sessions for teachers to the Ministry of education became vital especially for their policy formulation with regard to supervision. This inquiry adopted descriptive design in order to gauge the amount of hours in a week that principals should invest in supervision of instruction (Kothari, 2004). Revelation of the aforementioned in-servicing frequency ensured that supervisors had the most current knowledge on the effective instructional methodologies.

A study by Arot (2014) which used primary school teachers as informants recommended that, there is need for a cooperative approach to instructional supervision. If the supervisor is unapproachable, then a teacher may not be in a position to come close to the principal and get the required assistance in terms of instruction. Such a relationship means that teaching in a classroom setting may be done in a poor way probably influencing students’ academic performance negatively. Such an opinion is based on Zepeda (2006) observation that, many institutions which effectively enhance teaching, collaboration between supervisor
and supervisee has been implemented. Admittedly, the study by Arot (2014) focussed its attention on primary school level leading to significant limited information at secondary school level. It was important therefore to conduct this study at secondary school level and explore from the informants’ point of view on the best way to relate between the teacher and the supervisor during supervision.

Interestingly, an inquiry by Nascimento (2014) which was based in Brazil recommended teachers to be consulted by supervisors when planning for their in-service programmes. Such a recommendation raises pertinent questions as to whether teachers are engaged during planning for their training programmes. When teachers are not involved in this planning stage, it follows that teachers’ inadequacies in teaching may not be addressed which may spill down to ineffective teaching leading to low students’ achievements in academics. This is because successful professional development and teacher support engages the teacher in the planning, delivery and evaluation of individual professional development (Department of Education, Philippines, 2010). Nascimento (2014) recommendations were applicable in Brazil underscoring the need for a study within Kenya context. This study hence sought to found out the best measures which ensures that teachers’ needs are addressed during planning of in-service programmes.

In Ethiopia, a study by Dechassa (2013) indicated that, principals should spend more than half of the school time in supervision of instruction as opposed to management roles. Such an assertion raises concerns as to whether instructional
supervisors have skills to prioritise instructional supervision because instruction is the core business of any learning institution. Insufficient time for principals to engage in supervision discourages effective teaching and learning because as Zepeda (2006) advises, aware that many instructors lack sufficient teaching expertise, then, various supervisory practices like classroom observation and peer teaching should be practised regularly in order to boost teaching expertise among teachers. In other words, instructional supervision should be an ongoing process. A case where the instructional supervisor doesn’t engage most of his/her time in instructional supervision means that teachers may not be assisted on their areas of weaknesses in terms of instruction which may affect students’ classroom performance. Despite the importance of the study by Dechassa (2013) which sampled 9 schools for the study, one may then argue that a study which sampled relatively larger sample may provide more generalised findings to the target population (Mugenda & Mugenda, 2013). The aforementioned scientific inquiry therefore sampled 45 public secondary schools. This relatively large sample size ensured that the findings were more representative (Orodho et al., 2016b).

2.7 Knowledge Gap Summary that the Study Intended to Fill

To start off, numerous studies have addressed themselves on the effect of instructional supervision by head teachers on educational achievement of the learner at secondary institutions (Muthoka, 2014; Oduor, 2011 and Dechassa, 2015). Secondary school level supervision remained largely underexplored hence need for this study. Additionally, external supervision by QASOs had received a
considerable attention (Mwaniki & Guantai, 2018 and Diksha, 2021). It therefore emerged that internal supervision by principals especially in Machakos was largely missing.

The third knowledge gap was the study locale. A study by Samoei (2014) was conducted in Nandi north district in Kenya. Further, Chidobi (2015) conducted his study in Nigeria. Hence a need for a study reflecting supervision in Machakos context was required. Fourthly, there was a knowledge gap on research design. Bizimana and Orodho (2014) adopted correlational research design on their study. On the other side, Muthoka (2014) and Olawole (2009) employed ex post-facto research designs. This study adopted descriptive research design for it expressed with precision, the nature of supervision of instruction in relation to learners’ educational outcome (Kombo & Tromp, 2006).

The fifth knowledge gap identified was in data collection tools. While Olawole (2009) and Kiamba (2011) employed questionnaire in their data collection process, this scientific inquiry employed questionnaire in addition to interview guides during data collection process. Multiple data collection tools confirmed research findings (Adami, 2005) on instructional supervision. In their studies, Kiamba (2011), Muthoka (2014) and Samoei (2014) used frequencies, percentages and mean to analyse data. On the other hand, this study used frequencies, percentages, mean, and independent t-test to analyse quantitative data. Thematic analysis was adopted for the data in qualitative form, while both descriptive and inferential statistics analysed data in quantitative form. The sixth knowledge gap was the
sample size. In her study, Samoei (2014) used 117 (13.78%) of the respondents, however, this study used 415 respondents. This larger sample size ensured representative findings because of adequate sample size (Kothari, 2004).
CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction
The aforementioned chapter described design of this scientific study. Secondly, operational definition of variables was carried out. Additionally, location of the study was comprehensively defined in addition to accurate description of techniques used in study sampling. Determination of sample size also explained by the researcher. Finally, chapter three presented research tools, data collection techniques, process of study piloting, data analysis and also logical and ethical considerations.

3.2 Research Design
Design of the study as indicated by Creswell (2009) is the strategy that an investigator adopts to guide collection, presentation and analysis of inquiry facts in an objective manner. This study used descriptive survey design. Descriptive design was adopted in this scientific inquiry owing to the fact that, it accurately depicted the nature of principals’ instructional supervision as it existed (Kombo and Tromp, 2006). It therefore described accurately the various instructional supervision practices, indicating how they are conducted, described the perception of teachers towards principals’ instructional supervision, gave the various types of instructional resources and eventually described various interventions which once practised may enhance effective supervision. According to Oso and Onen (2005), descriptive survey design describes and explains events as they are without the
manipulation of variables. It therefore demonstrated the way heads of public secondary schools in Machakos County undertook supervision of teachers.

3.2.1 Study Variables

As indicated by Kothari (2004), a quantifiable attribute which may assume differing rating is a variable. This study had three variables. The independent variable which was represented by principals’ instructional supervision. The first objective variable was instructional supervisory practices. It was represented by the percentage of teachers who were mentored by other experienced teachers, percentage of teachers who participated in peer teaching, percentage of teachers who prepared teaching professional documents and those who were observed by principals in classroom. Further, the second objective established the perception teachers have towards principals’ supervision. It was represented by the percentage of teachers who spoke positively about principals’ instructional supervision, percentage of teachers who perceived supervision of instruction positively and percentage of teachers who perceived supervision as process of improving the process of acquiring knowledge.

Additionally this investigation endeavoured to explore the sufficiency of instructional materials as availed by head teachers as guided by objective three. Learner to textbook ratio, computers found within schools and the number of times principals procure laboratory apparatus and reagents in a year gauged this particular objective. The fourth objective established the interventions in order to enhance effective instructional supervision. It was measured by the percentage of
teachers who agreed that instructional supervision should be a collaborative process, percentage of teachers who agreed that principals should facilitate teachers three time in a year to in servicing on supervisory practices.

The second variable was the dependent variable. It was represented by students’ academic performance which was based on the school mean KCSE performance from 2016 to 2019. The third variable was intervening variable which is a special extraneous variable but explained causal links between both dependent and independent variable (Mugenda & Mugenda, 2013). It was represented by teachers’ motivation towards teaching and students’ motivation towards learning.

3.2.2 Study Location

Machakos County formed locale of this scientific investigation. This County is situated within the republic of Kenya, at 1.52° south of the latitude and 37.27° East of the longitude. Further, its height above the sea level has been established as 1,715 metres (Monetized, 2021). According to the Republic of Kenya, Counties’ map (2011), this county boarders Makueni to the south wise, Kitui region is on the east direction, Embu region is found on the northern direction, Murang’a region on the North West direction, Kiambu region on the east and finally, Nairobi cosmopolitan region on the south west direction.

3.3 Target Population

As observed by Mugenda and Mugenda (2013), a group of persons, devices or articles which have similar discernible attributes is population. Population is
defined as the entire group of individuals or objects, with the same observable characteristic (Mugenda & Mugenda, 2013). This research focused on the 369 public secondary schools out of which 3 were used for the pilot study. Therefore, 366 schools formed the target population. In this regard, the study focused on 366 principals, 5,269 teachers from all these 366 public institutions. Owing to the fact that, principals were the stewards of teaching in schools (Nascimento, 2014), they were therefore incorporated this research. Hence they would provide first-hand information on how they conduct this exercise. Since tutors were the recipient of supervision process by principals (Dhakal, 2017), they inquiry found it wise to involve them in the research considering that they would provide reliable and valid research facts. Table 3.1 illustrates the total number of teachers and principals in Machakos County as the study’s target population.

Table 3.1: Study Target Population

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Principals</th>
<th>Instructors</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed boarding/ day school</td>
<td>139</td>
<td>2001</td>
<td>2140</td>
</tr>
<tr>
<td>Mixed but day school</td>
<td>160</td>
<td>2304</td>
<td>2364</td>
</tr>
<tr>
<td>One gender school</td>
<td>67</td>
<td>964</td>
<td>1031</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>366</strong></td>
<td><strong>5269</strong></td>
<td><strong>5535</strong></td>
</tr>
</tbody>
</table>
3.4 Sampling Techniques and Sample Size

3.4.1 Sampling Techniques

A strategy of obtaining a manageable number of subjects for investigation is referred to as sampling process (Kothari, 2004). Machakos County was purposely selected because as hinted by Machakos education office, the target mean score for this particular county from 2016 to 2019 was 6.0 out of the possible 12 points as graded by KNEC. However, the average score for the aforementioned period has been only 3.241. This means that Machakos County has been performing below average and the cause of such performance remains largely unexplored. Additionally, Mumo (2017) revealed that the inefficiency index of supervision of instruction in Machakos county is 16% compared only 13% (Kieleko et al., 2017) at national level thus necessitating the need for this study in Machakos.

Secondly, Machakos County has eight sub counties. All the eight sub counties had their schools sampled for the study. This is because each sub county is different from the other in the nature in which instructional supervision is conducted hence the need to include all the eight sub regions. This is because heterogeneity of the sample improves representative of the study findings (Orodho et al., 2016; Kombo & Tromp, 2006b and Adami, 2005).

Considering the fact that schools in this locale varied in terms of resource allocation, the investigator adopted stratified sampling. Such a sampling process was deemed appropriate because it not only represented the entire target population, but also the small or minor strata (Oso & Onen, 2005). Institutions
were categorised into three group. One gender schools, mixed day/ boarding and purely day secondary schools. Machakos education region office hinted that, a total of 169 learning secondary institutions were registered. Specifically, mixed day were 139, mixed day/ boarding became 160 while one gender secondary institutions were 67. The picture captured by the school number revealed great variability As such, Kombo and Tromp (2006) point out that, obtaining a comprehensive differing data boosts valid deductions and generalisations.

On account of a target population which fell below 10,000 respondents as for the case of this inquiry, Mugenda and Mugenda (2013) direct that the subsequent formula to be utilized. So that the sample may be determined.

\[
N_f = n \times \frac{1}{1+\frac{n}{N}}
\]

Nf represented the size of the sample which was demanded by the inquiry, n depicted the size of the sample if population size went beyond 10,000 persons, eventually, N indicated the general population. In determination of n, the following procedure was employed, \( n = z^2pq/d^2 \) which translated to \((1.96^2 \times 0.5 \times 0.5)/0.05^2 \) which totalled to 384.

Next, the study sample size emerged as \( N_f = 384/ [1+ (384)/5535] \) which resulted to 359 respondents. Such a figure implied that the study had to have at least a sample size of 359 informants or more as guided by Kothari (2004) and Adami (2005). Since Orodho et al., (2016b) guide that, 10% of the inquiry population to be a sufficient number of informants for sampling, this investigation adopted 12%
of the 365 schools in Machakos county yielding to 45 secondary schools. Consequently, the researcher proceeded to stratify the schools’ categories and determined sample size of each school strata basing on their proportionate size on the total schools. Owing to the fact that, random sampling strengthen valid deductions of the research (Oso & Onen, 2005), the investigator applied random sampling while choosing learning institutions.

Importantly to note, since each school in Machakos had more than 13 teachers (Director of education, Machakos, 2020), 9 teachers from each sampled were randomly sampled for the study to enhance typicality of study finding (Kothari, 2004). Computation of the size of the sample was carried out, yielding 361 instructors and 44 heads teachers of secondary schools. In each category of schools, the school names were put down on paper, subsequently, those papers were folded and put in three containers. The researcher shook them and picked out each school at random in each group. Then the sampling frame was eventually generated. For the schools which were sampled for the inquiry, principals were purposely sampled. Further, QASOs who were 8 of them within the study locale were included for interviewing. The sample size therefore resulted to 407 informants. Table 3.2 demonstrates the size of the sample.
Table 3.2: The Inquiry Sampling frame

<table>
<thead>
<tr>
<th>Type of institution</th>
<th>Principals</th>
<th>Teachers</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed boarding schools</td>
<td>17 (38%)</td>
<td>138 (38%)</td>
<td>155 (38%)</td>
</tr>
<tr>
<td>Mixed but day schools</td>
<td>20 (45%)</td>
<td>158 (45%)</td>
<td>178 (45%)</td>
</tr>
<tr>
<td>Single gender schools</td>
<td>07 (17%)</td>
<td>65 (17%)</td>
<td>73 (17%)</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>44 (100%)</strong></td>
<td><strong>361 (100%)</strong></td>
<td><strong>406 (100%)</strong></td>
</tr>
</tbody>
</table>

3.5 Data Collection Tools

The inquiry adopted interview guide and questionnaire for the purpose of accumulating research data. The researcher preferred multiple data collection tools because, firstly, they confirmed the apparent findings of both qualitative data from interview guides emanating from QASOs and quantitative data from the questionnaires emanating from teachers and principals (Kothari, 2004 and Kombo & Tromp, 2006). The researcher preferred questionnaire because as Orodho et al., (2016a) observed, questionnaires enabled collection of more data at low cost for a large universe. Additionally probing of question from respondents was enhanced (Oso & Onen, 2005) thus booting validity of inquiry findings. Therefore, since teachers and principals were many, questionnaire enhanced economical collection of instructional supervision findings within limited available time.

On the other hand, interview guides were preferred by the researcher because as they enabled an in depth qualitative data on the manner in which supervision of instruction was carried out (Mugenda & Mugenda, 2013). Additionally, interview
guides enhanced probing of more information, especially on the perception of teachers on supervision during interview. Lastly the researcher was able to interpret non-verbal signs (Adami, 2005; Kirui &Too, 2016 and Kombo &Tromp, 2006).

3.5.1 Questionnaire for Principals

Questionnaire for principals consisted of five sections whereby each section addressed specific study objective: Demographic section sought information on gender, Experience of teaching in terms of years, educational background and institution type. The sections B, C, D and E addressed objectives one, two, three and four respectively. Section B was made up of matrix questions that shared same set of response categories. They involved questions on instructional supervision practices. For measuring the acceptance level, likert scale of five points was developed as follows, Strongly Disagree (SD)-1, Disagree (D)-2, Neutral (N)-3, Agree (A)-4 and strongly agree (SA)-5 as indicated by appendix (iii). The researcher preferred matrix questions because as Orodho et al (2016a) observe, matrix questions are easier to complete hence the respondents were not likely to miss answering any of them, they are space economical and easier to analyse.

Section C composed of matrix questions which involved questions on perception of teachers towards principals' instructional supervision. Section D and E involved questions dealing with the type of instructional resources provided and solutions to enhance effective instructional supervision respectively. Questions of open ended nature were availed at the end of every section. Interestingly, the enabled the
informant to express with accuracy their views in a qualitative manner thus facilitating completeness of the instructional stewardship by head teachers (Orodho et al., 2016a; Kirui & Too, 2016 and Mugenda & Mugenda, 2013). In light of this, it enabled respondents to give more insights on principals’ instructional supervision on their own words. This complimented quantitative data elicited from the matrix questions.

3.5.2 Questionnaire for Teachers

This questionnaire also consisted of five sections whereby each section addressed specific objective: Demographic section sought information on gender, duration the teacher has taught in terms of years, educational background besides institutional category. The sections B, C, D and E addressed objectives one, two, three and four respectively. Section B was made up of matrix questions that shared same set of response categories. It involved questions on instructional supervision practices. For measuring the acceptance level, likert scale of five points was developed as follows, Strongly Disagree (S D)-1, Disagree (D)-2, Neutral (N)-3, Agree (A)-4 and strongly agree (SA)-5.

Section C was composed of matrix questions which involved questions on perception of teachers towards principals’ instructional supervision. Section D and E involved questions dealing with the type of instructional resources provided and solutions to enhance effective instructional supervision respectively as demonstrated by appendix (ii). Eventually each section had open ended questions
for they gave opportunity for the respondent to give more insights (Mugenda and Mugenda, 2013) of principals’ instructional supervision.

3.5.3 Interview Guide for QASOs

The study adopted semi structured interview with a written list of questions on principals’ instructional supervision which was asked by researcher to the 8 QASOs. The researcher favoured interview schedule because it boost the completeness of enriching gaugeable data by providing opportunity for the analyst to probe more information thus improving reliability of the inquiry findings (Kirui & Too, 2016). Further, the investigator prepared open ended questions basing on research objectives written down on a paper with their probing notes.

Kothari (2004) indicates that, questions which are open ended in nature are critical especially for the provision of detailed and expressive facts about the phenomena being researched. This was well illustrated on appendix (iv) which was interview’s guide for QASOs. It was therefore possible for the researcher to seek deeper information on the nature of instructional supervision in this particular County because there was an opportunity to have follow up questions. This ensured that, accurate information was obtained hence enhancing generalizability on inquiry findings.
3.6 Study Piloting

Data collection instruments were first tried out in a piloting process. According to Orodho et al (2016b), piloting is a process of trying out data collection instrument to establish the suitability of instruments. The researcher selected one school from each category of schools to conduct try out piloting process. The institutions included mixed but day school, mixed boarding and day school besides one gender school (Boys’ or girls’ school). The aforementioned three institution were not included in the main. The intention was to establish clarity and suitability of research tools (Kothari, 2004).

Inquiry tools responded quite well to research questions although there were modifications which were made after careful consideration of responses. Firstly, on the questionnaires, the section on Demographic information lacked space for ticking on the level of education for both degree and masters’ level. This was introduced appropriately after the piloting process. The section on PhD for any informant who could have qualified was lacking, it was introduced as well. In addition, this section was initially presented in a disorderly manner with regard to respondents’ details and schools’ details. This was appropriately done in a systematic way starting with personal details and later institutions’ details. This brought about order in data presentation. Secondly, on the first objective which is principals’ instructional supervisory practices and students’ performance, respondents could not conceptualise well clinical supervision hence the researcher replaced it with classroom observation which is the other name for clinical
supervision (Cogan, 1973). This made respondents conceptualise it better hence proving valid findings.

Thirdly, each of the four objective statements on each section of the questionnaires had the dependent variable (students’ performance) missing. This was introduced later after piloting process which made respondents to relate well both independent variable (principals’ Instructional supervision) and the dependent variable (students’ performance). This subsequently implied that informants could give valid data for they could conceptualise the phenomena under study appropriately. Lastly, questionnaires did not have an item to collect data on concerning the schools’ educational outcome from 2016 to 2019 as the time delimited by the scientific inquiry. This was also introduced to ensure that data analysis could enhance comparison of the schools’ KCSE performance and the nature of principals’ supervision on the last five years hence describing the state of students’ performance and principals’ instructional supervision accurately.

3.6.1 Validity of the Study

Validity is the degree by which, inquiry findings accurately represents the aspect being studied correctly (Mugenda and Mugenda, 2013). Here, both questionnaires and interview guide (triangulation) were used to achieve content validity of the study. This is because each of the instruments helped to complement each other thus confirming the study findings (Adami, 2005 and Kirui & Too, 2016).
Secondly, four responded questionnaires which had some unclear data were taken to the four informants to clarify what they intended to imply. The informants clarified the information which was accurately relied in data analysis and interpretation. Such informant clarification of unclear data ensures that the researcher is objective and gives the true picture of the study by reducing both respondent bias and researcher bias (Kothari, 2004 and Kombo & Tromp, 2006). Lastly the researcher conducted repeated observations using different tools on the manner in which principals carried out various instructional supervision including taking photos. This ensured that study findings reflected the true picture of state of principals as it is in Machakos County.

3.6.2 Reliability of the Study

The extent of giving similar study findings over and over after several repeated tests has been observed to be reliability (Kombo & Tromp, 2006). Split half method for measuring reliability for quantitative data. Split halve method was preferred because repeated trials implied that fluctuation of respondents’ responses emanating from environmental influence or physical condition was largely eliminated (Diksha, 2021; Kirui & Kiptoo, 2016 and Kothari, 2004). The researcher divided items to be tested into two groups through separating those that were even numbered and those that were odd numbered. Next, using product moment correlation technique, the researcher correlated both scores and obtained correlation coefficient. Using Prophesy brown formula, coefficient of reliability was determined using the formula below.
Where $R_{SB}$ was the reliability coefficient besides $r$ being coefficient of Pearson association. It therefore emerged out that, the coefficient of reliability turned to be 0.815. This was a very good reliability measure because, when the reliability of coefficient is more than 0.70 the reliability was very good for the data collection instrument (Adami, 2005 and Orodho et al., 2016b). The reliability for interview guides was established by administering them to informants when they were not fatigued especially in the morning hours (Mugenda and Mugenda, 2013). This ensured that they responded to research questions appropriately thus enabling the researcher to identify whether the questions responded appropriately to the research questions.

### 3.7 Data Collection Techniques

Firstly, the investigator obtained introduction letter emanating from graduate school board in Kenyatta University. Subsequently, NACOSTI authority to collect data was secured by obtaining letter of introduction from them. A reconnaissance visit by the investigator to the education director within Machakos was carried out. Deliberations about research intentions were discussed. Subsequently, authorisation letter to visit sampled learning institutions was granted too. He then booked appointments with the QASOs on the appropriate days to conduct the interview on how principals’ instructional supervision has been conducted and as to whether it influenced academic performance in their respective districts.
School names in each category (one gender institutions, mixed boarding but day and purely mixed day), were put in three different containers, shaken and using random sampling, selection of those names was carried out basing on the established sample size. This ensured that each informant had same opportunity of being incorporated in the inquiry (Adami, 2005 and Mugenda & Mugenda, 2013). Travelling to schools which were to be included in the study was conducted, booking of appointments with the principals appropriately done besides getting to know the schools better. During this visit to schools, explanations about the purpose of the study and its significance to the policy makers in the education sector was clearly articulated. This ensured that the informants were willing to provide information without being forced thus enhancing validity of the study findings (Kombo & Tromp, 2006 and Kirui & Kiptoo, 2016).

During the procedure of accumulating inquiry data, the researcher confirmed to the informants that that the information they gave was used purely in this scientific inquiry by using pseudonyms instead of their real names. This ensured that they were in a position to provide data without fear of victimisation especially from their principals therefore ensuring reliability of study findings (Kothari, 2004). Digital camera was also used to take photos on the invention and utilization of various instructional materials. This helped in the combination of both quantitative and qualitative data therefore ensuring generalizability of study findings (Orodho et al., 2016b). The researcher then administered questionnaires on data collection
days in order to guard against external influence. Subsequently the researcher conducted interview with the sub counties’ Quality and standards officers.

3.8 Data Analysis

Examining inquiry findings in a systematic was and making deduction has been indicated as analysis of data (Kombo and Tromp, 2006). After all questionnaires were collected, they were checked for completeness and coded for all categorical variables. Facts of the inquiry were then organized in SPSS version 21. SPSS was preferred because as Orodho et al., (2016b) indicates, its capabilities range from simple percentages of descriptive statistics to both parametric and non-parametric statistics. Descriptive and measurable finding were analysed guided by research objectives as follows:

Basing on the first objective which determined various principals’ instructional supervision practices in Machakos county, measurable findings were descriptively analysed by use of averages, percentages and frequencies. Further, chi square and t-test were also used to analyse rateable data in deductive manner (Orodho et al., 2016b). Independent t-test was used to establish whether there was statistically significant differences between the means of the two groups of respondents (Orodho et al, 2016a) namely teachers and the principals. The study adopted independent t-test because it helped to reduce chances of type one error as opposed to when the two groups of respondents were compared independent (Kothari, 2004).
Additionally, in order to establish any existence of significant association between supervisory practices and students’ performance, a cross tabulation of chi-square was used (Mugenda & Mugenda, 2013). Chi-square was preferred because it also indicated the strength of association by calculating the Contingency coefficient (Orodho et al., 2016b). The qualitative data in objective one was analysed thematically through narration. Qualitative data in objective one was obtained from open ended questions from interview.

Basing on the second objective which established the perception of teachers towards principals’ instructional supervision, Quantitative data was analysed by descriptive statistics (mean, frequencies and percentages) and inferential statistics (independent t-test and chi-square). Qualitative data was analysed thematically and also using quick impressionist summary to enrich quantitative data. Touching on the third objective which whose intention was to determine teaching materials availed by head teachers in secondary schools, gaugeable data was descriptively analysed besides thematic and quick impressionist summary for numerical data. Graphs and tables were utilized in the presentation of numerical data. The table 3.2 shows a summary of how each objective was analysed.
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Type of data</th>
<th>Instruments</th>
<th>Analysis technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Determine various instructional supervisory practices.</td>
<td>Quantitative, Qualitative</td>
<td>Questionnaire, Interview guide, questionnaire.</td>
<td>Chi square, t-test, averages, standard deviation and frequencies</td>
</tr>
<tr>
<td>2 Establish perception of teachers towards principals’ supervision.</td>
<td>Quantitative, Qualitative</td>
<td>Questionnaire, Interview guide</td>
<td>Chi square, t-test, averages, standard deviation and frequencies</td>
</tr>
<tr>
<td>3 Establish teaching materials availed by head teachers in secondary institutions.</td>
<td>Quantitative, Qualitative</td>
<td>Questionnaire, interview guide</td>
<td>Thematic analysis and content analysis</td>
</tr>
<tr>
<td>4 Identify measures to enhance effective instructional supervision.</td>
<td>Quantitative, Qualitative</td>
<td>Questionnaire, Interview guide</td>
<td>Thematic analysis and quick impressionist summary</td>
</tr>
</tbody>
</table>

65
3.9 Ethical Considerations and logistical Considerations

3.9.1 Ethical Considerations

In research, aspects of ethics are so fundamental for they boost smooth conduct of carrying out a study (Oso & Onen, 2005). In another circumstance, inquiry logistical aspects improves investigator’s integrity by ensuring study findings are devoid of manipulation and represent the clear picture of the inquiry facts (Kothari, 2004). In view of the aforementioned considerations, the investigator ensured that, cases where there were consultations of other peoples content, necessary credit and acknowledgements was made through relevant citations. This enhanced intellectual honesty of the researcher.

For the scientific investigations which incorporate personalities, Kombo and Tromp (2016) cautions that, due considerations must be put in place to ensure limited violations of human rights if any. In view of such consideration, while collecting data, confidentiality was upheld. The researcher assured the informants that information collected from them was to be used purposely for study, and that no undesirable person was to have access to it (Orodho et al., 2016b). This was achieved by use of pseudo names instead of using their real names in the data collection instruments. The use of pseudo names for the sub county names was demonstrated by appendix (ix). Additionally, the researcher ensured that there was an informed consent on the inquiry intention to any informant. As such, authority to carry out inquiry from both director of education, county commissioner of Machakos County and NACOSTI as illustrated by appendices (v), (vi) and (vii)
respectively was duly granted. This was achieved through articulating to the informants’ inquiry aim and its significance. This made respondents to give their responses without fear of victimisation hence helping the study to attain valid findings.

The researcher debriefed the informants by giving them the right to withdraw from the session of data collection. Withdrawal from data collection process was to happen especially when the respondents felt aggrieved or uncomfortable during data collection. The researcher ensured that no psychological harm by avoiding embarrassing questions and failing to express shock while collecting data from the respondents. This is well supported by Oso and Onen (2005) when they indicate that researcher must be sensitive to human dignity and well-meaning to his intentions. This right to withdraw or participate from the study ensured informants gave information to the study in their normal senses thus accurate information was obtained to facilitate generalised findings to the target population.

Lastly, the researcher did not falsify any data during data analysis to attain a predetermined findings. Absence of data manipulation ensured that true picture of the findings was reflected hence attaining the true state of principal’ instructional supervision as it is.
3.9.2 Logistical Considerations

Logistical considerations involved all aspects that ensured the researcher gained legal permit to access target population. An introduction letter to collect findings from graduate school of Kenyatta university enabled the investigator to access informants easily. NACOSTI permit for research empowered informants to get to the learning institutions without hindrance thus collecting valid and reliable data. In extension, such an effort ensured representative and typicality in study findings (Kothari, 2004).

Eventually the county director of education in Machakos County also issued an introductory letter to enable the researcher access sampled school without restriction. The investigator was therefore enabled to easily collect adequate findings which responded appropriately to scientific inquiry aim.
CHAPTER FOUR
PRESENTATION OF FINDINGS, INTERPRETATION
AND DISCUSSION

4.1 Introduction

The preceding chapter expressed the research design besides methodology. The aforementioned chapter indicated the investigation findings whose aim was to systematically explore supervision of instruction by head teachers in secondary institutions and its influence on educational attainment of the learner. The following study questions were respondent by the inquiry:

(i) Which instructional supervisory practices are carried out by principals in relation to educational achievement of the learners?

(ii) What perception do teachers have towards principals’ instructional supervision and its influence on students’ performance in Machakos County?

(iii) Which teaching and learning resources are availed by head teachers with regard to educational achievement of the students within Machakos?

(iv) What interventions once put in place may enhance effective principals’ supervision of instruction with respect to academic achievement of students within Machakos?

69
4.2 Demographic and General Information

4.2.1 Return Rate

Cumulatively, this scientific inquiry intended to engage 415 respondents during data collection process. They included 362 instructors, 45 head teachers and 08 QASOs. However, only 394 respondents showed up, involving 349 instructors, 38 heads of secondary schools besides 07 QASOs. Some 7 head teachers were absent during the collection of data process. Additionally, owing to the busy schedule on games, thirteen instructors were also absent in schools hence they failed to write the questionnaires. Sadly again, one QASO was ailing in hospital and failed to show up for the interview. Interestingly, the rate of response for this inquiry became 93.7% which was deemed a very good rate. This was based by the advice by Kombo and Tromp (2006) that 70% was sufficient to meet the required threshold on response rate. The study evidence was therefore considered bias free and representative.

4.2.2 Informants’ Demographic Details

Head teachers and instructors indicated their gender. Table 4.1 demonstrated the findings.
4.2.3 Gender of informants

Table 4.1: Informants’ gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>QASOs</th>
<th>Principals</th>
<th>Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>Male</td>
<td>6</td>
<td>86</td>
<td>22</td>
</tr>
<tr>
<td>Female</td>
<td>1</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Totals</td>
<td>07</td>
<td>100</td>
<td>038</td>
</tr>
</tbody>
</table>

The Republic of Kenya (2010), the constitution advocates for either gender to be in an administrative position by meeting a threshold of a third. The study therefore established the distribution of gender of principals and QASOs for they occupy administrative positions in their respective schools and sub counties. Basing on the findings in table 4.1, the study seemed to suggest that, beyond half of all head teachers were males 022(57.8%) compared to only a mere third of the total which represented the female gender 016 (42.1%). The inquiry findings seemed to indicate that, the post of heads of secondary schools were prevailed by men. Surprisingly too, the threshold that each gender to be attained by either gender had been complied with in this particular study locale. Similar pattern of results were obtained by Samoei (2014) and Musyoka 2018) that men were more in administrating secondary institutions.

Further, of interest to this inquiry was that, male QASO officers exceeded three quarters 07 (85.9%) of their number. Again, this particular office was prevailed majorly by men compared to only a single woman. It can therefore be inferred that,
the sub county QASOs with regard to gender do not meet the threshold that a third of each gender needed to be in leadership position (Republic of Kenya, the constitution, 2010). The inquiry findings indicated that that, men teachers slightly exceeded half of their number 205 (58.7%) compared to female teachers who were nearly a third of their number 143 (41.1%). The study finding seems to indicate that teaching profession in this County had males as majority. Mwaniki and Guantai (2018) established similar pattern of results in their earlier study.

Inquiry participants pointed out their educational level of qualification. Table 4.2 demonstrated this data.

<table>
<thead>
<tr>
<th>Respondents</th>
<th>PhD</th>
<th>Masters</th>
<th>Undergraduate</th>
<th>Diplomas</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>principals</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td>teachers</td>
<td>0</td>
<td>0</td>
<td>29</td>
<td>08</td>
<td>234</td>
</tr>
<tr>
<td>QASOs</td>
<td>0</td>
<td>0</td>
<td>04</td>
<td>57</td>
<td>03</td>
</tr>
<tr>
<td>totals</td>
<td>0</td>
<td>44</td>
<td>264</td>
<td>86</td>
<td></td>
</tr>
</tbody>
</table>

Basing on table 4.2, the research seemed to reveal that, exceptionally, 04 (57.1%) of the QASOs had master’s degree. In the light of this research data, QASOs were more competent compared to head teacher and instructors in secondary learning institutions. The fact that majority of QASOs had post graduate qualification
explains why one has to go through a competitive process to become QASO, thus favouring candidates with the highest professional attainment.

Secondly, the findings indicated that, majorly all head teachers had either qualified with master’s degree 11 (29%) or undergraduate education degree234 (67.1%). The finding demonstrated that, principals were more qualified compared to teachers. Interestingly, it can be inferred that, all respondents had the least qualification to teach in secondary institutions which is diploma (Wanjiru, 2019). Such information indicated that. Informants had pre requisite knowledge on how supervision of instruction was carried out, thus availing reliable and valid inquiry findings. Surprisingly, no one respondents included in the investigation had attained doctorate degree. This may be explained by the high university fees required for one to take PhD programmes compared to masters and undergraduate degree programmes.

4.2.4 Informants’ number of years spent in teaching career

Owing to the fact that, the more an instructor teaches, the more effective in giving out knowledge related to his or her profession, he/she (Wanzare, 2013), this scientific inquiry sought to establish the duration tutors and head teachers had spent in their teaching career. The investigator hoped to gauge reliability of study data basing on the length of stay of informants in the teaching career. As demonstrated by Table 4.3, a summary of duration in teaching service was revealed.
Table 4.3: Informants' length of stay in their school

<table>
<thead>
<tr>
<th>Length of stay</th>
<th>Head teachers</th>
<th>Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>0 – 2 years</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>3 – 10 years</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>11 years and above</td>
<td>38</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>038</strong></td>
<td><strong>345</strong></td>
</tr>
</tbody>
</table>

Since according to Dangara (2016) and Dhakal (2017), reliability and validity of data is obtained from respondents who have relatively longer interaction with the phenomena being studied. The study therefore investigated the length of stay of teachers and principals in the teaching service and consequently experience of instructional supervision. It emerged that, any head teacher as supervisor (38, 100%) did teaching career for more than ten years. This finding probably indicated the principals had to teach several years, pass through ranks of heads of department, deputy principals and eventually the head teacher. That gave them sufficient expertise hence more years in teaching profession.

Further, table 4.3 revealed that, instructors in excess of almost two thirds (230, 67.1%), taught between three to ten years. Such a finding was so critical because it meant that, majority of the teachers had stayed in this career for a period where a learner enters in first form, then goes through the four years in secondary school and leaves in fourth form. Thus, gauging on how supervision of instruction impacts educational outcome could be described correctly and accurately. In that regard, sufficient time for respondents was available to make informed facts on the matter.
of supervisory practices with regard to educational output of the learners. Similar pattern of results was reached by various studies by Mohhamedsiraj (2015), Muthoka (2014) and Samoei (2014).

4.3 Principals’ Instructional Supervisory Practices and Educational output of the learner

Objective one required the respondents to pinpoint the degree of acceptance, concerning supervisory practices. A scale in likert form from Strongly Disagreeing (SD) -1 to Strongly Agreeing (SA) -5 was developed accordingly.

Table 4.4: Informants’ responses on principals’ supervisory practices

<table>
<thead>
<tr>
<th>The principal enhances:</th>
<th>groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class room observation</td>
<td>principals</td>
<td>38</td>
<td>2.4753</td>
<td>.78941</td>
<td>.11021</td>
<td></td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>2.1621</td>
<td>1.15263</td>
<td>.06545</td>
<td></td>
</tr>
<tr>
<td>Mentoring among</td>
<td>principals</td>
<td>38</td>
<td>2.4816</td>
<td>1.62053</td>
<td>.12175</td>
<td></td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>2.0191</td>
<td>.34476</td>
<td>.03291</td>
<td></td>
</tr>
<tr>
<td>Peer teaching</td>
<td>principals</td>
<td>38</td>
<td>2.4716</td>
<td>.78572</td>
<td>.12746</td>
<td></td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>1.9412</td>
<td>1.13454</td>
<td>.01951</td>
<td></td>
</tr>
<tr>
<td>Checking of teaching</td>
<td>principals</td>
<td>38</td>
<td>4.5358</td>
<td>1.27286</td>
<td>.06373</td>
<td></td>
</tr>
<tr>
<td>professional documents</td>
<td>teachers</td>
<td>349</td>
<td>4.1631</td>
<td>.64642</td>
<td>.01480</td>
<td></td>
</tr>
</tbody>
</table>

Firstly, according to table 4.4, informants were asked whether principals conducted classroom observation regularly. Surprisingly, the study suggested that teachers (M=2.16, S =1.15) in addition to head teachers (M=2.47, S.D=0.79) did not assent to this statement. Calculated value of t-test with p>0.05 and 386 as degrees of
freedom as indicated in appendix (ix) was 0.913. Since critical value of 1.645 was greater than calculated value, the two groups failed to differ in their agreement levels. Similarly, one of the principal informant in MKD sub county, Machakos County stated that management responsibilities were so demanding hence getting time to observe teachers in class was difficult for her. Such finding may be taken to imply that principals rarely observed teachers in classroom rooms. Limited classroom observation by principals may be attributed by too much administrative work by principals which make it hard for the principals to observe teachers in classes. The finding from this study that principals rarely observe teachers in classes is similar to findings by Adimasu (2014), Dechassa (2013), Mohhamedsiraj (2015) and Samoei (2014), that principals rarely visited teachers to observe them in classes.

**Table 4.5: Chi-square Association values between classroom observation and students’ academic performance**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>694.030*</td>
<td>72</td>
<td>.001</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>556.570</td>
<td>72</td>
<td>.000</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.845</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to table 4.5, an investigator’s cross tabulation of association on the extent of classroom observation against the educational outcome of the learner
indicated an association of classroom observation with educational achievement of the students, with a contingency coefficient of 0.854 (p<0 and 72 as degrees of freedom). Such a finding indicated that, the more principals observed teachers in classroom, the higher the students’ performance was realised. Barrington (2020) and Nasib (2016) shared the same observations in their earlier studies.

Secondly, according to table 4.4 where informants were asked whether principals enhanced mentoring among teachers, the findings revealed that teachers (M=2.01, S.D=0.34) and head teachers (M=2.48, S=1.62) did not assent to this fact. Further, with p>0.05 and degrees of freedom being 386, the value of t-test emerged to be 1.273 (indicated in appendix ix) which was less than the critical value of 1.645. This in essence meant that, the two group did not differ in their level of acceptance. One QASO as one of the informants indicated in the interview guide that, to the best of his knowledge, mentoring among teachers was rarely practiced in Machakos central sub County and because of this, many teachers did not know what it entailed.

Mentoring among teachers makes them to maximise the use of teaching aids like charts during instruction (Amadioha, 2017 and Dhakal, 2017). It may therefore be taken that, lack of mentoring of teachers by their principals may be revealed by the fact that teachers were not mentored on the utilisation of wall charts in the classroom to enhance good retention of knowledge by the learners. This was probably demonstrated on figure 4.1 of one of the school classrooms without any
wall charts meaning that teachers relied only on chalk and book to teach therefore raising concerns on mentorship programmes offered to teachers if any.

Figure 4.1: A sample of a classroom

Figure 4.1 may be taken to indicate limited mentoring of teachers by their principals which probably explains the inability of teachers to enrich teaching and learning using wall charts as part of their teaching aids. Limited in-service training of teachers probably may explain why teachers have few mentorship programs if any because they are taught in those refresher courses. The finding that there is limited mentorship among teachers by their principals was similar to other several studies like Arot, (2013), Dechassa, (2013) and Namunga (2017).

Using the Taylor (1911) scientific management theory, which guided this inquiry, if productivity in any organization was to be achieved, training and retraining of
workers should be encouraged. It therefore meant that in the context of this study, principals did not expose teachers to many in-service trainings which encouraged mentorship as a supervisory practice. This later on did not enable teachers to learn effective teaching methods from their experienced peers which eventually affected learners’ classroom performance.

According to table 4.6, a cross tabulation of the extent of mentorship programmes by principals and students’ performance established a positive significant association of 0.781 as contingency coefficient (With 54 as degrees of freedom and p<0). It therefore meant that, the performance of students was higher in schools that enhanced mentorship session for teachers compared to those that did not encourage mentorship sessions for teachers. Same findings were arrived at by Samoei (2014) and Korir (2016).

Thirdly, basing on table 4.4 where informants were also asked whether principals encouraged peer teaching among teachers, interestingly, instructors (M=1.94,
S=0.64) with head teachers (M=2.47, S=0.78) failed to accept this fact. Value of t-test with degrees of freedom as 385, α=0.05 as significance level and p>0.05 was 1.331 which was less than critical value of 1.645 (as indicated in appendix ix). This suggested the two independent groups failed to differ on their acceptance levels. One of the sub County QASO informants from MVK sub County in Machakos revealed that, in his Sub County, little was known about peer teaching and its significance and therefore it’s rarely practised. Limited use of peer teaching by principals in Machakos County may be attributed to the many challenges of peer teaching like teachers feeling demoralized or criticized by their peers and insufficient time to meet as peer supervisors which was established by Carroll and Gilbert (2005).

Table 4.7: Association between peer teaching and students’ academic performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>693.685(^{a})</td>
<td>54</td>
<td>.001</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>386.111</td>
<td>54</td>
<td>.000</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.687</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Basing on table 4.7, a cross tabulation of association indicated a statistically significant association of peer teaching practice among teachers and students’ academic performance. Indeed, a contingency coefficient of 0.687 (with 54 as degrees of freedom and p<0) was obtained. It therefore indicating that, the more
teachers were engaged by principals in peer teaching, the higher the performance among students was realised. Mumo (2017) and Musyoka (2018) obtained similar findings in their earlier studies.

Fourthly, according to table 4.4, the informants were also asked whether principals checks teachers’ professional documents. Teachers (M=4.16, S.D=0.64), and principals (M=4.53, S.D=1.27) accepted. Value of computed t-test he calculated t-test emerged to be 0.977 (386 as degrees of freedom, 0.05 as significant level and p>0.05) which was less than critical table value of 1.645 (as indicated in appendix ix). Thus in other words, two groups failed to differ in their extent of agreeing.

Similarly, one principal in MVK Sub County within Machakos and who was an informant indicated in the questionnaire that TSC performance and contracting (TPAD) was on high gear and no one would ignore such teaching documents for it was so instrumental during promotion procedures for teachers in the service.

The finding seem to reveal that, principals check regularly teaching professional documents like progressive students’ record in addition to students’ registers. Sufficient checking of teachers’ professional documents differs from the findings by Samoei (2014) study that was conducted in Nandi County within Kenya that principals did not effectively check teachers’ lesson plans and records of work covered. These findings might have differed because Samoei (2014) used 177 as sample size as opposed to this study which used 415 respondents for the purpose of enhancing generalizability of study findings (Orodho et., al 2016b).
Table 4.8: Chi-square measure of Association concerning checking professional instructional documents against students’ performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>359.206$^a$</td>
<td>18</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>309.655</td>
<td>18</td>
<td>.000</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.854</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interestingly, basing on table 4.8, it emerged out that, the more principals checks the teaching professional documents, the higher the students’ performance. Such a finding was reached because there was a positive association of 0.854 as contingency coefficient (with 18 as degrees of freedom and p<0). Such a finding agrees well with studies by Adimasu (2014), Arot (2014), Musyoka (2018), Wanzare (2013) and Namunga (2017) that checking teaching professional documents enhances students’ classroom outcome.

Basing on the theory of scientific management, Taylor (1911) directs that, if any firm which in this case was public secondary school has to enhance efficiency in production which is students’ performance, managers (principals) should train and retrain workers, who are teachers. It is during these in-service trainings where teachers gather new skills on effective use of supervisory practices (classroom observation, mentoring, peer teaching and checking of teaching professional documents) which may eventually improve students’ performance. It is therefore seemed to be evident that the findings of this study had validated this particular principle of this theory that training and retraining of workers enhance their
productivity which is students’ performance. The finding that instructional supervisory practices determines learner performance is also in line with the study’s conceptual framework that the use of various instructional supervisory practices influences student performance.

4.4 Perception of Teachers towards Principals’ Instructional Supervision and educational achievement of the learner

Concerning second objected, respondents pointed out their acceptance level concerning instructors’ perception on supervision of instruction by head teachers. Likert scale with five points was developed appropriately from Strongly Disagree (SD) 1 to Strongly Agree (SA) -5.

<table>
<thead>
<tr>
<th>Teachers perceive principals’ instructional supervision:</th>
<th>teachers and principals</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a helping activity to teaching</td>
<td>principals</td>
<td>38</td>
<td>4.2474</td>
<td>1.08566</td>
<td>.11123</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>2.4109</td>
<td>.818250</td>
<td>.03064</td>
</tr>
<tr>
<td>Positively</td>
<td>principals</td>
<td>38</td>
<td>2.0595</td>
<td>1.31315</td>
<td>.06702</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>1.6198</td>
<td>.92727</td>
<td>.06837</td>
</tr>
<tr>
<td>As way of improving teaching competency</td>
<td>principals</td>
<td>38</td>
<td>4.2942</td>
<td>.914107</td>
<td>.07642</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>3.97003</td>
<td>.78581</td>
<td>.01610</td>
</tr>
<tr>
<td>As a way of improving students’ performance</td>
<td>principals</td>
<td>38</td>
<td>4.6911</td>
<td>.18328</td>
<td>.04433</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>4.1774</td>
<td>.49696</td>
<td>.01590</td>
</tr>
</tbody>
</table>
Firstly, according to table 4.9, interestingly, the study suggested that teachers (M=2.41, S.D =0.818) disagreed that they perceived instruction by principals as a helping activity to their instruction while on other side, principals (M=4.2, S.D=1.08) strongly accepted. Computed value of t-test, with p value<0.05 and 385 as degrees of freedom was 5.08 which was more than critical value of 1.645 (as indicated on appendix x). Such a finding indicated that, disparity in level of acceptance existed between the two groups. In essence, it meant that teachers disagreed that principals’ instructional supervision was a helping activity to their instruction whereas principals agreed to it. As reported by one principal:

Principals’ supervision was made to find teachers in the wrong and punish them especially those teachers who are against their principals. The worst happened especially for those teachers who were critical to principals’ management policies because such a teacher was always sure the principal had a chance to humiliate her in the pretence of instructional supervision [One principal].

The stated narration may be understood that, teachers did not acknowledge this supervision as a requirement for appropriate knowledge acquisition process, but instead, an event where principals exercised immense power on their teachers. The perception by teachers that supervision by principals is not made to improve teachers’ teaching standards may be explained by the fact that some principals are not friendly to the teachers during supervision which discourages teachers on this process. Similar pattern of results was obtained from several studies (Abera 2014, Adimasu, 2014, Arot, 2014 and Mohhamedsiraj, 2015) that teachers perceived
stewardship of teaching by head teachers to be a programme where principals find out mistakes among teachers and punishes them.

### Table 4.10: Chi-square measure of Association of instructional supervision as a helping activity in teaching and students’ performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>822.523^a</td>
<td>48</td>
<td>.001</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>718.970</td>
<td>48</td>
<td>.001</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.825</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>NO of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As indicated in table 4.10, a cross tabulation of the association between the perception of teachers that principals’ supervision is a helping activity in teaching and students’ performance was statistically and positively associated. Indeed, the contingency coefficient was 0.825 (with 48 as degrees of freedom and p<0), indicating a strong association. In other words, this study finding revealed that, the more teachers perceived instructional supervision as an activity meant to help teaching and learning, the higher the students’ academic performance was realised. Similar pattern of results were arrived at by Huffaker (2020) and Dhakal (2017).

Secondly, basing on table 4.6, respondents pointed out acceptance level concerning whether instructors perceived head teachers’ supervision in a positive manner. Instructors (M=1.61, S=0.92) in addition to head teachers (M=2.05, S=1.31) revealed that they disagreed to this statement. Since 0.743 as the test value was obtained, p>0.05 and 385 as degrees of freedom, was less than critical value, it
therefore meant that, disparity on their acceptance level was absent between the
two groups, namely, teachers and heads of secondary schools (as revealed by
appendix x). The negative perception by teachers towards principals’ supervision
may have been caused by limited collaboration between teachers and principals.
Limited collaboration may make it hard for teachers to seek help on how to instruct
well from principals which increases probability of underperforming by students in
Machakos County. Negative perception by teachers towards this supervision may
also be explained by some teachers shying away from being criticised by their
principals during supervision process. The finding of this study is in accordance

Table 4.11: Chi square measure of Association between teachers’ perception
as positive and students’ academic performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>545.701</td>
<td>24</td>
<td>.001</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>423.737</td>
<td>24</td>
<td>.001</td>
</tr>
<tr>
<td>Contingency Coefficient</td>
<td>.765</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As indicated on table 4.11, there existed a strong positive association of 0.765 as
revealed by contingency coefficient (with 24 as degrees of freedom and p<0). This
finding seemed to suggest that, teachers who embraced instructional supervision by
principals enhanced learners’ classroom performance. Dechassa (2013) and Diksha
(2017) also established that, when teachers have positive attitude towards supervision, their efficacy is enhanced hence improving students’ performance.

Thirdly, the informants were also required according to table 4.6 to indicate their level of agreement as to whether teachers perceive supervision by principals as a way of improving teachers’ competency. Interestingly, instructors (M=3.97, S=0.678) in addition to heads of secondary schools (M=4.29, S=0.914) assented strongly that teachers perceived supervision by principals as a way of improving teachers’ competence in teaching. As indicated by appendix x, the computed value of t-test as1.214 with degrees of freedom of 385, p >0.05 was greater than critical value. In other words, both groups failed to differ on their degrees of agreement.

A sub County QASO from MYD Sub County stated in the interview that in his opinion, teachers embrace supervision by principals as a way of helping them know the best possible teaching methods which once practiced, may improve classroom performance for the learners. Such an aforementioned research fact may be well understood that, when teachers are supervised effectively by their principals, guidance on proper teaching methods is provided and teaching resources are availed. Adequate supply of instructional resources enhance efficacy in the process of knowledge acquisition thus enhancing teachers’ methodology which probably may be reflected in the students’ performance.

The finding that teachers perceived supervision by principals as a way of improving teachers’ competency in teaching disagrees with a study by Dangara (2016) in Nigeria that head teachers at primary school level perceived supervision
by head teachers as an interference. This may be because the study by Dangara (2016) used only questionnaire for data collection as opposed to this study which combined both interview guide and questionnaires. This enhanced the validity and reliability of study findings (Oso and Onen, 2005) because each instrument complimented each other thus confirming the study findings.

Table 4.12: Chi-square measure of Association between teachers’ perception that supervision is a way of improving teaching competency and students’ performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>343.702a</td>
<td>12</td>
<td>.001</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>300.338</td>
<td>12</td>
<td>.001</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.686</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to table 4.12, it emerged out that there was a moderate association of 0.686 as contingency coefficient between teachers’ perception that supervision was aimed at improving teaching competency and students’ performance. What this implied was that, teachers who viewed supervision by principals as a way of promoting teaching skills made a moderate impact on students’ academic performance. Mumo (2016) and Korir (2016) reached a similar pattern of findings in their earlier studies.

Fourthly according to table 4.6, informants were also requested to reveal their agreement levels as to whether teachers perceived principals’ supervision as a way
of improving students’ performance. Interestingly, teachers (M=4.17, S.D=0.49) and principals (M=4.69, S.D=0.18) strongly agreed that teachers acknowledged that supervision by principals is purposely made to improve students’ performance. According to appendix x, 0.619 emerged to be t-test computed value with p>0.05 and degrees of freedom as 385. Absence of acceptance level was therefore concluded since critical value emerged to be greater than test value.

To enrich the numerical data, a teacher in MKT sub county who was among the informants stated in the questionnaire that, principals were expected to guide teachers from their wealth of their teaching experience to learn the best approaches on lesson presentation format. Through friendly interaction between the principal and the teacher, best teaching strategies are attained by the teacher which eventually is transferred to the learner in form of improved classroom performance. Such a finding therefore seems to suggest that supervision by principals is geared towards enhancing learners’ classroom achievement. The perception by teachers that teachers saw instructional supervision to be a process of boosting educational output of the learner may be explained by the fact that, when the principals’ supervision is effectively done, teachers may be helped to prepare and present lesson objectives effectively thereby affecting achievement of educational goals for the learners. Similar study findings were arrived by Namunga (2017), Simbano (2013) and Wanzare (2013) studies that principal supervision enhances learner performance.
Table 4.13: Chi-square measure of Association between teachers’ perception that supervision is a way of improving students’ performance and learners’ performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>382.450a</td>
<td>12</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>359.030</td>
<td>12</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.705</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to table 4.13, the findings seemed to establish that, stewardship of instruction was viewed by teachers as a way of improving students’ performance and learners’ classroom achievement was moderate. The contingency coefficient was 0.705 (with 12 as degrees of freedom and <0). The finding implied that, teachers who acknowledge instructional supervision as aimed at enhancing learners’ performance tend to moderately improve students’ classroom achievement. Mohhamedsiraj (2015) and Samoei (2014) arrived at the same conclusion in their studies.

Further, basing on scientific management theory, where the investigation has been anchored, if efficacy of knowledge acquisition has to be realized, then head teachers have to work in a collegial manner in addition to collaborating. Likewise, it is possible that principals have not been cooperating with teachers during supervision which probably might have made it hard for the teachers to seek guidance from principals on effective teaching methods. Such might have led to
dismal performance of learners. The finding too agrees well with study’s conceptual framework that the manner in which teachers perceives principal’ instructional supervision affects students’ performance.

4.5 Types of teaching materials availed by head teachers and educational attainment of learners

Objective three of this investigation required informants to establish facts concerning extent of agreeing about variety of teaching materials as supplied by head teachers in relation to educational achievement of students. A scale in likert form with five points was established from Strongly Disagreeing (SD) -1 to Strongly Disagreeing (SD) -5.

Table 4.14: Informants’ opinion on provision of instructional resources by principal and students’ performance

<table>
<thead>
<tr>
<th>The principal as supervisor of instruction:</th>
<th>groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhances ICT integration</td>
<td>principals</td>
<td>38</td>
<td>3.9605</td>
<td>1.0742</td>
<td>.10091</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>2.3382</td>
<td>.81913</td>
<td>.02500</td>
</tr>
<tr>
<td>Provides Sufficient textbooks</td>
<td>principals</td>
<td>38</td>
<td>4.2168</td>
<td>.79908</td>
<td>.06989</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>3.9223</td>
<td>1.1773</td>
<td>.02968</td>
</tr>
<tr>
<td>Enhances innovation of teaching resources</td>
<td>principals</td>
<td>38</td>
<td>3.8716</td>
<td>.95885</td>
<td>.07930</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>2.0754</td>
<td>1.3284</td>
<td>.03417</td>
</tr>
<tr>
<td>Avails sufficient apparatus and reagents for science subjects</td>
<td>principals</td>
<td>38</td>
<td>2.2719</td>
<td>1.3411</td>
<td>.16071</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>1.9360</td>
<td>1.6301</td>
<td>.02731</td>
</tr>
</tbody>
</table>
Firstly on table 4.14, Respondents indicated degree of acceptance on the supply of technology gadgets in teaching and learning process. Interestingly, instructors (M=1.23, S=1.719) failed to agree, however, heads of secondary schools (M=3.89, S=1.074) assented to that aforementioned statement. According to appendix xi, value of t-test which was calculated with p value <0.05 became 4.321. Since it exceeded critical value of 1.645, meaning disparity in the groups' acceptance was present. One of the instructors who was among the informants in MVK Sub County within Machakos revealed that, their head teachers failed to assimilate technology in teaching especially their age was beyond 50 years. The most limited resources included projectors computers and radios.

Insufficient enhancement of assimilation of technology like computers, television and radios may be explained by the limited skills among teachers to use such gadgets and also high prices associated with technology which makes it hard for many schools to afford. It is highly likely that, insufficient utilization of technology in instruction was attributed to fear associated with technology, besides few trainings on ICT assimilation on the side of teachers. Similar pattern of results were also arrived by Simbano (2013) and Muthoka (2014).
Table 4.15: Chi-square measure of Association between ICT integration and students’ performance

<table>
<thead>
<tr>
<th></th>
<th>Values</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>694.030</td>
<td>72</td>
<td>.001</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>556.570</td>
<td>72</td>
<td>.001</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.821</td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interestingly, according to table 4.15, a cross tabulation of classroom ICT integration and student academic performance revealed a significant strong association of 0.821 as contingency coefficient (with 72 as degrees of freedom and p<0). Such a finding implied that, schools which their teaching had ICT integrated quite well performed relatively better than those which did not encourage ICT in teaching and learning. Such findings were also shared by Dangara (2016) and Korir (2016).

Secondly according to table 4.15, informants indicated their extent of agreeing as to whether head teachers availed adequate text books and revision materials to instructors. Interestingly, instructors (Mean=3.82, S=0.1.61) in addition to head teachers (Mean=4.21, S=1.119) assented in a strong manner to the aforementioned fact. As indicated by appendix xi, computed value of t-test emerged to be p >0. Since the critical value was greater than calculated value, disparity in acceptance level wasn’t present. Such a finding seems to indicate that schools have sufficient text books and course books. A teacher in MKD sub county in Machakos who was among the informants stated in the questionnaire that the Ministry of Education
had been bringing sufficient text books to each student each term. This was to boost the one hundred percent transition of students from primary to secondary school level.

Since many learning institutions had adequate books and revision materials, it is highly likely that, the programme by the government meant to supply books to schools had contributed to that reality. An inquiry by Samoei (2014) and Wanzare (2013) disagreed to this particular research facts. The reason for such a disparity could be that, the aforementioned scientific inquiries utilized relatively small sample, which may have led to a limited representative of data (Oso & Onen, 2005).

Table 4.16: Chi-square measure of Association between provision of textbooks and students’ academic performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi Square</td>
<td>339.519</td>
<td>72</td>
<td>.002</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>417.648</td>
<td>72</td>
<td>.001</td>
</tr>
<tr>
<td>Contingency of coefficient</td>
<td>.684</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interestingly, as indicated by table 4.16, there existed a moderate positive association between provision of textbooks and students’ classroom outcome. Indeed, the Contingency coefficient was 0.684(with 72 as degrees of freedom and p<0), meaning that, in the schools where principals had availed adequate books to
learners, the performance was relatively higher than the schools with insufficient textbook. Ajoke (2017) and Omuna et al., (2016) obtained same findings in their earlier studies.

Thirdly basing on table 4.8, respondents pointed out the extent of acceptance on the adequacy of invention of teaching and learning materials in learning institutions. It therefore emerged that, instructors (Mean=2.14, S=0.84) failed to agree besides head teachers (Mean=3.57, S=01.15) who accepted strongly. As revealed in appendix xi, value of t-test which was computed at 385 being freedom degrees and p < 0.05 was 3.9. Owing to the fact that, critical value was less than computed value, it meant that, both groups differed in their acceptance levels. Of interest to this inquiry was that, a number of head teacher were so innovative that they organized some graphics in schools which represented curriculum content. The mostly drawn diagrams related to science subjects like biology and chemistry. A good illustration was in figure 4.2 which involved chemistry periodic table.
Figure 4.2 shows a chemistry content drawn on a classroom wall which to an extent, innovation of locally available instructional resources was prudently utilised. It's important to note that, it is highly likely that. Head teachers’ innovation demonstrated by such drawings are explained by their numerous years in instruction thus becoming more creative. On a different note, this inquiry finding does not tie well with Musyoka (2018) investigation. The reason may be that, in her study, relatively small sample size of 215 respondents was utilized thus limiting typicality of the study findings (Orodho et al., 2016). This current inquiry included a larger sample of 415 to improve representativeness of the research conclusions (Oso & Onen, 2005).
As guided by theory of scientific management, if productivity has to be realized, then workers need to be innovative and improvise local resources to supplement the available few. Put differently, head teachers as stewards of learning institution, should consider devising creative ways of boosting instructional resources like drawing graphics on class walls as the one demonstrated on figure 4.2. Viewed differently, the inquiry findings demonstrated degree of innovation by principals thus upholding Taylor (1911) scientific theory of management.

**Table 4.17: Chi-square measure of Association between principals’ enhancement of innovation of local teaching resources and students’ academic performance**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>565.679a</td>
<td>96</td>
<td>.002</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>467.513</td>
<td>96</td>
<td>.002</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.771</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Basing on table 4.17, a cross tabulation of the association between innovation and improvisation of teaching resources and students’ performance revealed a strong relationship of 0.771 as the contingency coefficient. This was from a degree of freedom of 96 and p<0.002 put differently, a significant enhanced improvisation in terms of teaching resources leads to an increase in students’ performance. Similar findings were obtained by Egbai (2015) and Chidobi (2015) in their studies.
Instructors in addition to head teachers pointed out their extent of agreeing as to whether supervisors supplied adequate laboratory reagents and apparatus especially for scientific subjects. Interestingly, instructors (Mean=2.014, S=0.954) besides head teachers (Mean=1.321, S=0.974) failed to agree. The value of t-test which was computed with p >0.05 and 385 as freedom degrees was 1.342 (As revealed by appendix xi). Owing to the fact that, critical value exceeded calculated value, it therefore became evident that, the two groups failed to differ in their extent of agreeing. An instructor who worked in MWL district indicated categorically in research tool that:

For my institution, enormous numbers of learners come into real practical lesson only during the national examination at the end of their four year course. In fact, science subject practicals have been conducted majorly on a theoretical basis, just like normal humanities and languages. In our school, many students interact with laboratory apparatus and chemicals while in form four. [A teacher, Machakos, January 2020].

Indeed the study seems to suggest a serious limitation in terms of equipping learning institutions with pre requisite apparatus and reagents for subjects related to science. The fact that many schools in Machakos County have insufficient laboratory reagents and apparatus in order to instruct subject related to science, may be attributed to an emergence of numerous secondary institutions, which made it a challenge for principals to acquire the aforementioned learning materials instantly. Musyoka (2018) and Muthoka (2014) established similar findings in their earlier investigations.
Table 4.18: Association within provision of apparatus and reagents for science subjects and students’ academic performance

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>526.712</td>
<td>72</td>
<td>.003</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>434.049</td>
<td>72</td>
<td>.002</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.759</td>
<td>1</td>
<td>.419</td>
</tr>
<tr>
<td>No of Valid Cases</td>
<td>387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interestingly, the inquiry findings revealed that, an association within laboratory apparatus and reagents provision for science subjects and students’ performance. In fact, the contingency coefficient was .759 with 72 as degrees of freedom and p<0. Such a finding may be interpreted as, when the principal as instructional supervisor avails sufficient resources for science subjects, then the performance is bound to improve. The fact that provision instructional resources determines students’ performance may be understood that, teaching materials makes knowledge acquisition process more real and interesting (Amadioha, 2017), thus boosting their classroom achievement. This inquiry evidence is consistent with Ajoke (2017), Bizimana and Orodho (2014), and Mohhamedsiraj (2015) research data that instructional materials improves instructors’ professional efficacy besides learners academic attainment.
4.6 Measures to enhance effective principals’ instructional supervision and learners’ educational attainment

Objective four demanded respondents to pinpoint their extent of acceptance about measures which once enhanced, may improve instructional supervision. A scale in form of likert was developed, starting from strongly disagreeing (SD) =1 to Strongly Agreeing (SA) =5

Table 4.19: Informants’ views on the measures to enhance effective principals’ supervision in relation to educational attainment of learners

<table>
<thead>
<tr>
<th>During supervision, the principal should:</th>
<th>independent groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relate collaboratively with teachers</td>
<td>principals</td>
<td>38</td>
<td>4.94</td>
<td>.28800</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>4.8939</td>
<td>.37141</td>
</tr>
<tr>
<td>Spent more time in supervision than administration</td>
<td>principals</td>
<td>38</td>
<td>2.3247</td>
<td>.71958</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>4.0375</td>
<td>.60758</td>
</tr>
<tr>
<td>Regular engagement of teachers in supervision</td>
<td>principals</td>
<td>38</td>
<td>4.9254</td>
<td>.43257</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>4.8124</td>
<td>.27547</td>
</tr>
<tr>
<td>Involve teachers in servicing planning</td>
<td>principals</td>
<td>38</td>
<td>3.6859</td>
<td>1.3712</td>
</tr>
<tr>
<td></td>
<td>teachers</td>
<td>349</td>
<td>3.726</td>
<td>1.3714</td>
</tr>
</tbody>
</table>

100
Firstly according to table 4.10, respondents pinpointed the acceptance levels if head teachers should relate in a collaborative manner during supervision. Interestingly, teachers (M=4.89, S.D=0.371) besides head teachers (Mean=3.94, S=1.288) accepted in a strong manner. Value of computed t-test with p >0.05 and 385 as freedom degrees was 1.214. Since the critical value was greater compared to calculated value, two groups failed to differ in terms of acceptance. One sub County QASO informant in MTG Sub County in Machakos in an interview stated that:

Principals should treat teachers as colleagues during supervision because it makes them approachable thus being in a position to guide them on effective teaching methods. Those head teachers who pose themselves as bosses before their teachers tend to be feared by them and possibly their help to teachers on effective teaching is limited as well [A sub County QASO, Machakos, January 2020].

Indeed this study finding seems to demonstrate that teachers and principals should collaborate during supervision. The fact that teachers and principals should relate in a collegial manner may imply that friendly environment is created which makes teachers to freely reveal areas they feel guidance may be required on teaching strategies. That makes it easy for them to be assisted by principals which eventually may enhance educational attainment of learners in learning institutions. The finding ties well with a previous study by Arot (2014), Muthoka (2014), Musyoka (2018) and Samoei (2014) that there is need to ensure cooperative and friendly approach between teachers and principals during supervision of instruction. Such a finding is also supported by management theory by Taylor
(1911) that to ensure efficiency (students’ performance), managers (Principals) should collaborate with workers (teachers).

Secondly basing on table 4.10, respondents pointed out their acceptance levels if principals should spent more time in instructional supervision than in administration work. Surprisingly, teachers (Mean=3.99, S=1.10) assented strongly, however, principals (M=2.32, S.D=0.607) disagreed with. Value of t-test which was computed with p <0.05 and 385 being freedom degrees was 1.965. Owing to the fact that, critical value was greater than computed value, both groups differed in their acceptance levels. One head teacher from MKD Sub County within Machakos in the questionnaire noted that administration work should share equal time with supervision of instruction because it ensures smooth organization of learning institution. Such a finding revealed that teachers require principals to spend majority of their time in supervision compared to management roles.

Majority of time being focused on instructional supervision can be understood that, teaching besides knowledge acquisition is critical to any school hence the need to maximize supervision time by principals. Eventually, its likely to enhance the best supervision of instruction which may eventually improve students’ performance. Similar pattern of results as obtained from other several studies (Dechassa, 2013, Mohhamedsiraj, 2015 and Namunga, 2017) that principals should spent most of the time in supervision of instruction as opposed to managerial roles.
Thirdly basing on table 4.10, respondents pointed out extent of acceptance if teachers should frequently be involved in the in-service trainings. Teachers (M=4.81, S.D=0.27) and principals (M=4.92, M=0.43) strongly agreed. The computed t-test value was 0.472 which became lower compared to critical value determined as 1.645. It emerged out that, both groups failed to differ in their agreement levels. It therefore implied that there was no significant difference between the two groups on their agreement levels. A sub county QASO who was among the informants in MWL sub County in Machakos stated in an interview:

There are many emerging trends in teaching and learning hence the need to constantly train teachers so as to keep abreast with them especially in the digital world. There is much need to guide teachers on the use of youtube to source for lesson presentation videos, demonstration of complex content on the computer using projector and lastly sharing content especially the revision examination papers from other schools [A sub County QASO, Machakos, January 2020].

It is highly likely that continuous exposure of teachers on in-service training was proposed by informants because there is a probability of teachers gaining a lot of insights on both innovation and improvisation of information technology especially on teaching process. Innovation in teaching and learning makes teaching interesting and fascinating (Amadioha, 2009) thus enhancing learners’ performance. The finding resonates very well with studies by Nascimento (2014), Muthoka (2014), Namunga (2017), Samoei (2014) and Wanzare (2013) that teachers should constantly be engaged in in-service training in order to sharpen their teaching skills.
Constant exposure of teachers to many in-service training supports management theory by Taylor (1911) which indicates that, to promote efficiency in productivity (students’ classroom performance), the managers (principals) should ensure workers (teachers) are trained and retrained regularly.

Lastly according to table 4.19, in order to establish if head teachers should engage instructors especially when organizing in servicing programmes, informants pointed out their extent of accepting that fact. The research data seemed to indicate that, instructors (Mean=4.82, S=0.11), besides head teachers (Mean=4.92, S=0.32) assented to that fact. The value of t-test which was computed became 0.354 with >0.05 and 385 being freedom degrees. Owing to the fact that, critical value was greater than the computed value, the two independent groups did not differ in their extent of agreeing. A teacher in MTG Sub County in Machakos indicated that it was the teachers who knew the challenges they face while teaching especially in the improvisation of ICT in their lesson presentations. Agreement of teachers to be involved during planning of their in-service trainings can be taken to mean, that, instructors may be able to explain specific areas of inadequacies which once addressed, students’ performance may be realized because of effective teaching. Such evidence ties well with an investigation by Nascimento (2014) besides Musyoka (2018) inquiries, which recommended teachers to be involved during planning of their refreshers courses.

From the discussion above, key findings emerge. The study has validated the principles of management theory by Taylor (1911). These principles which the
study has confirmed from the findings are first, in order to enhance efficiency which in this context is students’ performance, principals should expose teachers to regular in-service training in order to acquire skills on effective implementation of supervisory practices. This ensured objective one was achieved. This is because it in those in-service training where teachers are taught on effective implementation of various supervisory practices like classroom observation, mentoring, peer teaching and checking of professional teaching documents.

Secondly, principals should relate with teachers in a collaborative manner in order for them to be perceived positively by teachers during supervision. Collaboration between both parties make teachers to approach supervisors with ease which makes it is easy for principals to guide teachers on best teaching strategies hence enhancing students’ performance. This ensured the achievement of objective two. Lastly principals should encourage innovation and improvisation in the use of instructional resources. This will help to complement the available instructional resources which as demonstrated by other studies is key for improving students’ performance. This made it possible for the achievement of objective three. Lastly, the study has fully supported management theory by Taylor (1911). The fourth objective was also enhanced.

This scientific investigation produced data which supported the study’s conceptual framework. Such was demonstrated by the fact that the findings confirmed that use of various instructional supervisory practices by principals like peer teaching, mentoring and checking teachers’ professional documents affected students’
performance. This was earlier conceptualised in the framework by the researcher. Further, it also emerged out that the manner in which teachers perceived supervision by principals (whether negatively or positively) impacted on students’ performance. Lastly, the nature of teaching materials availed by head teachers in addition to improvisation of available teaching and learning resources affects students’ academic performance. Such a relationship between study’s independent and dependent variables had been earlier conceptualised in the study’s conceptual framework.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The aforementioned chapter presented first, the summary of the study findings, then conclusions and eventually recommendations of the study. The intention of this scientific investigation was to explore the influence of principals’ instructional supervision on learners’ classroom attainment in public secondary schools within Machakos. The objectives of the inquiry were to establish instructional supervisory practices by principals and the effect it has on the learners’ educational achievement, determine perception teachers have towards head teachers’ supervision of instruction and their impact on academic achievement of the learners, establish nature of teaching materials availed by heads teachers of secondary schools and its relationship with educational attainment of the students and lastly determine measures which may enhance effective principals’ instructional supervision in Machakos county in relation to students’ classroom achievement.

5.2 Summary of the study findings based on each objective

5.2.1 Principals’ Instructional Supervisory Practices and Students’ Academic Performance

The first objective required informants to indicate their level of agreement on whether principals practised regularly various instructional supervisory practises. Both teachers and principals agreed that principals checked teachers’ professional
documents regularly. The results from independent t-test revealed absence of
disagreement on the agreement ratings of the two independent groups (teachers and
principals). Differently, both teachers and principals disagreed that principals
enhance both peer teaching, practised classroom observation and encouraged
mentoring among teachers. Informants indicated that both peer teaching and
mentoring was not familiar to teachers in Machakos County.

Interestingly, a cross tabulation of chi-square measure of association of data
revealed that, the more the principals enhanced various supervisory practices, the
higher the performance of students was realized. In fact, checking of teaching
professional documents emerged to have the strongest association with students’
performance with contingency coefficient of 0.854, followed by classroom
observation with 0.845 as association coefficient. Mentoring came third with 0.781
as association coefficient and eventually, peer teaching was ranked fourth with a
significant association with learner classroom outcome.

5.2.2 Teachers’ Perception towards Principals’ Instructional Supervision
and Students’ Academic Performance

On the second objective, informants were required to point out extent of agreement
on how teachers perceived supervision by head teachers. Whereas teachers
disagreed supervision by principals is a helping activity to help in instruction,
principals agreed to this statement. Independent t-test confirmed presence of
significant difference on their agreement levels. In the same line of thought, both
principals and teachers disagreed that teachers perceived instructional supervision
by principals positively. Eventually, both groups of respondents agreed that this supervision by principals was a way of improving both students’ performance and teachers’ competency in teaching. It emerged out that, there was absence of disagreement on the respondents’ rating as depicted by independent t-test.

Additionally, a cross tabulation of chi-square measure of association demonstrated that, the more the teachers perceived principals’ instructional supervision negatively and as a fault finding mission, the lower the academic performance for students was realised. Indeed, the association of teachers that supervision was helping activity to teaching and students’ performance revealed a strong association with association coefficient of 0.825. Again, the association that teachers perceived supervision positively and students’ performance was also strong ranked second, with association coefficient of 0.825. Teachers’ perception that supervision is meant to improve learner outcome still had moderate association with students’ performance. Lastly, there was a moderate association of 0.686 as contingency coefficient between the perceptions that teachers view supervision as a tool to improve learner classroom achievement against students’ academic performance.

5.2.3 Types of teaching materials availed by secondary head teachers and educational attainment of learners

Additionally, it emerged out that, both teachers and principals agreed to the fact that principals provided sufficient text books and revision books for students. Interestingly, whereas teachers disagreed that principals supported ICT integration
by providing computers, principals agreed to this fact. As established by Independent t-test, presence of agreement levels was noted. Further, teachers disagreed that head teachers intensified invention of available instruction materials, but principals agreed that they enhanced innovation of instructional materials. Additionally, both teachers and principals disagreed that principals provided sufficient apparatus for science subjects in Machakos County. Absence of consent on the respondents’ groups’ rating was witnessed.

Indeed, a cross tabulation of chi-square measure of association revealed that, limited provision of instructional resources and innovation of available teaching resources by principals was associated to low students’ academic performance. In particular, there emerged to be a strong association between ICT assimilation in instruction and students’ academic performance whose association coefficient was 0.821. Next, improvisation and innovation of teaching materials seemed to associate strongly with students’ performance. In fact, 0.771 was the association coefficient. Thirdly, provision of laboratory reagents with apparatus and students’ performance has a significant strong association with association coefficient of 0.759. However, provision of textbooks had moderate association with students’ performance. Interestingly, the association coefficient was 0.684.

5.2.4 Measures to enhance effective principals’ supervision with regard to students’ academic performance.

Majority of the informants strongly agreed that, in order to ensure effective principals’ supervision, principals should relate in a collaborative manner with
teachers during supervision, engage teachers in numerous in-service trainings and also involve teachers in planning for in-service trainings. Surprisingly, teachers agreed that principals should spend more time in instructional supervision as opposed to administration work but principals disagreed to this statement. Principals cited that both instructional supervision and administration work are equally important and need to be attended fairly.

5.3 Conclusions

Research results of the scientific inquiry demonstrated before anything else, basing on the first objective, it is clear that principals practised quite well checking of teachers’ professional documents, however, they rarely practised peer teaching, classroom observation and mentoring among teachers. In light of this finding, it emerges that there is limited practice of various instructional supervisory practices by principals. Further, the study suggested that, use of various instructional supervisory practices influenced educational achievement of students in secondary institutions.

Secondly, as indicated by the second objective, the findings demonstrated that teachers perceived principals’ supervision negatively and not meant to help teachers improve their instruction. Broadly these finding reveals that, teachers do not embrace supervision by principals which is meant to help them improve their teaching methods. Further, it also emerged that, the negative perception of teachers towards principals’ supervision led to decline in educational achievement of learners in secondary institutions which are public in nature.
Thirdly, as portrayed by the third objective, the findings suggested that, principals did not enhance innovation/improvisation of locally available teaching resources adequately. Indeed, principals provided insufficient apparatus for science subjects and ICT equipment for instructing. Understandably, it seems to be clear that, principals did not fully promote exploitation of locally available instructional resources and again there is limited supply of various teaching and learning materials. Eventually it emerged that, limited innovation and provision of teaching resources by principals led to low students’ classroom achievements in Machakos public secondary institutions.

Eventually, the inquiry data indicated that, regular exposure of teachers in in-service programmes, friendly relationship between teachers and principals during supervision and improvisation of teaching resources improved their teaching competencies among teachers which eventually translates to improved students’ academic performance in Machakos County. It is therefore clear that constant retraining of teachers, collaboration between teachers and principals during supervision and creative use of available teaching and learning materials enhance effective principals’ supervision which is manifested as improved learners’ classroom performance. To this end, it was logical to conclude that, supervision of instruction carried out by principals influenced learners’ academic attainment in public secondary learning institutions in Machakos.
5.4 **Recommendations**

As predicted by the conclusions, it was the view of this scientific research that the subsequent proposals to be put in place in order to strengthen supervision of instruction.

5.4.1 **Recommendations for policy**

(i) As confirmed by the investigation, peer teaching, classroom and mentoring among teachers was rarely practiced. Therefore, the researcher recommended that MOESDEL in conjunction with TSC to organize on yearly basis in-service trainings where teaching, classroom observation and mentorship among teachers peer will be emphasized. This may perfect teaching skills which eventually may be replicated in students’ performance.

(ii) As revealed by the third objective, the study has demonstrated that principals were unable to provide sufficient apparatus for science subjects and computers for ICT integration in teaching. This scientific investigation proposes adequate funds to be allocated in learning institutions to boost more teaching resource acquisition.

5.4.2 **Recommendations for Practice**

(i) In light of the second objective where the study revealed that teachers perceived principals’ supervision negatively, principals should ensure friendly working climate with teachers by establishing a free idea sharing culture during instructional supervision. Such actions may create bond with teachers. This may make teachers perceive it positively hence increasing
posibility of benefiting from this supervision which may eventually enhance effective teaching thereby improving students’ performance.

(ii) According to the forth objective, in order to enhance effective supervision by principals, teachers should be involved in planning of their in service programmes. This study recommended the principals to engage teachers in identifying areas they felt they needed training on teaching methodology. This may be achieved by giving questionnaires to them on termly basis to give insights on what to be included in their yearly in-service trainings.

5.4.3 Recommendations for Further Research

(i) The aforementioned scientific inquiry addressed itself on principals’ instructional supervision and its connection to educational attainment of learners in secondary institutions. These results of the investigation can only be generalised to this County. A need therefore arises to replicate similar study in the entire country. This will provide a complete picture on how principals practice supervision in the whole of Kenya.

(ii) The study explored principals’ responsibility as an instructional supervisor and its impact on educational outcome of learners. Since principals delegate some instructional supervisory duties to deputy principals, future study should investigate the role of deputy principals as instructional supervisor and its impact on students’ performance.

(iii) The study addressed itself on internal instructional supervision which is conducted by principals. Because QASOs are mandated to conduct external
instructional supervision from the MOEST, future research should investigate potential effect of QASOs instructional supervision on teachers’ classroom delivery. This is because instructional supervision by both Principals and QASOs is geared towards enabling effective teaching which eventually may affect students’ performance.
REFFERENCES


Simbano, A. D. (2013). *Influence of the head teachers’ instructional supervisory practices on Teachers’ work performance, a case of public schools in*


APPENDICES

APPENDIX I: INTRODUCTION LETTER FOR INFORMANTS

Kavita Bonface Mutiso,
Kenyatta University,
P.O. Box 43844
NAIROBI.

Dear informant(s),

RE: COLLECTION OF RESEARCH FINDINGS

Owing To the fact that, am collecting data for scientific investigation from Kenyatta University, I request you to respond to the research questions with truthfulness. The study title is, Effect of head teachers’ supervision of instruction on educational attainment of the learners in Machakos.

Having been chosen to be part of the investigation, you are reminded that the findings of the study will be used strictly for research and no other interests are attached to it. Kindly don’t indicate your name.

Appreciation for choosing to answer the research questions.

Yours truthful,

Kavita Bonface Mutiso
APPENDIX II: TEACHERS’ QUESTIONNAIRE

This research sought to explore supervision of instruction by head teachers in secondary learning institutions on educational attainment of learners in Machakos. You are required to answer the research questions with truthfulness and that, information therein, will be confidential and only for research aim.

Section A: Demographic information

1. Sex
   Female ( )  Male ( )

2. Professional and educational attainment of the teacher,
   Education Diploma ( )  Undergraduate ( )
   Post graduate masters ( )  Doctorate ( )

3. Years of experience in the teaching profession.
   0-2years ( )  3 to 10 years ( )
   Over 11 years ( )

4. Category of your school,
   Single gender school ( )
   Mixed but day school ( )
   Mixed boarding but day ( )
Indicate your school’s KSCE mean score for 2019____, 2018____, 2017____, 2016______

Section B: Instructional supervision practices by the principals on students’ performance

Subsequent table involves questions concerning supervisory practices with regard to educational attainment of learners. Pinpoint the extent of acceptance as revealed by likert scale.

<table>
<thead>
<tr>
<th>No</th>
<th>My principal</th>
<th>1 SD</th>
<th>2 D</th>
<th>3 N</th>
<th>4 A</th>
<th>5 SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conducts classroom observation effectively</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Encourages mentoring among teachers</td>
<td></td>
<td></td>
<td></td>
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</tr>
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<tr>
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<td>Checks the teachers’ professional documents regularly</td>
<td></td>
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</tr>
</tbody>
</table>

5. Which other instructional supervision practices do instructional supervisors employ among the teachers to enhance students’ performance?
Section C: Perception of teachers towards principals’ instructional supervision and students’ academic performance

The following table contains items about the perception teachers have towards principals’ supervision of instruction and their influence on learner performance. Point out the extent of acceptance.

<table>
<thead>
<tr>
<th>No</th>
<th>Teachers perceive principals’ instructional supervision :</th>
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<tbody>
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<td>6.</td>
<td>As a helping activity to their instruction.</td>
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</tr>
</tbody>
</table>

10. Which other way do teachers perceive principals’ instructional supervision in reference to educational achievement of learners? .................................................................

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129
Section D: Teaching materials availed by head teachers and educational attainment of learners

Below is a table containing items about instructional resources provided by principal and their influence on learner performance. Point out your level of agreeing by ticking below items.

<table>
<thead>
<tr>
<th>No</th>
<th>Instructional supervisor (principal):</th>
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<td>11.</td>
<td>Supports teachers in ICT integration in teaching by providing computers, projectors and TVs.</td>
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<td>Encourages improvisation of local teaching</td>
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Section E: Measures which can enhance effective instructional supervision and students’ performance

The following table contains items about measures on how to enhance effective principals’ instructional supervision in relation to students’ academic performance.

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<th>No</th>
<th>Principal as a supervisor should:</th>
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<td>15</td>
<td>Relate in collaboratively with teachers during supervision.</td>
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<td>Spent more time in supervision of instruction than in administration work.</td>
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Which other measures can principals use to ensure effective supervision of instruction?

Feel appreciated for answering this research instrument.
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20. Which other measures can principals use to ensure effective supervision of instruction?

*Feel appreciated for answering this research instrument*
APPENDIX IV: SUB COUNTY QUALITY ASSURANCE
OFFICER (QASO) INTERVIEW GUIDE

This research sought to explore supervision of instruction by head teachers in secondary learning institutions on educational attainment of learners in Machakos. You are required to answer the research questions with truthfulness and that, information therein, will be confidential and only for research aim.

1. Demographic information
   (a) Kindly, mention you educational attainment professionally.
   (b) Indicate the duration you have served as a QASO.

2. Head teachers’ Supervision practices and educational attainment of learners
   (a) How effective do principals practice the following supervisory practices in relation to students’ performance?
      Classroom observation, mentoring teachers, teaches peer teaching and checking of teaching professional documents.
   (b) Do you think these instructional supervisory practices influence learners’ performance?

3. Perception of teachers towards instructional supervision and students’ performance
   How do teachers in this sub county perceive principals’ instructional supervision basing on whether is?
   Way of boosting productive teaching, or a way of finding teachers’ weaknesses during instruction.
Negatively or positively viewed.

In your opinion, do the perception of teachers towards principals’ supervision influences students’ classroom performance? If yes, then why?

4. **Types of instructional resources provided by principals.**

Which instructional resources are provided by principals in this sub County? Comment also on the adequacy of these resources which include: Text books, exercise books, lab chemicals for science subjects, ICT equipment, chalk, wall charts and improvisation of teaching and aids.

In your opinion, do the head teachers’ provision of teaching materials boost educational attainment of learners? If yes, then why?

5. **Measures which can be undertaken to enhance effective principal supervision.**

In your opinion, which measures can be employed to enhance effective principals’ supervision in relation to students’ academic performance with reference to?

Amount of time spend on supervision as opposed to management duties of school, relationship between teachers and principal during instruction, adequacy of instructional material supply besides frequency with which instructors are engaged in the planning of in-service programmes.

**Thank you for responding to these questions.**
APPENDIX V: NACOST PERMIT FOR RESEARCH

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2012

The Grant of Research License is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period
2. The License is non-transferable
3. The License shall be in the relevant County Director of Education, County Commissioner and County Governor before commencement of the research
4. Excavation, mining and collection of specimens are subject to further necessary clearance from relevant Government Agencies
5. The License does not give authority to transfer research materials
6. NACOST may monitor and evaluate the licensed research project
7. The Licensed shall submit one hard copy and upload a soft copy of their final report (thesis) within one of completion of the research
8. NACOST reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and Innovation
P.O. Box 39023, 00100 Nairobi, KENYA
Landline: 020-4007900, 020-2223436, 020 33 10571, 020 8801077
Mobile: 0713 788 787 / 0723 496 242
E-mail: dfg@nacost.go.ke / registry@nacost.go.ke
Website: www.nacost.go.ke
APPENDIX VI: COUNTY DIRECTOR OF EDUCATION

AUTHORISATION LETTER

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING
AND BASIC EDUCATION

Telegram: “SCHOOLING” Machakos
Telephone: Machakos ( 
Fax: Machakos
Email: edgemachakos@yahoo.com
When replying please quote

MKS/ED/CDE/R/4/VOL.3/132

OFFICE OF THE
COUNTY DIRECTOR OF
EDUCATION
P.O. BOX 2666-90100,
MACHAKOS

Date: 1st November, 2019

Mr. Boniface Kavita
Kenyatta University

REF: RESEARCH AUTHORIZATION.

Reference is made to the letter from National Commission for Science, Technology and
Innovation Ref: NACOSI/P/19/2094 dated 16th October, 2019.
You are hereby authorized to carry out your research on, “Influence of Principals’
Instructional supervision on students’ academic performance in public secondary
schools in Machakos County.” for a period ending 16th October, 2020.

NANCY A. ANDI
FOR: COUNTY DIRECTOR OF EDUCATION
MACHAKOS
APPENDIX VII: COUNTY COMMISSIONER

AUTHORISATION LETTER

THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: 21000 and 21002 - 06100
Email Address: countycommissioner@gmail.com
Fax No. 044-21599

OFFICE OF THE
County Commissioner
P.O. Box 1 - 90100
MACHAKOS.

When replying please quote:

REF NO.CC/ST/ADM5/9VOL.111/155

DATE: 1st November, 2019

The Deputy County Commissioners
MACHAKOS COUNTY

RE: RESEARCH AUTHORIZATION: MR. BONFACE KAVITA

The National Commission for Science, Technology and Innovation has authorized the above named researcher to carry out a research on “Influence of principals’ instructional supervision on students’ academic performance in public secondary schools in Machakos County Kenya”. For the period ending 16th October, 2020.

Please be notified and accord him the necessary assistance.

FELIX NZIIOKA
For: COUNTY COMMISSIONER
MACHAKOS
APPENDIX VIII: A MAP OF MACHAKOS COUNTY
APPENDIX IX: SPSS OUTPUT TABLE FOR INDEPENDENT T-TEST ON INSTRUCTIONAL SUPERVISORY PRACTICES

<table>
<thead>
<tr>
<th>The principal enhances:</th>
<th>Levine’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class room observation</td>
<td>.085</td>
<td>.770</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>7.867</td>
<td>.005</td>
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<tr>
<td>Equal variances not assumed</td>
<td>1.573</td>
<td>.061</td>
</tr>
<tr>
<td>Peer teaching</td>
<td></td>
<td></td>
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<tr>
<td>Equal variances assumed</td>
<td>89.326</td>
<td>.000</td>
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<tr>
<td>Equal variances not assumed</td>
<td>1.331</td>
<td>.061</td>
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<tr>
<td>Professional teaching documents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>13.950</td>
<td>.000</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>11.199</td>
<td>.084</td>
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</table>
APPENDIX X: SPSS OUTPUT TABLE FOR INDEPENDENT T-TEST ON PERCEPTION OF TEACHERS TOWARDS PRINCIPALS’ SUPERVISION

<table>
<thead>
<tr>
<th></th>
<th>Levine’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positively enhancing teaching</td>
<td>4.476</td>
<td>.035</td>
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<tr>
<td>Equal variances assumed</td>
<td>4.09</td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
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<td></td>
</tr>
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<td>Equal variances assumed</td>
<td>1.764</td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>.401</td>
<td></td>
</tr>
<tr>
<td>Improving teaching competency</td>
<td>39.34</td>
<td>.000</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.31</td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>.619</td>
<td></td>
</tr>
<tr>
<td>Improving performance</td>
<td>.559</td>
<td>.455</td>
</tr>
</tbody>
</table>
APPENDIX XI: SPSS OUTPUT TABLE FOR INDEPENDENT T-TEST ON INSTRUCTIONAL RESOURCES PROVIDED BY PRINCIPALS

<table>
<thead>
<tr>
<th>The principal as instructional supervisor provides:</th>
<th>Levine's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>ICT integration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.342</td>
<td>.247</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sufficient textbooks</td>
<td>8.361</td>
<td>.004</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>.763</td>
<td>.383</td>
</tr>
<tr>
<td>Innovation on available teaching resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.709</td>
<td>.000</td>
</tr>
<tr>
<td>Lab apparatus and reagents</td>
<td>56.373</td>
<td>.000</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>2.488</td>
<td>.077</td>
</tr>
</tbody>
</table>
APPENDIX XII: SPSS OUTPUT TABLE FOR INDEPENDENT T-TEST ON INTERVENTION TO ENHANCE EFFECTIVE INSTRUCTIONAL SUPERVISION

<table>
<thead>
<tr>
<th>In order to enhance efficiency in instructional supervision, the principal should:</th>
<th>Levine's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Relate collaboratively</td>
<td>Equal variances assumed</td>
<td>29.790</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>1.085</td>
</tr>
<tr>
<td>Spent more time in supervision than administration</td>
<td>Equal variances assumed</td>
<td>.060</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>3.153</td>
</tr>
<tr>
<td>Regular engagement of teachers in supervision</td>
<td>Equal variances assumed</td>
<td>12.687</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>1.815</td>
</tr>
<tr>
<td>Engaging teachers in servicing planning</td>
<td>Equal variances assumed</td>
<td>3.684</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>0.217</td>
</tr>
</tbody>
</table>

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## APPENDIX XIII: PSEUDO NAMES FOR SUBCOUNTIES

<table>
<thead>
<tr>
<th>Pseudo name</th>
<th>Real sub county name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWL</td>
<td>Mwala</td>
</tr>
<tr>
<td>MVK</td>
<td>Mavoko</td>
</tr>
<tr>
<td>MYD</td>
<td>Yatta</td>
</tr>
<tr>
<td>MKT</td>
<td>Kathiani</td>
</tr>
<tr>
<td>MKD</td>
<td>Kangundo</td>
</tr>
<tr>
<td>MTG</td>
<td>Matungulu</td>
</tr>
<tr>
<td>MCD</td>
<td>Machakos central</td>
</tr>
<tr>
<td>MSG</td>
<td>Masinga</td>
</tr>
</tbody>
</table>
## APPENDIX XIV: WORKING PLAN

<table>
<thead>
<tr>
<th>Period</th>
<th>The activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2017 to April 2019</td>
<td>Research proposal submission</td>
</tr>
<tr>
<td>August 2019</td>
<td>Research instruments’ piloting.</td>
</tr>
<tr>
<td>October 2019 to March 2020</td>
<td>Collection, organisation and analysis of data.</td>
</tr>
<tr>
<td>March 2020 to May 2020</td>
<td>Writing of the thesis report.</td>
</tr>
<tr>
<td>May 2020 to August 2020</td>
<td>Production and submission of thesis report.</td>
</tr>
<tr>
<td>May 2021 to August 2021</td>
<td>Defence and corrections</td>
</tr>
<tr>
<td>August 2021</td>
<td>Submission of final corrected thesis report</td>
</tr>
<tr>
<td>December 2021</td>
<td>Graduation</td>
</tr>
</tbody>
</table>
## APPENDIX XV: RESEARCH BUDGET

<table>
<thead>
<tr>
<th>Description of the research activity</th>
<th>Amount in Ksh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing and reproduction of the proposal</td>
<td>42 000</td>
</tr>
<tr>
<td>40 reams of foolscaps @ Ksh 500</td>
<td>20 000</td>
</tr>
<tr>
<td>Photocopying services</td>
<td>20 000</td>
</tr>
<tr>
<td>Subsistence</td>
<td>25 000</td>
</tr>
<tr>
<td>Binding expenses</td>
<td>20 000</td>
</tr>
<tr>
<td>Transport cost</td>
<td>20 000</td>
</tr>
<tr>
<td>Internet and airtime</td>
<td>15 000</td>
</tr>
<tr>
<td>Contingencies</td>
<td>25 000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>187 000</strong></td>
</tr>
</tbody>
</table>