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An Examination of the relationship between induction of newly recruited teachers and students' academic achievement in public primary schools in Nyandarua South Sub-County.

Ndwiga, Eston Murithi
School of Humanities and Social Sciences
Strathmore University

AN EXAMINATION OF THE RELATIONSHIP BETWEEN INDUCTION OF NEWLY RECRUITED TEACHERS AND STUDENTS' ACADEMIC ACHIEVEMENT IN PUBLIC PRIMARY SCHOOLS IN NYANDARUA SOUTH SUB-COUNTY

Ndwiga Eston Murithi

110108

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School of Humanities and Social Sciences

Strathmore University

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DECLARATION

I declare that this dissertation is my original work and has not been previously submitted and approved by Strathmore University or any other institution for the award of a degree. To the best of my knowledge and belief, this dissertation is original and borrowed materials have been duly acknowledged.

Ndwiga Eston Murithi
110108

Signature: ..... Date: 18/7/2021

Approval

This research dissertation has been reviewed and approved for examination purposes.

Dr. Charles Sotz
School of Humanities and Social Sciences
Strathmore University

Signature: ..... Date: 29-VII-21

ABSTRACT

Students' academic achievement is the primary goal of learning institutions in Kenya, especially at basic level (Primary and Secondary schools). Effort by the government, parents and other stakeholders are aimed at ensuring students get best academic results among other achievements. Academic achievement by students is the basis for placing Kenya Certificate of Primary Education (KCPE) graduates to various classes of secondary schools in the country. Those who attain highest marks in this KCPE are placed in national schools. Owing to the need for students to get high academic achievement, Ministry of Education, Teachers' Service Commission (TSC), and school boards of management have always, implicitly and explicitly, worked on various programmes to induct newly employed teachers in an effort to improve students' academic achievements among other reasons. The government could be wasting limited resources on an activity that is not productive. This study aimed at investigating whether a relationship between induction of newly recruited teachers and students' academic achievement exist. Findings of this study will inform Ministry of Education, TSC and school boards of management on whether to intensify induction programs or consider other measures to improve students' academic achievement. This academic work was founded on Social Cognitive Theory by Albert Bandura. It employed quantitative research design and used closed-ended questionnaires and document analysis to collect data from newly recruited teachers (those recruited between 2015 and 2019). Secondary data collection was by analysing records with details of students' KCPE academic achievement from Sub-County education office. Data was analysed using IBM SPSS Statistics Version 23. Analysis of data was by determination of descriptive statistics, Spearman's correlation coefficients and significant values, T-test and Regression analysis. T-test was used to compare mean scores for various schools where teachers were inducted and where teachers were not inducted. The study did not find significant relationship between induction of newly employed teachers and students, academic achievement. Further, KCPE mean scores for students taught by teachers who had been inducted were not significantly different from those of students taught by teachers who had not been inducted. Teachers' Service Commission (TSC) should review current ways of inducting teachers with a view to improving it. TSC should prepare a comprehensive induction program to be applied uniformly to all teachers in the country. Government of Kenya through the Ministry of Education should provide enough resources in form of tied grants to all schools and its agents to create capacity to carry out comprehensive teacher induction across the country.

Keywords: Induction; public primary schools; newly-recruited teachers; Nyandarua South Sub-County; students' academic achievement

DEDICATION

I dedicate this research dissertation to my family: my wife Lilian Nyaga, my son Linus Murithi and my daughter Prita Murithi. They give me reasons to smile every day.

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LIST OF ABBREVIATIONS

APBET	Alternative Provision of Basic Education and Training
IBM SPSS	A software used to analyse data in quantitative research
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
MOE	Ministry of Education
TSC	Teachers' Service Commission
NACOSTI	National Commission for Science, Technology & Innovation.
TIMEC	Teacher Induction, Mentorship and Coaching.

DEFINITION OF KEY TERMS

Induction/Orientation A step by step guidance of a newly employed teacher by an experienced peer/officer in order to make them gain knowledge of the environment, professional requirement and the best practices faster.

Students Pupils in primary school, especially those in senior class (class 8).

Students' Academic Achievement Mean marks obtained by candidates (class eight pupils) in various subjects in examinations done by the whole sub-county. The subjects Include English, Kiswahili, Mathematics, Science and social studies

T-test A test that in used to compare means of distributions to find out whether they are significantly different. T-test can be calculated using SPSS and/or Excel (a Microsoft office software).

Public Primary Schools Primary schools that are fully sponsored by the government. Such schools receive teachers and other resources mainly from the government.

Cognitive Factors This refers to knowledge, attitude, and expectations of both the mentor and the mentee during the induction process. A mentor has certain expectations on the mentee by the end of the induction period. On the other hand, the mentee has some expectations from the mentor. The attitude of the mentor towards the profession and the school will greatly influence the attitude of the new teacher. Knowledge cuts across the mastery of content and the professional requirement of the teacher. Knowledge, attitude and expectations of

the mentor is expected to greatly influence the knowledge, attitude and expectations of the mentee.

Behavioural Factors Refers to the skills, practice and self-efficacy of the mentee after the induction process. Skills refers to the know how to deal with students and teachers and all other members of the school community. How to prepare lessons and deliver them skilfully, classroom management, handling of students discipline among other skills. Practice is the process of applying teaching skills within the school to meet the expectations of the mentor and/or employer. Self - efficacy is trusting in own capabilities to organize and perform duties

Motivation It is the drive to perform work conscientiously. This drive can be intrinsic or extrinsic. Intrinsic motivation is when the drive is coming from within the individual. On the other hand, extrinsic motivation is when the drive is geared towards the attainment of a certain reward. Mentors can influence mentees to develop intrinsic motivation.

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

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CHAPTER ONE
INTRODUCTION

1.1 Introduction

This chapter presents background of study, statement of the problem, overall research aim, research objectives, research questions, research hypothesis, significance of the study and delimitations of the study.

1.2 Background of study

To ensure that newly employed teachers acquire sufficient professional knowledge, skills, attitude and self-efficacy, TSC has charged its agents with the mandate of inducting teachers. Teachers' Service Commission requires registered teachers to undertake career progression and professional development programmes (TSC Act, 2012) as part of induction process. Newly employed teachers in Kenya are expected to get induction from principals, senior teachers, inspectors and resource persons in teachers' centres (Indoshi, 2003). According to regulation 41 of TSC Code of regulations (2015), any person joining teaching service must comply with certain standards. They include but not limited to; "use of appropriate teaching and learning resources", "be proficient and possess mastery of the subject content", "have mastery of appropriate pedagogical skills" and " plan and effectively implement each teaching and learning activity". To ensure this happens, regulation 42 (2) (i) of TSC code of regulations (2015), empowers heads of institutions to induct newly recruited teachers and "ensure that mentoring programmes are in place on the professional requirements".

Newly employed teachers face challenges related to the curriculum, pedagogy, relationships and communication with colleagues, students and parents, among others (Alhamad, 2018; Dimitroff & Dimitroff, 2018). These challenges, if unchecked, will lower learners' academic achievement. Newly employed teachers also face motivational, behavioural and cognitive challenges that may hinder them from improving students' academic achievement. Properly executed induction is instrumental in mitigating some of the challenges newly employed teachers face, and the attendant effects on the learner (Horn, 2018).

Student academic achievement is the main measure of success and teacher output in Kenyan education system, especially at basic level (primary and secondary schools). Education stakeholders (parents, teachers, local community, sponsors and the Ministry of Education), are interested in academic achievement of students (Lydiah & Nasongo, 2009). Every year, schools are ranked based on academic achievement in KCPE and KCSE examinations. Schools are evaluated using students' academic achievement data and teachers are consequently rewarded and cerebrated when schools and teaching subjects are highly ranked in national examinations (Heck, 2009). In many schools and sub-counties, "prize giving ceremonies" are organized to publicly award teachers whose students post impressive academic achievement in national examinations (Cherongis, 2010, cited in Korir & Kipkemboi, 2014).

Teachers' employer, Teachers' Service Commission (TSC), mainly consider Students' academic achievement when promoting teachers to positions of management in schools (Jonyo & Jonyo, 2017). According to regulation 73 (a) of Code of Regulations for Teachers (2015), promotion of a teacher will be based on "merit and ability as reflected in teachers' work, performance and results". In the case of private schools, academic achievement in national examinations is the main factor considered by parents before deciding on whether to enrol their children in particular schools (Ngare, 2018). Those with highest KCPE scores are placed in the "best" secondary schools while those with highest KCSE score are placed to pursue "high ranking" (by societal standards) degree courses such as Bachelor of Medicine & Bachelor of Surgery. The minimum entry grade to pursue Bachelor of Medicine & Bachelor of Surgery degree is B+ (plus) with a minimum of a B+ in each of the following subjects: English/Kiswahili, Mathematics/Physics, Biology and Chemistry (Obwoge, Priscah, Mohamed, Keraro, & Kangethe, 2017). Bright students from financially unstable families are awarded scholarships such as "Equity Bank Wing to Fly Scholarship Program" on account of excellent academic achievement in KCPE and KCSE. In 2016, "Equity Bank Wing to Fly Scholarship Program" sponsored 2000 students (Kimani, 2017).

According to Indoshi (2003), induction of newly recruited teachers is never uniform, schools lack formal induction procedures, with teachers not being taken through induction process in some cases. This could mean that some teachers are never equipped with prerequisite knowledge, attitude and skills required to guide students in an effort to improve academic achievement.

Success of induction programs depends on commitment of TSC agents responsible in ensuring that the process is undertaken. Recently (May, 2020), Teachers' Service Commission released a policy on "mentorship and coaching in the teaching service". In this policy, all TSC agents (regional directors of education, county directors of education, sub-county directors of education and heads of institutions) are assigned specific roles in the institutionalization of "Teacher Induction, Mentorship and Coaching" (TIMEC) programmes.

Newly recruited teachers in Kenya are hired on probationary terms for six months (The seventeenth schedule in TSC Code of Regulations for Teachers (2015) provides a sample letter of probationary appointment for the newly appointed teachers). One month to the expiry of six months probationary period, the teacher (together with the head teacher/Principal) is expected to apply for the confirmation of appointment. While applying for confirmation of appointment, the teacher is expected to assess/appraise himself/herself on "professional conduct" and "performance of duty". The head teacher/Principal is expected to make comments on suitability of the teacher for confirmation based on induction given. The decision by TSC to confirm or extend probationary period of the teacher is greatly influenced by the head teacher's/Principal's comments. The eighteenth schedule in TSC Code of Regulations for Teachers (2015) provides a sample letter of "application for confirmation of appointment" for the newly appointed teachers.

According to Mcbride (2012), induction programs during the first years of employment lead to more effective teaching skills learned earlier, improved learning achievement for students and low rates of attrition. Gitonga (2015) found out that orientation make new teachers learn school environment faster, improve professional development and performance, become team players and have more confidence and self-esteem. Notably, induction of newly employed teachers seems to have many benefits to the teacher. It was necessary to find out whether induction programs contribute to students' academic achievement in primary schools of Nyandarua South Sub-County, which was the focus of the study.

1.3 Statement of the problem

Studies in Nyandarua County, both at the primary and secondary levels have shown that teacher-related factors affect learners' achievement. In his study, Kimotho (2016) established that poor students' achievement in Business Studies could be attributed to factors such as passive teaching and lack of planning by teachers. Watene (2020) argued that ineffective professional development among teachers is associated with learners' poor academic achievement. Teacher induction helps bridge the gap between teacher training and actual classroom teaching, which is linked to learners' academic achievement (Bastian & Marks, 2017).

Newly employed teachers in Kenya are expected to get induction from school principals, senior teachers, inspectors and resource persons in teachers' centres (Indoshi, 2003). Despite known benefits of teacher induction, findings of research on induction separately by Isenberg et al. (2009) and Wechsler et al. (2010) showed that induction of newly employed teachers does not significantly contribute to academic improvement of students. This implies that other factors and not induction of newly employed teachers contribute to improvement of students' academic achievement. This means that teachers' employer (TSC) does not get value for resources used when its agents organize for induction programmes of the newly employed teachers at Sub-County headquarters. It also means that some schools could be spending time and resources on unproductive activities such as induction of newly employed teachers at the expense of activities that could improve student academic achievement.

Gitonga (2015), Wood and Stanulis (2009) identified a research gap on teacher induction, and suggested further research to investigate the effect of teacher induction on students' academic achievement. Based on this, it is necessary to investigate whether there is a relationship between induction of newly employed teachers and the students' academic achievement in Kenya, which is the concern of the current study.

1.4 Overall research aim

This study aimed at examining whether a relationship between induction of newly employed teachers and student's academic achievement in public primary schools in Nyandarua South Sub-County existed.

1.4.1 Research objectives

i. To find out whether an association exist between cognitive factors of newly employed teachers and students' academic achievement.

ii. To establish the extent to which behavioural factors of the newly employed teacher would predict students' academic achievement.

iii. To determine whether type of motivation of newly recruited teacher can predict students' academic achievement.

1.4.2 Research questions

i. Is there an association between cognitive factors of newly employed teacher and students' academic achievement?

ii. To what extent can behavioural factors of the newly employed teacher predict students' academic achievement?

iii. Can type of motivation of newly recruited teacher be used to predict students' academic achievement?

1.4.3 Research hypothesis

i) There is no association between cognitive factors of newly employed teachers and students' academic achievement.

ii) There is no extent to which behavioural factors of newly employed teachers can be used to predict students' academic achievement.

iii) Type of motivation of newly employed teachers cannot be used to predict students' academic achievement.

1.5 Significance of study

This study is useful to the Ministry of Education, Teachers' Service Commission, and school boards of management, head teachers and senior teachers. Its outcome led to recommendations on the need to intensify induction programs of newly employed teachers or devise different ways of ensuring better academic achievements among students by TSC and MoE. Its outcome may trigger other researchers to investigate whether situations are similar in other regions of the country.

1.6 Delimitations of the study

This research was conducted in public primary schools in Nyandarua South Sub-county. Nyandarua South Sub-County has its headquarters in Engineer town. It borders the Arberdare Forest, Kinangop, Kipipiri and Naivasha Sub-Counties. From Engineer town along Engineer-Njabini road, the boundary between Nyandarua South Sub-County and Kinangop Sub-County is at Turasha River. The boundary between Nyandarua south Sub-County and Kipipiri Sub-County is at Mawingo shopping centre along Engineer-Olkalou road. On the opposite ends, it borders with Arberdare Forest and Naivasha Sub-County at Kirima (a short distance from National Youth Service).

1.7 Limitations of the study

Exclusive use of quantitative data may be a possible setback as it may not give a full picture of the study at hand. Closed-ended questionnaires were issued only to newly inducted teachers. This is a major setback as views of mentors and head teachers were not considered by the study.

CHAPTER TWO

LITERATURE REVIEW

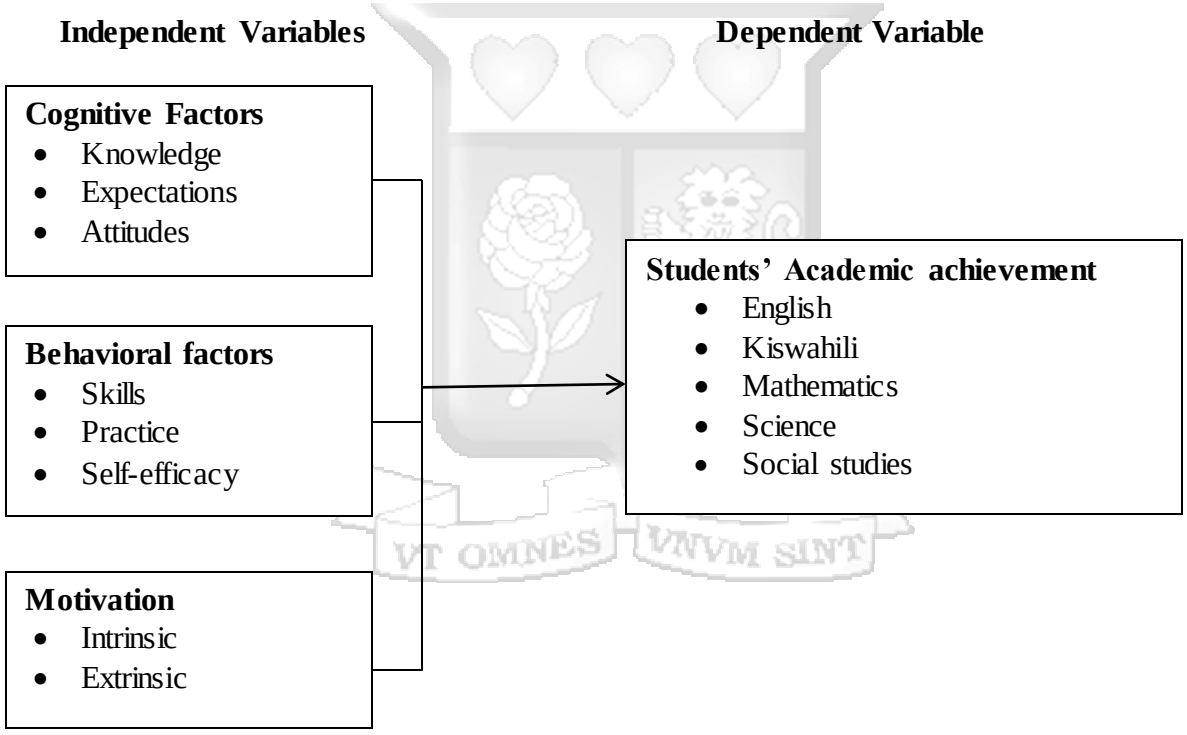
2.1 Introduction

This chapter presents conceptual framework, theoretical framework of the research, research hypothesis, related literature (global context, regional & local context, cognitive factors, behavioural factors, motivation and students' academic achievement) and conclusion.

2.2 Conceptual framework

Relationship of independent and dependent variables is summarised in gifure 2.1 below.

Figure 2.1: Conceptual framework



2.3 Theoretical Framework

2.3.1 Social learning theory

Social learning theory which later developed to social cognitive theory was developed by Albert Bandura who argued that human behavior is learned from the environment through observation and modelling. Children learn by what they observe in social situations. Since children are active thinkers – thinking about their behavior and consequences - there is always mediation/thought process that occur between stimuli and response (observation and modelling).

There are three basic models of observational learning namely live model, symbolic model and verbal instructional model. A live model involves an individual demonstrating a behavior. A symbolic model involves real or fictional characters displaying behaviors in books, films, television programs, or online media. A verbal instructional model involves descriptions and explanations of a behavior.

Mediation has four stages-attention, retention, reproduction and motivation. The person modelling behaviour must be interesting so as to draw attention of children. Children must be able store and remember the behaviour that was modelled and be able to recall it. They should also have capacity to perform and practice the modelled behaviour in order to advance skills. Children make conscious decision on whether to continue modelling the behaviour or not based on reward they receive. Reward can be in form of praise by an adult or peers or just a gift. Sometimes, children can get motivated to continue modelling a behaviour after observing their peers get rewards for modelling a similar behaviour.

Social cognitive theory could not account for all behaviour, feelings and thoughts of children. For instance, it could not explain why some children would live in an environment full of violence and aggression yet grow to be peaceful adults. Some children also grew in abject poverty yet were able to obtain college degrees and successful career in adulthood. With this consideration in mind, Social Learning theory was renamed Social Cognitive theory.

According social cognitive theory, there are three independent variables which interact in a continuous reciprocal manner. These variables are cognitive factors, behavioural factors and environmental factors. Cognitive factors are knowledge, expectations and attitude/emotions/feelings. Behavioural factors are skills, practice and self-efficacy, while environmental factors are norms, access in community and influence on others.

In a school setup, newly recruited teachers can improve skills, attitudes, knowledge and self-efficacy by observing mentors teach lessons, interact with colleagues and when they get rewarded after attaining some set standards or targets. If mentors are good role models, newly employed

teachers can develop intrinsic motivation to behave like them or work like them to get to their leve of performance.

2.4 Review of literature

2.4.1 Global context

According to Huling and Resta (2001), induction process improves professionalism of both the newly employed teacher being mentored and the experienced teacher. If teachers are properly mentored through induction, they will not only stay longer in the profession but will also improve teaching capabilities and effectiveness (Weiss & Weiss, 1999). This suggests that induction improves the capacity of teachers to carry out functions which could imply that such teachers are likely to deliver better teaching outcomes. According to Stansbury and Zimmerman (2000), teachers are said to be effective when they have acquired high teaching standards that will enable them to meet diverse classroom needs of all students.

A study by Jin et al. (2011), found that important factors such as good leadership and motivation could predict to a greater extent retention of newly enrolled students. This is important because for students to deliver educational results, they must spend of time in school. Saltonstall (2013) found that leaners self-efficacy is one of the factors that can contribute to good academic achievement by students. It is unlikely that learners will have self-efficacy when teachers are lacking it. According to Willms, Friesen and Milton (2009), Students want to engage in respectful interactions and relationships in classrooms, outside the classroom and within school environment. This implies that there is need to mentor newly employed teachers on how to interact with students. Contrary to the above finding of Willms, Friesen and Milton (2009), social skills contributed in a small way to student's academic achievement (Lotkowski, Robbins & Noeth 2004)

According to Thomas et al. (2017), universities and colleges intending to perfect classroom experiences for both teachers and learners and improve student's achievement, should "adopt an evidence-informed, whole-institution approach to achieve change" (p. 28). This requirement may not be achieved if members of teaching staff are not mentored. Academic mind-sets to a great extent contribute directly to student's academic achievement (Farruggia et al., 2018). According to French et al. (2003) and Kauffmann et al. (2007), one of the factors of mind-sets is motivation. Induction should therefore aim at increasing motivation of newly recruited teachers. Teachers

should strive to identify motivation-needy students to assist and encourage to engage more in learning process, which implies that newly employed teachers should be inducted to equip them with capacity to identify such students.

Dunleavy, Milton, and Crawford (2010) found out that, ordinarily, students want to experience work that is meaningful; they want to work with ideas that matter while solving real problems, and know that learning contributes to making a difference in the world. This requirement can only be met by a well mentored teacher. The basic reason of interacting with students has always been to improve their achievements, character and self-esteem to enable them love being in school (Taylor & Parsons, 2011). According to Johnson (2003), Information Communication and Technology, if properly used, can "invoke dream in the minds of visionary educators who saw endless potential for altering traditional notions of teaching and learning" (p. 2). This means that there is need to induct newly recruited teachers on how to Information Communication and Technology in class rooms.

Sansone et al. (2011) noted that learners who are interested in digital learning through use of computers can gain knowledge and self-drive because they perform tasks of own choice with the computers and are able to make new discoveries on their own. To improve students' academic achievement, motivation to learn and be in school, teachers should be inducted to prepare instructional materials and programs that are interesting and exciting to students. Such instructional materials and programs should be relevant to students' needs (Jennifer et. al., 2016). To increase effectiveness of newly employed teachers and length of time they stay in the profession, policymakers should prioritize on the-job professional development of such teachers (Papay & Kraft, 2015). According to DeAngelis et al. (2013), organized intensive induction programs can help a teacher to improve professional outcomes. These outcomes include students' academic achievement.

Rockoff (2008) discovered that newly employed teachers who spend lots of time with mentors in school, post higher learners' achievements in English and Mathematics compared to colleagues who spend less time with their mentors. Spending resources on newly employed teachers is a sure way of improving professional outcomes and increasing the length of time in the profession

(Ingersoll & Strong, 2011). According to Mendez and Rona (2010) there is a positive relationship between industrial attachment and higher academic achievement for engineering students. This means that newly employed teachers should be inducted to engage in practical teaching/learning processes. According to Green (2011), completion of a placement year on average, has been shown to improve final classification award achieved by students. Similarly, Mansfield (2011) found out that industrial attachment resulted in higher academic achievement of students at the end of the year.

Flynn (2013,) observed that "whatever the length of the placement, that workplace experience is enormously valuable." Administrators in a school should consider opinions of students and teachers as well as intrinsic and extrinsic motivation while planning for activities and programs in a school (Celikoz, 2010). Teachers should always strive to increase students' concentration in class. In so doing, they should first understand activities and classroom practices that capture students' attention and concentration. These activities are learnt by newly inducted teachers in induction programs. These practices should always be incorporated in the lessons to ensure that students are always stimulated, involved and entertained throughout the lesson (Bunce, Flens, & Neiles, 2010). Only a well inducted teacher has capacity to incorporate such practices.
Reason et al. (2006) discovered that students are more likely to improve academic achievement when they feel that they have academic support from teachers compared to when they don't feel supported. When mentors prepare adequate instructional materials and when mentoring program is well organized, newly employed teachers who are taken through the mentorship process can significantly improve academic achievement of students (Fletcher et al., 2008). Experts from the university should assess school mentorship programs by observing the engagement between mentors and newly employed teachers in schools (Stanulis, 2006). This would lead to identification of gaps and subsequent management of such gaps. According to Hargreaves (1994), to improve schools, "one should be prepared to invest in professional development of teachers, within the context of institutional development".

Additionally, mentor preparation through training is a crucial aspect of improving classroom activities of newly employed teachers (Evertson & Smithey, 2000). Newly employed teachers who are inducted by trained mentors have better classroom control and engage students better than

newly employed teachers whose mentors receive no training (Evertson & Smithey, 2000). Additionally, McIntyre and Hagger (1996) stated that benefits of mentoring newly employed teachers include "reduced feelings of isolation, increased confidence and self-esteem, professional growth, and improved self-reflection and problem-solving capacities". Tschannen-Moran, Hoy, and Hoy (1998) reported that teacher's self-efficacy is associated with increased student academic achievement, student motivation and students' sense of efficacy. Induction of newly employed teachers as practiced in Illinois significantly improves newly employed teachers' sense of efficacy and professionalism but does not statistically bring about a significant difference in student academic achievement among beginning teachers receiving any induction and those not receiving induction (Wechsler et. al., 2010).

Two separate studies in California and one in a large, urban, east coast district in the United States, revealed that newly employed teachers who engage in induction and mentorship programs had their students greatly improve their academic achievements (Ingersoll & strong, 2011). Even then, the same study realized that in the New York City, there were mixed effects — some positive effects, and others no effects. According to Rockoff (2008), there were no significant differences in student achievement gains between newly hired, inexperienced teachers who received mentoring and newly hired, experienced teachers who did not receive mentoring. This implies that experience and not induction of newly employed teachers is instrumental to achievement of higher academic scores by students. Teachers who went through more hours of induction and mentorship had higher students' academic scores in English and mathematics compared to those who had lesser hours (Rockoff, 2008). It can be concluded that duration of mentorship is an important consideration when designing mentorship and induction programs.

Academic achievement for students taught by teachers who were taken through induction and mentorship programs for two years were significantly different from those of students taught by teachers who did not receive induction and mentorship for the same period (Glazerman et. al, 2010). Induction and professional development of newly employed teachers should take more than one year (Moir et al. 2009). This means that the in-service induction that is conducted for a day or even for some few days by some Sub-Counties in Kenya is unlikely to yield any meaningful academic achievement by students. Students associated with full-release mentors had better

achievement gains than students associated with site-based mentors (Fletcher & Strong, 2009). Academic achievement of students who were taught by teachers who received comprehensive induction for one year, teacher professionalism and attitudes were not significantly different from those of the teachers who only received "standard district support" (Glazerman et al., 2008). This suggests that one year is not long enough to produce the desired induction results.

School districts have since 1990s increasingly engaged in inducting newly employed teachers with an aim of reducing teacher attrition which is not only costly to the districts but also reduces the academic achievement of students (Kapadia et. al., 2007). This means that presence of a teacher in school and classrooms is an important factor in ensuring that students attain higher academic scores. Notably, no state in the US has perfected its induction policy and as many as half the states do not require beginning teachers to have mentorship or induction (Golirick et. al., 2012). This observation is also true in Kenya where induction of new teachers is not uniform and sometimes does not happen (Indoshi, 2003). According to Darling-Hammond and Youngs (2002) students gain more as a result of teacher-related factors than other factors like class size and class composition. For teachers to influence students positively, they must be well trained, mentored and inducted into the profession. Such teachers are effective and can always produce better students' academic achievement regardless of the curriculum approach, pedagogy or materials used (Allington, 2003).

According to Sanders (1996), students who were assigned most effective teachers continuously for three years recorded academic achievement improvement that were 54% more than the improvement of students who were assigned least effective teachers continuously for three years. Students' academic achievement is greatest after teachers have been in teaching profession for at least 7 years (Darling-Hammond, 1997). This means that induction of newly employed teachers should be conducted for several years, and not just a few months after reporting to their stations. Induction programs are reported to be successful if they are able to reduce teacher attrition and improve professionalism (Weiss & Weiss, 1999). Organized induction programs have capacity to benefit both the newly employed teacher and the experienced teacher (Huling & Resta, 2001). This means that experienced teachers should take time to plan for induction programs. According to Rivkin et al. (2005), professional qualifications and teachers' teaching experience are not

significantly related to the students' academic achievement. In Chile, teachers teaching in schools classified as high achieving are appreciated with various rewards by the "National performance Evaluation System of Subsidized Schools" (Organization for Economic Cooperation and Development, 2005). This emphasizes importance of impressive academic achievement by students.

Wright, Horn and Sanders (1997), Observed that teachers are the most important factor that influence student academic achievement. Effective teachers will transmit skills, values and knowledge to learners making them to better academic scores. Learners taught by ineffective teachers are highly likely to record inadequate academic achievement. According to McBride (2012), successful induction programs must be supported by top management in the school. This means that those organizing induction programs should always engage authorities in a school for such programs to get support. Properly implemented induction significantly improves learning since there is a clear guideline to be followed (Runola 2013). Teacher induction programs benefit students since it reduces teacher attrition, making them available in schools to teach students (Lesnieski, 2009). If newly employed teachers are properly inducted during first years of practice, teaching skills will improve, which consequently lead to better students' achievement in class (McBride, 2012).

More studies should however be conducted to determine the effect of regular meetings between mentor and the mentee in an induction process (Moore, 2008). Induction process should not be rushed; it should be conducted step-by-step starting with the most critical information (Runola, 2013). Mentor teachers should be supportive and have confidence in the beginner teacher, give emotional support and engender a trusting relationship between mentor and mentee if the induction process is to be successful (Chantal, 2010). Induction programs that will lead to highly qualified teachers capable of meeting individual needs of all the learners in class should be well researched. Such programs should include beginning teacher' needs and should help to design the desired outcomes (Whisnant, et al., 2005).

According to (Moore, 2008), studies should be done in order to describe perceptions of newly employed teachers on job satisfaction when such teachers are supervised and evaluated by other

teachers, their peers and representatives of professional bodies. Today's beginning teachers are faced by a challenging environment and great expectation from education stakeholders (Whisnant, et al., 2005). Such challenges include emerging issues such as drug and substance abuse among students, lesbianism among girls in schools and depression among students resulting from broken families. According to Runola (2013), successful induction programs should be procedural, emphasize organizational values and should include the specific outcomes to be achieved. Mastering the art of teaching to become an effective professional teacher takes time; it is a process that every newly employed teacher needs to be supported to go through (Whisnant, et al., 2005).

Byrne (2010) observed that strong induction programs are important in schools because they assist newly employed teachers to reach high levels of achievement within a short period of time and they create a positive bond between the teacher and the school. In the end of the induction period, the school should provide newly employed teacher with opportunity to discuss possible areas that still require more training (Runola, 2013). According to Dickson (2008), spending time and energy to familiarize new employees with organization goals, strategy and ways responsibilities will contribute to organization success, will direct them in a common direction and improve motivation in work. This will help to build both referent and expert power which will in turn increase a sense of belonging and engagement among new employees (Dickson, 2008). This suggests that induction programs should be customized so that the needs of the employees are made to match with the objectives of the school.

2.4.2 Regional and Local context

The Teachers' Service Commission (TSC) require every registered teacher to undertake career progression and professional development programmes as may be prescribed from time to time (TSC Act, 2012). Every teacher shall comply with the specified Performance standards in TSC Act (2012) and TSC Code of Regulations (2015). According to TSC Code of Conduct and Ethics (2015), a teacher may engage in teaching or learning activities outside normal school hours to promote education provided that he or she shall not conduct holiday tuition. For a teacher to engage students outside working hours, there is a need to motivate them. In Kenya, teachers are required by law to treat students in a humane way by not subjecting them to torture, degrading treatment, or corporal punishment (Basic Education, Act, 2013). Such information should be provided to a newly employed teacher during induction.

According to a research by Walker, Bush, and Oduro (2006), training of Principals occur after appointment; this is a major setback because newly appointed Principals are left unprepared for their duties such as training newly employed teachers. In Ghana for instance, in-service training is done by international bodies to some selected schools in semi-urban and urban areas (Walker et al., 2006). This implies that induction does not cover all the schools and that Principals who are not well trained may not have capacity to initiate and supervise induction programs in their schools. According to Lyons (2012), teachers should use teaching and learning materials that facilitates easy understanding of abstract concepts, discourages cramming and arouse learners' interest to learn. Knowledge of use of such learning materials should be made available to newly employed teachers during induction. The Government of Kenya empowers Principals to carry out crucial functions that contribute to quality academic output (Ibrahim & Orodho, 2014). Such functions include induction of newly employed teachers. Management practices that ensure there is continuous monitoring and evaluation of academic achievement and motivation of teachers through giving of rewards for good academic results attained by students was observed to better their future achievements (Ibrahim & Orodho, 2014).

Adeogun (2001) in Nigeria concluded that the quality of existing teachers to a large extent influences the quality of the education system. Teachers must be well mentored and trained to be of high quality. Murunga et al. (2013), expressed the need to conduct in-service programs for teachers teaching sciences, mathematics and technical subjects in order to fill any gap that might hinder them from coping with the requirements of the curriculum. Similar thoughts were opined by Musau and Abere (2015). All the education stakeholders are generally interested in the academic achievement of students (Lydiah & Nasongo, 2009). In Kenya, students' achievement in schools is mainly determined by the achievement in examinations (Maiyo & Ashioya, 2009). In primary schools, KCPE is the main examination used to determine achievement.

Placement of students and admission to high schools in Kenya depends greatly on Kenya Certificate of Primary Education achievement (Michael, Miguel & Rebecca, 2004). According to Adeyemi (2010), teachers contribute in a great way to the academic achievement of students. Great commitment by teachers leads to high academic scores by students (Reche et. al. (2012).

According to Barry (2005), conducive school environment leads to high academic achievement by students. In Zambia, Maguswi (2011) concluded that lack of qualified teachers led to poor students' achievement in physics examinations. A similar finding was reported in Nigeria by Adaramola and Obomanu (2011) who observed that consistent poor students' achievement in sciences, mathematics and technical subjects was attributed to lack of qualified teachers teaching these subjects. However, according to a study by Kimani et al. (2013), professional qualifications of teachers and their teaching experience are not necessarily significantly related to students' academic achievement. Teacher experience and qualification does not significantly contribute to improvement of students' achievement in sciences mathematics and technical subjects (Musau & Abere 2015; Musau, Migosi, & Muola, 2013).

In-service professional development for teachers, in other studies too, has insignificant effect on the students' academic achievement (Feng & Sass, 2010). Lack of career growth for teachers contributed to poor students' academic achievement in Nyandarua County (Kimani et al., 2013). Seemingly, career growth of teachers leads to increased satisfaction by teachers, which makes them more committed to their duties leading to increased academic achievement of the students (Musau & Abere 2015). According to Wekesa and Onyunga (2016), project-based learning should be adopted by teachers since it is student-centred and therefore helps in improving learners' attitude which in turn leads to improved academic achievement. Teachers should strive to create trust among the students because this motivates them resulting in high academic achievement (Eamon, 2005). According to Crosnoe et al. (2004), a feeling of a sense of safety by students in school greatly contributes to improved academic achievement regardless of the students' family background. This implies that teachers should be inducted on how to create a safe school environment for learners. According to Muleyi (2008), teachers greatly influence the academic achievement of their students.

According to Odhiambo (2005), the government of Kenya expect teachers to be accountable for what they do in school. This accountability should include ensuring that students record high academic achievement. Schools are mainly assessed using students' academic achievement data and teachers are rewarded and cerebrated when their teaching subjects are highly ranked in national examinations (Heck, 2009). In Kenya, there are annual prize giving days in sub-counties every year where teachers are openly rewarded for the outstanding achievement of their students in

national examinations (Cherongis, 2010, cited in Korir & Kipkemboi, 2014). This emphasizes importance of excellent academic achievement by students. Teachers contribute to good academic achievement by students because they help in interpreting policy and laying down of strategies for actualizing it during their interaction with students (Afe, 2001). According to Yala and Wanjohi (2011), as well as Adeyemi (2010), professional qualifications of teachers and experience are the main contributors to the good academic achievement of students. This implies that induction of newly recruited teachers does not significantly contribute to students' academic achievement. Lateness, inability to complete syllabus, absenteeism are the main teacher factors that contribute to low academic achievement by students in Ghana (Etsy's, 2005).

According to Oredein and Oloyede (2007), teachers who manage students' assignment and homework by guiding students, motivating them, revising with them in class and proving timely feedback, will most likely improve students' academic achievement. Teachers should be well inducted on the above-mentioned areas. Notably, the characteristics of the teachers greatly determine students' attitudes towards learning (Adesoji & Olatunbosun, 2008). Teachers and head teachers have different roles in school. They should use these roles to create an environment suitable for learning in which teachers provide suitable learning materials to learners and learners are free to engage their teachers. This will not only arouse learners' interest to learn but will also improve their academic achievement (Adesoji & Olatunbosun, 2008).

2.4.3 Cognitive factors

According to Lyons (2012), teachers should use teaching and learning materials that facilitates understanding of abstract concepts, discourages cramming and arouse learners' interest to learn. In Zambia, Maguswi (2011) found out that lack of qualified teachers led to poor students' achievement in physics examinations. A similar finding reported in Nigeria by Adaramola and Obomanu (2011), revealed that consistent poor students' achievement in sciences, mathematics and technical subjects was attributed to lack of qualified teachers teaching these subjects. Contrastingly, Kimani et al. (2013), realized that teachers' professional qualifications as well as their teaching experience are in no way related to students' academic achievement. Teacher experience and qualification does not significantly contribute to improvement of students' achievement in sciences, mathematics and technical subjects (Musau & Abere 2015). In-service

professional development for teachers has insignificant effect on the students' academic achievement (Feng and Sass (2010).

According to Wekesa and Onyunga (2016), project-based learning should be adopted by teachers since it is student-centred and therefore helps in improving learners' attitude which in turn lead to improved academic achievement. Teachers should strive to create trust among the students because this motivates them resulting to high academic achievement (Eamon, 2005). According to Yala and Wanjohi (2011), Adeyemi (2010), professional qualifications of teachers and experience are the main contributors to the good academic achievement of students. Characteristics of the teacher greatly determine students' attitudes towards learning (Adesoji & Olatunbosun, 2008). According to Huling and Resta (2001), induction process improves professionalism of both the newly employed teacher being mentored and the experienced teacher mentoring the newly employed teacher. This research seems to reinforce the importance of induction in a school setup. According to Willms, Friesen and Milton (2009), Students want to engage in respectful interactions and relationships in classrooms, outside the classroom and within school environment.

Academic mind-sets to a great extent contribute directly to student's academic achievement Farruggia et al. (2018). According to French et al. (2003) and Kauffmann et al. (2007), one of the factors of mind-set is motivation. According to DeAngelis et al. (2013), organized intensive induction programs can help a teacher to improve professional outcomes. According to Hargreaves (1994), to improve schools, individuals ought to be ready to invest in professional development in an effort to improve teachers. In a research conducted by Sanders (1996) students who were assigned most effective teachers continuously for three years recorded academic achievement improvement that were 54% more than the improvement of students who were assigned least effective teachers continuously for three years. Effective teachers will transmit skills, values and knowledge to learners making them to better their academic scores. According to Byrne (2010), some of the reasons why strong induction programs are important in schools and countries are to assist newly employed teachers to reach high levels of achievement within a short period of time and to create a positive bond between the teacher and the school.

2.4.4 Behavioural factors

In Zambia, Maguswi (2011) found that lack of qualified teachers led to poor students' achievement in physics examinations. A similar finding reported in Nigeria by Adaramola and Obomanu (2011), who observed that consistent poor students' achievement in sciences, mathematics and technical subjects was attributed to lack of qualified teachers teaching these subjects. In-service professional development for teachers, seemingly, has insignificant effect on the students' academic achievement (Feng & Sass, 2010). According to Wekesa and Onyunga (2016), project-based learning should be adopted by teachers since it is student-centred and therefore helps in improving learners' attitude which in turn leads to improved academic achievement. According to Yala and Wanjohi (2011), Adeyemi (2010), professional qualifications of teachers and their experience are the main contributors to the good academic achievement of students.

According to Oredein and Oloyede (2007), teachers who manage students' assignment and homework well by guiding the students, motivating them, revising with them in class and providing timely feedback, will most likely improve students' academic achievement. Teachers and head teachers have different roles in school, which they should use to create an environment suitable for learning in which teachers provide suitable learning materials to learners and learners are free to engage their teachers. This will not only arouse learners' interest to learn but will also improve their academic achievement (Adesoji & Olatunbosun, 2008). If teachers are properly mentored through induction, they will not only stay longer in the profession but will also improve their teaching capabilities and effectiveness (Weiss & Weiss, 1999). According to Stansbury and Zimmerman, (2000), teachers are said to be effective when they have acquired high teaching standards that will enable them to meet diverse classroom needs of all the students.

Saltonstall (2013) found that learners' self-efficacy is one of the greatest factors that can contribute to their good academic achievement. It is unlikely that learners can have self-efficacy when their teacher are lacking it. According to Thomas et al. (2017), universities and colleges intending to perfect classroom experiences for both teachers and learners and improve students' achievement, should "adopt an evidence-informed, whole-institution approach to achieve change" (p. 28). The basic reason of interacting with students has always been to improve their achievements, character and self-esteem to enable them love being in school (Taylor & Parsons, 2011). According to

DeAngelis et al. (2013), well organized intensive induction programs can help a teacher to improve his/her professional outcomes. Teachers should always strive to increase students' concentration in class. In so doing, they should first understand the activities and classroom practices that capture students' attention and concentration. These techniques and practices should always be incorporated in the lessons to ensure that students are always stimulated, involved and entertained throughout the lesson (Bunce, Flens, & Neiles, 2010).

Mentor preparation is a crucial aspect of improving classroom activities of newly employed teachers (Evertson & Smithey, 2000). Newly employed teachers who are inducted by trained mentors have better classroom control and engage their students better than newly employed teachers whose mentors receive no training (Evertson & Smithey, 2000). McIntyre and Hagger (1996) stated that benefits of mentoring newly employed teachers include enhanced confidence, professional growth, and an ability to handle professional-related issues. Tschannen-Moran, Hoy, and Hoy (1998) reported that teachers' self-efficacy is associated with increased student academic achievement, student motivation and students' sense of efficacy. Student achievement gains are much more influenced by a student's assigned teacher than other factors like class size and class composition (Darling-Hammond & Youngs, 2002).

Sanders (1996) observed that students who were assigned most effective teachers continuously for three years recorded academic achievement improvement that were 54% more than the improvement of students who were assigned least effective teachers continuously for three years. According to Wright, Horn and Sanders (1997), Teachers are the most important factor that influence the student academic achievement. Effective teachers will transmit skills, values and knowledge to learners making them to better their academic scores. If newly employed teachers are properly inducted during first years of practice, teaching skills will improve and this will lead to better students' achievement in class (McBride, 2012). Mastering the art of teaching to become an effective professional teacher takes time. Art of teaching is a process that every newly employed teacher needs to be supported to go through (Whisnant, et al., 2005). According to Byrne (2010), some of the reasons why induction programs are important in schools and countries are to assist newly employed teachers to reach high levels of achievement within a short period of time and to create a positive bond between the teacher and the school

2.4.5 Motivation

Management practices that ensure there is continuous monitoring and evaluation of academic achievement, and motivation of teachers through giving of rewards for good academic results has been observed to better teachers' future achievements (Ibrahim & Orodho, 2014). Lack of career growth for teachers contributed to poor students' academic achievement in Nyandarua County (Kimani et al., 2013). Career growth of teachers leads to increased satisfaction by teachers. This makes them more committed to duties leading to increased academic achievement of the students (Musau & Abere, 2015). Teachers should strive to create trust among the students because this motivates them resulting in high academic achievement (Eamon, 2005). Schools are mainly assessed using students' academic achievement data and teachers are rewarded and celebrated when their schools and teaching subjects are highly ranked in national examinations (Heck, 2009).

In Kenya, there are annual prize giving days in sub-counties every year where teachers are openly rewarded for outstanding achievement of students in national examinations (Cherongis, 2010, cited in Korir & Kipkemboi, 2014). According to Oredein and Oloyede (2007), teachers who manage students' assignment and homework well by guiding, motivating and revising with them in class and providing timely feedback, will most likely improve academic achievement. Academic mind-sets to a great extent contribute directly to student's academic achievement (Farruggia et al., 2018). According to French et al. (2003) and Kauffmann et al. (2007), motivation is one pivotal component of one's mind-set. Administrators in a school should consider opinions of students and teachers as well as their intrinsic and extrinsic motivation while planning for the activities and programs in a school (Celikoz, 2010).

Relatedly, Tschannen-Moran, Hoy, and Hoy (1998) reported that teacher's self-efficacy is associated with increased academic achievement, motivation and sense of efficacy. In Chile, teachers teaching in schools classified as high achieving, are appreciated with various rewards by the "National Performance Evaluation System of Subsidized Schools" (Organization for Economic Cooperation and Development, 2005). According to Dickson (2008), spending time and energy familiarizing new employees with the organization goals, strategy and responsibilities will contribute to organization success, direct them in a common direction and improve motivation in

their work. This will help to build both referent and expert power which will in turn increase a sense of belonging and engagement among new employees (Dickson, 2008).

2.4.6 Students' academic achievement

In Kenya, every teacher is expected to comply with specified performance standards in TSC Act (2012) and TSC Code of Regulations (2015). The Government of Kenya empowers Principals to carry out crucial functions that contribute to quality academic output (Ibrahim & Orodho, 2014). Management practices that ensure there is continuous monitoring and evaluation of academic achievement and motivation of teachers through giving of rewards for good academic results attained by students was observed to better their future achievements (Ibrahim & Orodho, 2014). All the education stakeholders are generally interested in the academic achievement of students (Lydiah & Nasongo, 2009). In Kenya, students' achievement in schools is mainly determined by use of achievement in examinations (Maiyo & Ashioya, 2009). Placement of students and admission to high schools in Kenya depends greatly on Kenya Certificate of Primary Education achievement (Michael, Miguel & Rebecca, 2004).

According to Adeyemi (2010), teachers contribute to the academic achievement of students. Commitment by teachers leads to high academic scores by students (Reche et al. 2012). According to Barry (2005), conducive school environment leads to high academic achievement by students. In Zambia, a research by Maguswi (2011) found that lack of qualified teachers led to poor students' achievement in physics examinations. A similar finding was reported in Nigeria by Adaramola and Obomanu (2011) who observed that consistent poor students' achievement in sciences, mathematics and technical subjects was attributed to lack of qualified teachers teaching these subjects.

Safety of students in schools contributes to improvement of academic achievement regardless of the students' family background (Crosnoe, Johnson, & Elder Jr, 2004). This implies that teachers should create a safe school environment for the learners. According to Muleyi (2008), teachers greatly determine academic achievement of their students. Schools are mainly assessed using students' academic achievement data and teachers are rewarded and cerebrated when their schools and teaching subjects are highly ranked in national examinations (Heck, 2009). According to Yala

and Wanjohi (2011) as well as Adeyemi (2010), professional qualifications of teachers and their experience are the main contributors to the good academic achievement of students. According to Oredein and Oloyede (2007), teachers who manage student's assignment and homework well by guiding the students, motivating them, revising with them in class and providing timely feedback, will most likely improve students' academic achievement.

Teachers and head teachers have different roles in school. They should use these roles to create an environment suitable for learning in which teachers provide suitable learning materials to learners and learners are free to engage their teachers. This will not only arouse learners' interest to learn but will also improve academic achievement (Adesoji & Olatunbosun, 2008). Rockoff (2008) established that newly employed teachers who spend extended period of time with mentors in school, post higher learners' achievements in English and Mathematics compared to their colleagues who spend less time with their mentors. When mentors prepare adequate instructional materials and when mentoring program is well organized, newly employed teachers who are taken through the mentorship process can significantly improve achievement of their students (Fletcher et al., 2005).

2.5 Conclusion of Literature Review

From the foregoing discussion, beginning teacher induction is associated with behavioural, cognitive and motivational factors. Further, studies show mixed results regarding the effectiveness of induction of such teachers. While some studies show that it has no effect on learners' academic achievement, others reveal that it is instrumental to their (academic) progress. The current study therefore seeks to establish the association between induction of new teachers and learners' academic achievement. This will be done in Nyandarua South Sub-County in Kenya.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research design, target population, sampling procedure, research instrument, data collection procedure, validity of research instrument, reliability of research instrument, data analysis and presentation and ethical considerations.

3.2 Research design

The research employed quantitative research design. This design involves collection, analysis, summary and presentation of numerical data (Saunders, Lewis, & Thornhill, 2016). The research focused in hypothesis testing with an aim of making prediction by determining whether independent variables had a relationship with the dependent variable. The relationship between independent and dependent variables was unidirectional. In a correlational relationship, one variable accompanies changes in another without influencing it (Bordens & Abbort, 2011).

3.3 Target population

Population is the total number of individuals in an area where research is to be conducted. Nachmias and Nachmias (2009) defined a population as the entire set of relevant units of analysis or data. The research targeted newly employed teachers in public primary schools in Nyandarua South sub-county. Newly employed teachers were those that had been recruited by Teachers' Service Commission for a period of not more than five years (between 2015 and 2019). There was a total of 156 teachers hired by Teachers' Service Commission to teach in public primary in Nyandarua South sub-county between year 2015 and 2019. The data about their total number and how they were distributed within the sub-county was obtained from the office of sub-county director of education (teacher management – human resource office) with the authority of Nyandarua county director of education – teacher management.

3.4 Sampling procedure

A sample refers to all the members of a population who took part in the research. Sampling procedure is the method of obtaining a sample from a given population. A good and effective sample should cover between 10% and 30% of the target population (Kothari, 2004; Mugenda &

Mugenda, 2003). This study sampled 30.13% of teachers who had been recruited by TSC in Nyanyandua South sub-county in public primary schools between 2015 and 2019 (47 respondents in a population of 156 teachers) using proportionate stratified sampling. In proportionate stratified sampling, population was subdivided into segments (zones) and the size of the sample was proportional to the number of teachers in the zone.

Nyandarua south sub-county is subdivided in to three administrative zones: Engineer, Ndunyu-Njeru and Murungaru. Engineer zone has 18 public primary schools. Ndunyu-Njeru zone has 18 public primary schools while Murungaru zone has 10 public primary schools. A total of twenty-one (21) teachers were sampled in Engineer zone which had a total of 67 newly recruited teachers. Fifteen (15) teachers were sampled in Ndunyu-Njeru zone that had a total of 51 newly recruited teachers and eleven (11) teachers were sampled in Murungaru zone that had 38 newly recruited teacher. Sampling summary is provided in table 3.1 below

Table 3.1: Sampling Statistics

Zone	No. of primary schools	Newly recruited teachers	No. teachers sampled	Percentage of teachers sampled
Engineer	18	67	21	30.34
Ndunyu-njeru	18	51	15	29.41
Murungaru	10	38	11	28.95
Total	46	156	47	30.13

3.5 Research instrument and data collection procedure

The main data collection instrument was a closed - ended questionnaire for newly recruited teachers – 2015 to 2019. Document analysis of records containing performance of KCPE in Nyandarua south sub-county between 2015 and 2019 was used as a secondary method of data collection. Closed-ended questionnaires was used to collect data on various aspects of teacher induction from the newly recruited teachers as well as subject mean scores for various years. Questionnaires are easy to construct, cost effective and can be used to sample a large population within a short period of time (Mugenda and Mugenda, 2003).

Questionnaires were administered to the respondents and collected back after participants had responded to the questions. The questions in the questionnaires collected data on ordinal scale. All

questions in the questionnaires were on a Likert scale of 1-5 (1 being the lowest and 5 being the highest), where high scores indicated high statement endorsement and low scores indicated low statement endorsement. Document's analysis was used to gather student's academic achievement from various records in schools and in the office of sub-county director of education (Ministry) in order to counter check the correctness of subject mean scores provided by teachers in the questionnaires.

3.6 Validity and reliability

Validity is the ability of the research instrument to measure what it purports to. The questionnaire had face validity, construct validity and content validity. Face validity existed because the supervisor validated it. There was construct and content validity because the questionnaire was constructed using the constructs in the conceptual framework as well as the objectives which the researcher intended to measure.

Reliability refers to the ability of the research instrument to give similar results consistently. Internal consistency of the questionnaire was determined by finding the value of Cronbach's alpha using IBM SPSS Statistic Version 23. If the value is between 0.7 and 0.9, the questionnaire is reliable (Tavakol & Dennick, 2011). The value of Cronbach alpha was 0.756 (shown in Table 3.2). This means that the questionnaire was reliable.

Table 3.2: Reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.756	.796	12

3.7 Data analysis and prsesentation

Responses in closed-ended questionnaires' questions were subjected to Spearman's correlation test to determine significant values (p-values) and correlation coefficients. Two sets of data are related if coefficient of correlation less than zero or greater than zero and there is no relationship when it is zero. Two sets of distributions are significantly related when p-values are less or equal to 0.05, otherwise they are not significantly related. Coefficients of correlation ranges between -1 and 1.

Spearman's correlation estimator has a very high efficiency of above 70% for all possible values of population (Croux & Dehon, 2010). Spearman's correlation test is the best correlation test for data which is on ordinal scale.

Descriptive statistics were obtained to determine the frequencies of various responses. Secondary data obtained from students' achievements records in schools and in sub county director of education's office (ministry) were used to verify accuracy of the data (students mean scores) provided by the respondents. Students' academic mean scores were subjected to t-test to determine whether the mean scores for students taught by teachers who had been inducted and those of students taught by teachers who had not been inducted were significantly different.

Regression analysis of mean scores for the two groups of students was carried out to determine a linear equation which could be used to predict mean scores of students taught by teachers after undergoing induction process when the mean scores of students taught by teachers before induction is known. Presentation was done mainly through tables. Tables were used to show significance values (P-values), correlation coefficients and descriptive statistics. Regression tables were used to show gradient and the y-intercept of the line of the best fit.

3.8 Ethical considerations

Before undertaking research, permission and approval from Research Ethics Review Board of Strathmore University was obtained. In addition, permission to conduct research was granted by NACOSTI, county director of education (teacher management) – Nyandarua county, Sub-county directors of education (teacher management and Ministry) and head teachers in various primary schools where teachers took part in the research. The respondents were not required to write names or the names of their institutions on the questionnaires to ensure that all respondents remained anonymous. All respondents were above 18 years of age because persons of this age have legal capacity to consent. Additionally, all participants were free to answer all the questions or just some questions only. The purpose of the research and how data obtained would be used was made clear to all participants in order to dispel any fear. All respondents signed consent forms to acknowledge they consented to participate in the research.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents rate of return of questionnaires, analysis of the background information of respondents in questionnaire, analysis of cognitive factors, analysis of behavioural factors, analysis of types of motivation, analysis of students' academic achievement, correlation analysis, t-test analysis and regression analysis.

4.2 Rate of return of questionnaires

Out of the 50 questionnaires issued, 47 respondents returned questionnaires. This represented 94% of all the respondents. Response rate is tabulated in Table 4.1.

Table 4. 1 Response rate

Number of questionnaires issued	Number of questionnaires returned	Percentage response rate
50	47	94%

Mugenda and Mugenda (2003) consider 70% response rate as very good for analysis and reporting.

4.3 Background information of respondents

The study sought to establish background information of the respondents. This included gender, age, teaching experience, professional qualification, teaching subject(s) and the year in which they were inducted (for teachers who had been inducted).

4.3.1 Distribution of respondents by gender

Out of the 47 respondents who returned questionnaires, 24 were males while 23 were females. In terms of percentage, males were 51.1 % while females were 48.9%. Distribution of respondents by gender was tabulated in Table 4.2.

Table 4. 2 Gender of respondents

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	24	51.1	51.1	51.1
	FEMALE	23	48.9	48.9	100.0
	Total	47	100.0	100.0	

4.3.2 Distribution of respondents by age

Respondents were asked to indicate age in years in the brackets of 21 – 30, 31 – 40, 41 – 50 and 51 – 60. Seven (7) respondents (14.9% of all respondents) reported that their age was in the bracket of 21 – 30. Thirty-seven (37) respondents (78.7% of all respondents) reported that their age was in the bracket of 31 – 40. Three (3) respondents (6.4% of all respondents) reported that their age was in the bracket of 41 – 50. No respondent was in the age bracket of 51 - 60 years of age. Most of the respondents (78.7%) were aged between 31 and 40 years of age. The bracket of 41 -50 had the least number of respondents (6.4%). These teachers must have been in their 40's.

Teachers' Service Commission (TSC) has for years been recruiting new teachers who are at most forty five (45) years of age and who are registered as a teacher as stipulated in section 23 of TSC Act, 2012. Age limit requirement was however nullified by employment and labour relations court in 2019. According to standard newspaper of November 29th, 2019, "the employment and labour relations court declared a circular by Teachers' Service Commission (TSC) limiting the age of employment to those below 45 years as discriminatory, unreasonable and unconstitutional". That means that it's possible to find newly recruited teachers in Kenyan public basic institutions of learning who are aged between 51 and 60 years. Age distribution of all the respondents by age was summarised in Table 4.3.

Table 4. 3 Age of respondents

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-30	7	14.9	14.9	14.9
	31-40	37	78.7	78.7	93.6
	41-50	3	6.4	6.4	100.0
	Total	47	100.0	100.0	

4.3.3 Teaching experience of the respondents

Respondents were required to indicate teaching experience in terms of number of years they had worked since joining Teachers' Service Commission (TSC). Most of respondents (38.3%) had teaching experience of five (5) years. 34.04% of the respondents had teaching experience of four (4) years. 25.53% of the respondents had teaching experience of three (3) years and only 2.13% had teaching experience of two (2) years. No respondent had teaching experience of one (1) year. Teaching experience of all the 47 respondents is summarised in Table 4.4. This could mean that newly employed teachers were not assigned candidates' classes and therefore did not prepare candidates for KCPE.

Table 4. 4 Teaching experience in years

No. of years		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	2.1	2.1	2.1
	3	12	25.5	25.5	27.7
	4	16	34.0	34.0	61.7
	5	18	38.3	38.3	100.0
	Total	47	100.0	100.0	

4.3.4 Professional qualifications of the respondents

Respondents were required to state highest level of professional qualification. Most of the respondents (59.6%) reported that they had a certificate in teacher education (P1). 23.4% of all the respondents reported that they had a diploma in teacher education while 17% of the respondents reported that they had a degree. No respondent reported to have had any other academic qualification. Summary of professional qualification of all the respondents was summarised in Table 4.5.

Table 4. 5 Professional qualification

Qualification		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	P1	28	59.6	59.6	59.6
	Diploma	11	23.4	23.4	83.0
	Degree	8	17.0	17.0	100.0
	Total	47	100.0	100.0	

4.3.5 Subject (s) taught by the respondents

Respondents were asked to state the subjects which they taught. The highest number of teachers (23.729%) stated that they were teaching mathematics. 22.034% of all the respondents stated that they were teaching Kiswahili. 20.339% of respondents stated that they were teaching science. 18.644% of respondents stated that they were teaching social studies while the rest (15.254%), stated that they were teaching English. Table 4.6 presents a summary of the number of teachers teaching various subjects and their percentages. In this table there is a total of 59 teachers teaching various subjects. This number is larger than the total number of respondents (47). This is because some teachers taught more than one subject.

Table 4. 6 Frequency of subject taught by the respondents

	SUBJECT	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	ENGLISH	9	15.254	15.254	15.254
	KISWAHILI	13	22.034	22.034	37.288
	MATHEMATICS	14	23.729	23.729	61.017
	SCIENCE	12	20.339	20.339	81.356
	SOCIAL STUDIES	11	18.644	18.644	100
	TOTAL	59	100	100	

4.3.6 Induction of respondents

Respondents were asked to state the year in which they were inducted. Of the 47 respondents who participated in the study, 32 (68.09%) stated that they had been inducted while 15 (31.91%) reported that they had not been inducted. This confirmed the finding of Indoshi (2003) that induction of newly recruited teachers in never uniform and sometimes it does not happen. Of those who had been inducted, the highest numbers (25%) had each been inducted in 2015, 2018 and 2019. The numbers inducted in 2016 and 2017 were 12.5% in each year. This data was useful because performance of students taught by teachers who were inducted was to be compared to performance of students taught by teachers who were not inducted. The summary of teacher induction and the year of induction was recorded in table 4.7 and table 4.8 respectively.

Table 4. 7 Number of Teachers Inducted/ not Inducted

	TEACHERS	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	INDUCTED	32	68.09	68.09	68.09
	NOT INDUCTED	15	31.91	31.91	100
	Total	47	100	100	

Table 4. 8 Year of Induction

	YEAR	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	2015	8	25	25	25
	2016	4	12.5	125	37.5
	2017	4	12.5	125	50
	2018	8	25	25	75
	2019	8	25	25	100
	Total	32	100	100	

4.4 Cognitive factors of respondents

This was the first independent variable which was used to formulate the first objective of the research. The study intended to determine whether cognitive factors of the mentee (knowledge, attitude and expectations) would correlate with students' academic achievement after induction. The respondents were required to respond to four statements on a Likert scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). Only teachers who had been inducted were expected to respond to the statements. The first statement was, "Mentor demonstrated high levels of mastery of content during the induction process". The second statement was "Knowledge of teaching improved after I was taken through induction process". The third statement was "Expectations to be a better teacher were met when I was taken through mentorship programs" while the fourth statement was "Attitude/emotions/feelings towards teaching improved when I went through mentorship".

On the first statement, 68.75% of the respondents agreed and a further 21.875% of the respondents strongly agreed with the statement. 6.25% of the respondents disagreed with the statement while only 3.125% of the respondents strongly disagreed with the statement. On the second question, 62.5% of the respondents agreed with the statement and a further 12.5% of the respondents strongly agreed with the statement. 9.375% of the respondents disagreed with the statement while

15.625% of the respondents were neutral. On the third question, 53.125% of the respondents agreed with the statement and a further 28.125% strongly agreed with the statement. 3.125% of the respondents disagreed with the statement and a further 3.125% of the respondents strongly disagreed with the statement. 12.5% of the respondents were neutral.

On the fourth question, 53.125% of the respondents agreed with the statement and a further 25% of the respondents strongly agreed with the statement. 6.25% of the respondents disagreed with the statement while 15.625% of the respondents were neutral. Most of the respondents endorsed the four statements. This means that they were satisfied with the induction and were looking forward to being better teachers. Some respondents were however not impressed by the induction process. For instance, 15.625% of the respondents were not sure whether their feeling/attitudes/emotions towards teaching improved or not. The responses to the four statements were summarised in Tables 4.9, 4.10, 4.11 and 4.12 respectively.

Table 4. 9 Mentor demonstrated high levels of mastery of content during induction process

		Frequency	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Valid	Strongly disagree	1	3.125	3.125	3.125
	Disagree	2	6.25	6.25	9.375
	Neutral	0	0	0	9.375
	Agree	22	68.75	68.75	78.125
	Strongly agree	7	21.875	21.875	100
	Total	32	100	100	

Table 4. 10 Knowlegde of teaching improved after I was taken through induction process

		Frequency	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Valid	Strongly disagree	0	0	0	0
	Disagree	3	9.375	9.375	9.375
	Neutral	5	15.625	15.625	25
	Agree	20	62.5	62.5	87.5
	Strongly agree	4	12.5	12.5	100
	Total	32	100	100	

Table 4. 11 Expectations to be a better teacher were met when I was taken through mentorship programs

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	1	3.125	3.125	3.125
	Disagree	1	3.125	3.125	6.25
	Neutral	4	12.5	12.5	18.75
	Agree	17	53.125	53.125	71.875
	Strongly agree	9	28.125	28.125	100
	Total	32	100	100	

Table 4. 12 Attitude/emotions/feelings towards teaching improved when I went through mentorship

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	0	0		0
	Disagree	2	6.25	6.25	6.25
	Neutral	5	15.625	15.625	21.875
	Agree	17	53.125	53.125	75
	Strongly agree	8	25	25	100
	Total	32	100	100	

4.5 Behavioural factors of respondents

This was the second independent variable. Behavioural factors of respondents were used to formulate the second objective of the research. The researcher intended to determine whether "skills", "practice" and "self-efficacy" of the mentee correlated with students academic achievement after the induction process. Respondents were asked to respond to four statements on a likert scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). Only teachers who had been inducted were expected to respond to the statements. The first statement was "I improved teaching skills after I was taken through induction process". The second statement was "I have always or mostly practiced the teaching skills which I learnt from my mentor". The third statement was "I improved my ability to prepare a lesson, deliver a lesson and prepare students for examinations" while the fourth statement was, "after going through mentorship, am now more confident and can carry out duties entrusted to me conscientiously".

On the first statement, 3.125% of the respondents strongly disagreed, 12.5% of the respondents disagreed, 9.375% of the respondents were neutral, 46.875 of the respondents agreed and a further

28.125% of the respondents strongly agreed. On the second question, no respondent strongly disagreed with the statement, 15.625% of the respondents disagreed with the statement, 18.75% of the respondents were neutral, 43.75% of the respondents agreed with the statement and a further 21.875 strongly agreed with the statement. On the third statement, 3.125% of the respondents strongly disagreed with the statement, 9.375% of the respondents disagreed with the statement, 18.75% of the respondents were neutral, 40.625% of the respondents agreed with the statement while 28.125% of the respondents strongly agreed with the statement.

On the fourth statement, no respondent strongly disagreed with the statement, 3.125% of the respondents disagreed with the statement, 15.625% of the respondents were neutral, 34.375% of the respondents agreed with the statement and a further 46.875% of the respondents strongly agreed with the statement. Although most of the respondents agreed with each of the four statements, there was a large number of respondents (mostly between 20% and 30%) who did not think that their behavioural factors improved after induction. It would be necessary for the persons conducting induction process to collect feedback from their mentee in order to improve on future inductions. Summary of the responses on various statements were tabulated in Tables 4.13, 4.14, 4.15 and 4.16 respectively.

Table 4. 13: I greatly improved my teaching skills after I was taken through induction process

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	1	3.125	3.125	3.125
	Disagree	4	12.5	12.5	15.625
	Neutral	3	9.375	9.375	25
	Agree	15	46.875	46.875	71.875
	Strongly agree	9	28.125	28.125	100
	Total	32	100	100	

Table 4. 14: I have always/ mostly practiced the teaching skills which I learnt from my mentor

		Frequency	Percentage	Valid Percentage	Cumulative Percentage

Valid	Strongly disagree	0	0	0	0
	Disagree	5	15.625	15.625	15.625
	Neutral	6	18.75	18.75	34.375
	Agree	14	43.75	43.75	78.125
	Strongly agree	7	21.875	21.875	100
	Total	32	100	100	

Table 4. 15: I greatly improved my ability to prepare a lesson, deliver a lesson and prepare students for examinations

		Frequency	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Valid	Strongly disagree	1	3.125	3.125	3.125
	Disagree	3	9.375	9.375	12.5
	Neutral	6	18.75	18.75	31.25
	Agree	13	40.625	40.625	71.875
	Strongly agree	9	28.125	28.125	100
	Total	32	100	100	

Table 4. 16 After going through mentorship, am now more confident and can carry out duties entrusted to me conscientiously

		Frequency	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Valid	Strongly disagree	0	0	0	0
	Disagree	1	3.125	3.125	3.125
	Neutral	5	15.625	15.625	18.75
	Agree	11	34.375	34.375	53.125
	Strongly agree	15	46.875	46.875	100
	Total	32	100	100	

4.6 Type of Motivation of respondents.

This was the third independent variable. It was used to formulate the third objective of the research. The researcher wanted to determine whether "intrinsic" and "extrinsic" motivation of the mentee helped to improve students' academic achievement. The respondents were asked to respond to four statements on a likert scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). Only teachers who had been inducted were required to respond to the statements. The first statement was "I am working towards attaining a high mean score for self-fulfilment without expecting any reward or approval from anyone after the induction process".

The second statement was "I am working towards attaining a high mean so that I get some approval/recognition". The third statement was "I expect a reward from the school if I attain a high mean score" while the fourth statement was "my main motivation is to see my students succeed just like other students in performing schools in the country".

On the first statement, 9.375% of the respondents strongly disagreed with the statement, 3.125% disagreed with the statement, 28.125% of the respondents agreed with the statement and a further 59.375% of the respondents strongly agreed with the statement. On the second statement, 25% of the respondents strongly disagreed with the statement, 12.5% of the respondents disagreed with the statement, 15.625% of the respondents were neutral, 31.25% of the respondents agreed with the statement and a further 15.625% of the respondents strongly agreed with the statement. The summary of the responses were recorded in table 4.17, table 4.18, table 4.19 and table 4.20 respectively.

Table 4.17 I am working towards attaining a high mean score for self-fulfilment without expecting any reward or approval from anyone after the induction process.

Table 4. 17: I am working towards attaining a high mean score for self-fulfilment without expecting any reward or approval from anyone after the induction process

		Frequency	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Valid	Strongly disagree	3	9.375	9.375	9.375
	Disagree	1	3.125	3.125	12.5
	Neutral	0	0	0	12.5
	Agree	9	28.125	28.125	40.625
	Strongly agree	19	59.375	59.375	100
	Total	32	100	100	

Table 4. 18: I am working towards attaining a high mean so that I get some approval/ recognition

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	8	25	25	25
	Disagree	4	12.5	12.5	37.5
	Neutral	5	15.625	15.625	53.125
	Agree	10	31.25	31.25	84.375
	Strongly agree	5	15.625	15.625	100
	Total	32	100	100	

Table 4. 19: I expect a reward from the school if I attain a high mean score

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	6	18.75	18.75	18.75
	Disagree	11	34.375	34.375	53.125
	Neutral	5	15.625	15.625	68.75
	Agree	8	25	25	93.75
	Strongly agree	2	6.25	6.25	100
	Total	32	100	100	

Table 4. 20: Main motivation is to see students succeed just like other students in performing schools in the country

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	0	0	0	0
	Disagree	1	3.125	3.125	3.125
	Neutral	0	0	0	3.125
	Agree	5	15.625	15.625	18.75
	Strongly agree	26	81.25	81.25	100
	Total	32	100	100	

From the above tables (Tables 4.17, 4.18, 4.19 and 4.20), it can be concluded that teachers are mainly powered by intrisic motivation and very little of extrinsic motivation. This could be a demonstration of hopelessness of teachers in public primary schools where resources are only supplied by the government through free primary education grants. Section 29 of Basic Education Act (2013) prohibits payment of tuition fees for any Kenyan pupil in public basic institutions of learning. Any Charges (other than tuition fees) can only be approved by the Cabinet Secretary for

education and the County Education board and no pupil should be sent home for failure to pay such charges (Basic Education Act, 2013). Both section 37 of the Basic education Act (2013) and regulation 32 of Code of Conduct and Ethics for Teachers (2015) criminalises holiday tuition. Instead, teachers are encouraged to offer remedial lessons outside working hours without charging any money from parents/pupils. This situation is made worse by the fact that most of the parents with children in public primary school are low income earners in the villages with little and mostly no capacity to contribute money/ resources for teacher motivation.

4.7 Students' academic achievement

This was the dependent variable. Newly recruited teachers who had not been inducted since joining Teachers' Service Commission (TSC) as well as those who had been inducted were required to indicate the mean scores that students scored in KCPE examinations during the year(s) which they prepared them (students). Class eight students are prepared for five (5) subjects in KCPE. These subjects are; English, Kiswahili, Mathematics, Science and Social Studies. Mean scores for various subjects were subjected to a likert scale of 1 to 5 (1 = below 36marks, 2 = 36 - 45 marks, 3 = 46 – 55 marks, 4 = 56 – 65 marks, 5 = above 65 marks).

Teachers who were not inducted and prepared candidates for English were 3 in 2015, 4 in 2016, 4 in 2017, 4 in 2018 and 2 in 2019. Teachers who were not inducted and prepared candidates for Kiswahili were 4 in 2015, 6 in 2016, 6 in 2017, 4 in 2018 and 3 in 2019. Those who prepared candidates for Mathematics and were not inducted were 6 in 2015, 7 in 2016, 6 in 2017, 5 in 2018 and 4 in 2019. Those who prepared candidates for Science and were not inducted were 3 in 2015, 2 in 2016, 4 in 2017, 3 in 2018 and 5 in 2019. Teachers who were not inducted and prepared candidates for Social Studies were 1 in 2016, 3 in 2017, 5 in 2018 and 2 in 2019. The summary is contained in tables 4.21, 4.22, 4.23, 4.24 and 4.25 respectively.

Teachers who were inducted and prepared candidates for English were 2 in 2015, 3 in 2016, 3 in 2017, 4 in 2018 and 5 in 2019. Those who prepared candidates for Kiswahili after induction were 2 in 2015, 3 in 2016, 5 in 2017, 5 in 2018 and 7 in 2019. Those who prepared candidates for Mathematics after induction were 1 in 2017, 5 in 2018 and 8 in 2019. Teachers who were inducted and prepared candidates for Science were 1 in 2016, 2 in 2017, 4 in 2018 and 5 in 2019. Those

who prepared candidates for Social Studies after induction were 1 in 2015, 2 in 2016, 3 in 2017, 5 in 2018 and 7 in 2019. The summary was recorded in tables 4.26, 4.27, 4.28, 4.29 and 4.30 respectively.

Summary of the actual mean scores for various subjects posted by candidates taught by teachers who were not inducted are in tables 4.31 (English), 4.32 (Kiswahili), 4.33 (Mathematics), 4.34 (Science) and 4.35 (Social Studies). Summary of mean scores for various subjects posted by candidates taught by teachers who had been inducted are in tables 4.36 (English), 4.37 (Kiswahili), 4.38 (Mathematics), 4.39 (Science) and 4.40 (Social Studies).

Tables 4.41, 4.42, 4.43, 4.44 and 4.45 shows the actual KCPE mean scores for year 2015, 2016, 2017, 2018 and 2019 respectively. This data is for the 16 public primary schools where respondents were drawn and was collected from the office of Nyandarua south sub-county director of education (Ministry). Data in these tables was used to verify the accuracy of subject mean scores provided by the respondents. Most of the respondents provided subject mean scores similar to those in the records of subcounty director of education. Three respondents however, provided subject mean scores that were different from those in the records of subcounty director of education. The researcher assumed that there were more than one candidate class in those schools and that respondents provided their personal mean scores instead of school mean scores. Data was analysed using the mean scores provided by the respondents.

4.8 Correlation analysis for independent and dependent variables

Independent variables were cognitive factors, behavioral factors and motivation. Four questions were formulated from each independent variable and the responses were measured on a Likert scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 strongly agree). Mean scores for various subjects recorded by students whose teachers had been inducted were also subjected to a Likert scale of 1 to 5 (1 = below 36 marks, 2 = 36 – 45 marks, 3 = 46 – 55 marks, 4 =56 – 65 marks and 5 = above 66 marks. Spearman's coefficient of correlation and significance values were determined using responses in each of the independent variable against subject mean scores for teachers who had been inducted using IBM SPSS Statistic Version 23. All the test were conducted at a confidence interval of 95%.

There was a total of 128 responses in each of the three independent variables and a total of 83 mean scores for students whose teachers had been inducted. There was a very weak insignificant positive correlation ($R = 0.08$, $P > 0.05$) between cognitive factors of the teacher who were taken through induction process and students' academic achievement. The study found a weak insignificant positive correlation ($R = 0.143$, $P > 0.05$) between behavioral factors of teachers who were taken through induction process and students' academic achievement. There was a very weak negative insignificant correlation ($R = -0.047$, $P > 0.05$) between motivation of teachers who underwent induction process and the students' academic achievement. The above report is summarized in tables 4.46, 4.47 and 4.48 respectively.

4.9 T-test for various subjects

Mean scores for various subjects of students taught by teachers who were not inducted was compared with mean scores for various subjects of students taught by teachers who were taken through induction process using IBM SPSS Statistic Version 23 with confidence interval of 95%. A total of 17 teachers who had not been inducted prepared candidates for KCPE English examinations between 2015 and 2019. A further 17 teachers who had been inducted prepared candidates for KCPE English examinations within the same period of time. The overall mean for teachers who had not been inducted was 45.7941 while the overall mean for teachers who had been inducted was 50.5659. Statistically, the two mean scores were significantly different ($P = 0.002$). This means that induction of teachers contributed to better students' academic achievement in English. Analysis summary was recorded in tables 4.49 and 4.50.

A total of 23 teachers who had not been inducted prepared class eight candidates for KCPE Kiswahili examinations between 2015 and 2019. For the same period of time, a total of 22 teachers who had been taken through induction process prepared students for the same examinations. The overall mean registered by teachers who had not been inducted was 44.9448 while teachers who had been taken through induction process registered a higher overall mean of 46.5445. The two overall mean scores were not statistically significantly different ($P > 0.05$). Analysis summary is in tables 4.51 and 5.52. Induction did not add value to Kiswahili teachers.

The number of teachers who prepared candidates for KCPE mathematics examinations having not been inducted between 2015 and 2019 were 26. During the same period of time, 14 teachers prepared candidates for KCPE mathematics examinations after undergoing induction process. The overall mean score for teachers who had not been inducted was 45.0350 while those who had been inducted registered an overall mean score of 48.1636. The two mean scores were not significantly different ($P > 0.05$). Analysis summary is in tables 4.53 and 4.54.

Between year 2015 and 2019, 17 teachers who had not been inducted prepared candidates for KCPE science examinations and recorded an overall mean of 49.4582. During the same period of time, 12 teachers who had been inducted prepared candidates for the same examinations and recorded an overall mean of 45.6625. Statistically, the two mean scores were not significantly different ($P > 0.05$). Teachers who had not been inducted registered better overall mean score compared to colleagues who had been inducted. Induction seem to have lowered the value of teachers teaching science. Analysis summary is in tables 4.55 and 4.56.

In Social Studies, 11 teachers who had not been inducted prepared candidates for the KCPE examinations between 2015 and 2019 and recorded an overall mean of 49.3518. During the same period, 18 teachers who had been inducted prepared candidates for the same examinations and recorded an overall mean of 49.5867. Statistically, the two mean scores were not significantly different ($P > 0.05$). Analysis summary is in tables 4.57 and 4.58.

When all subjects were considered, 94 teachers who had not been inducted prepared candidates for various KCPE examinationss between 2015 and 2019 and recorded an overall mean of 46.4553. During the same period, 83 teachers who had been inducted prepared candidates for various KCPE examinations and recorded an overall mean of 48.1735. The two overall mean scores were not significantly different ($P > 0.05$). Analysis summary is in tables 4.59 and 4.60. Teacher induction did not significantly improve students' academic achievement.

4.10 Regression analysis

This was conducted to determine degree of association and the regression equation that could be used to predict mean scores of students taught by teachers after undergoing induction process when

the mean scores for students taught by teachers who are not inducted is known. All subject mean scores of students taught by teachers who had not been inducted together with all the subject mean scores of students taught by teachers who had been inducted were subjected to regression analysis using IBM SPSS Statistics Version 23. Tables 4.61, and 4.62 presents a summary of the analysis.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the study, summary of the findings (cognitive factors, behavioral factors, motivation and students' academic achievement), conclusion, recommendations

5.2 Summary of the study

The purpose of the study was to examine whether a relationship between induction of newly recruited teachers' and students' acdemic achievement existed. The research was necessitited by a research gap that had been identified by Gitonga (2015), Wood and Stanulis (2009). In their studies, both researchers suggested further research to investigate the effect of teacher induction on student academic achievement. The fact that some teachers acknowledged that they had not been inducted confirms the findings of a research by Indoshi (2003), who argued that schools lacked formal induction procedures, with teachers not being taken through the induction process in some cases.

The overall finding of this study is that there is no significant relationship between induction of newly recruited teachers and students' academic achievement. This finding agrees with the findings of a research conducted separately by Isenberg et al. (2009) and Wechsler et al. (2010) who concluded that, induction of newly employed teachers does not significantly contribute to academic improvement of students. Of all the subjects that were analysed, it is only in one subject (English) where overall subject mean scores for students taught by teachers who had not been inducted were significantly different from those of the students taught by teachers who had been inducted. Based on this finding, the research accepted the null hypothesis, "There is no association between cognitive factors of newly employed teachers and students' academic achievement", "there is no extent to which behavioural factors of newly employed teachers can be used to predict students' academic achievement" and "type of motivation of newly employed teachers cannot be used to predict students' academic achievement".

5.3 Summary of the findings

5.3.1 Cognitive factors

All 128 responses of this independent variable were correlated with 83 mean scores for the students' academic achievement for students taught by teachers who had been inducted. Spearman's correlation coefficient and significant value was determined using IBM SPSS Statistics Version 23. There was a a weak insignificant positive correlation ($R = 0.08$, $P > 0.05$) between cognitive factors and students' academic achievement. This mean that knowledge, attitude and expectations of newly recruited and inducted teachers did not significantly contribute to better academic achievement of students.

5.3.2 Behavioural factors

All 128 responses were correlated with 83 mean scores for students taught by teachers who had been inducted. Spearman's correlation coefficient of correlation and significant value were determined using IBM SPSS Statistics Version 23. There was a weak insignificant positive correlation ($R = 0.149$, $P > 0.05$) between behavioural factors and the students' academic achievement. This mean that skills, practice and self-efficacy of newly employed and inducted teachers did not significantly contribute to better academic achievement of students.

5.3.3 Motivation

A total of 128 responses measured in ordinal scale were correlated with 83 mean scores for students' academic achievement in various subjects for students taught by teachers who had been inducted. Spearman's correlation coefficient and significant value was determined using IBM SPSS Statistics Version 23. There was a weak negative insignificant correlation ($R = - 0.047$, $P > 0.05$) between motivation and students' academic achievement. Intrinsic and extrinsic motivation of newly employed and inducted teachers did not contribute to betterment of students academic achievement.

5.3.4 Students academic achievement

Subject mean scores for students who had been taught by teachers who had not been inducted and the ones for students taught by teachers who had been inducted were subjected to ttest using IBM SPSS Statistics Version 23. The Overall mean scores for students taught by teachers who had been inducted were higher than mean scores for students taught by teachers who had not been inducted

except in science where students taught by teachers who had not been inducted recorded higher mean scores compared to their colleagues taught by teachers who had been inducted.

The difference in mean scores for the two groups were not statistically significant in all the subjects except in English. The Overall mean score for students taught by teachers who had not been inducted in English was 45.7941while those taught by teachers who had been inducted recorded a mean of 50.5659. The two means were statisticall different ($P = 0.002$). Induction seemed to add value to English teachers by helping them to significantly improve academic achievement of their students.

The overall mean score registered by teachers who had not been inducted in Kiswahili was 44.9448 while teachers who had been inducted registered an overall mean of 46.5445 in the same subject. Statistically, the two overall mean scores were not significantly different ($P > 0.05$). The overall mean score for students taught by teachers who had not been inducted was 45.0350 in Mathematics while those taught by teachers who had been inducted registered an overall mean of 48.1636. the two mean scores were not significantly different ($P > 0.05$).

In Science, students taught by teachers who had not been inducted recorded a better mean score compared to their colleagues taught by teachers who had been inducted. Their mean scores were 49.4582 and 45.6625 respectively. The two mean scores were however not significantly different ($P > 0.05$). It could be concluded that induction lowered the value of science teachers-to a small extent.

In Social Studies, students taught by teachers who had not been inducted recorded an overall mean of 49.3518. During the same period, students taught by teachers who had been inducted recorded an overall mean of 49.5867. Statistically, the two mean scores were not significantly different ($P > 0.05$).

A test for all the subjects revealed that students taught by teachers who had not been inducted had an overall mean of 46.4553. Their colleagues taught by teachers who had been inducted recorded an overall mean of 48.1735. The two overall mean scores were not significantly different ($P >$

0.05). This research concludes that induction of newly recruited teachers does not significantly improve estudents' academic achievement.

From Tables 4.61 and 4.62, a regression equation Y = 0.039X + 46.36, where Y is the subject mean after a teacher has been inducted and X is the subject mean score before a teacher is inducted, can be used to predict students mean scores before and after their teachers have been taken through induction process. Using this equation, if the subject mean score before induction is 45.75, the mean score after induction will be 0.039 (45.75) + 46.36 = 48.14425.

5.4 Conclusion and Recommedations

This research intended to examine whether a relationship between induction of newly recruited teachers and the students' academic achievement existed in public primary schools in Nyandarua South Sub-County. The researcher used quantitative research design. Data was collected from 47 respondents from 16 public primary schools in Nyandarua south sub-county. Secondary data was collected from filed records in the offices of sub-county directors of education (teacher management and ministry). Analysis of data was done using IBM SPSS Statistics Version 23. Data was collected on both ordinal and ratio scale. Descriptive statistics, spearman's correlation coefficients, t-tests and regression analysis were determined during data analysis.

Cognitive factors of newly employed teachers were not significantly associated to students' academic achievement. There was no significant extent to which behavioural factors of newly employed teachers could be used to predict students' academic achievement. Type of motivation of newly employed teacher could not significantly predict students' academic achievement. Although both cognitive and behavioural factors of newly employed teachers had positive relationship with students' academic achievement, the relationship was not significant. Motivation of newly recruited teachers had negative relationship with students' academic achievement.

Other than in English, subject mean scores for students taught by teachers who had been inducted were not significantly different from those of students taught by teachers who had not been inducted in all other four subjects. In Science, students taught by teachers who had not been inducted recorded better mean scores compared to their counterparts taught by teachers who had

been inducted. Induction of newly inducted teachers in Nyandarua South sub-county lowered the "value" of science teachers. Generally, this research did not find a relationship between induction of newly recruited teachers and the students' academic achievement. Either, Induction process of newly recruited teachers should be improved or other measures to improve students' academic achievement should be considered.

Whereas both cognitive and behavioural factors of newly employed teachers had a positive relationship with students' academic achievement, motivation had a negative relationship with students' academic achievement. This implies that newly employed teachers are poorly motivated. Teachers' employer (TSC) should make effort to improve motivation of primary school teachers.

5.4.1 Recommendations to teachers' service commission

This study observed that not all teachers are taken through induction process as was evident during filling of the questionnaires by respodents. For those who were inducted, induction did not significantly improve students' academic achievement. Teachers' Service Commission (TSC) should review current ways of inducting teachers with a view to improving it. TSC should prepare a comprehensive induction program to be applied uniformly to all teachers in the country. It should be mandatory for all newly recruited teachers to get inducted before they are allowed to teach. A certificate of induction should be issued to teachers after undergoing the process of induction. Further, TSC should explore other ways of equiping teachers with the right knowlegde attitude and skills in an effort to improve students academic achievement.

5.4.2 Recommendations to the ministry of education

Government of Kenya through the Ministry of Education should provide enough resources in form of tied grants to all schools and its agents to create capacity to carry out comprehensive teacher induction across the country.

5.4.3 Recommendations for further research

This study reccommends further research in Kenyan schools to investigate induction gaps and the effects of teaching experience on students' academic achievement.

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APPENDICES

Appendix I: Questionnaire

APPENDIX 1: QUESTINNAIRE FOR THE NEWLY RECRUITED TEACHERS
(*Those with five years of experience and below by the end of December, 2019*).

Introduction

This questionnaire was intended to collect data to be used for academic research which would lead to the award of a master's degree in Education Management of Strathmore University. The researcher intended to investigate whether a relationship exist between induction of newly recruited teachers and the students' academic achievement. This research also compared means of various subjects among students taught by teachers who had been taken through induction process and the students taught by teachers who had not been taken through induction process, to investigate whether there is a significant difference between their ACHIEVEMENTs.

All the information provided in this questionnaire was treated with strict confidentiality. Respondents were asked not to include their name, station or any mark which could reveal their identity or the identity of their station.

Please fill **(those who were inducted**) parts A, B, C, D and E
Please fill **(if not Inducted)** parts A & E only.

PART A: Background Information

1. What is your gender? Female [ ] male [ ]
2. What is your age in years?
   21-30 [ ] 31- 40 [ ] 41-50 [ ] 51- 60 [ ]
3. What is the length of your teaching experience?
   1year [ ] 2 years [ ] 3years [ ] 4years [ ] 5yrs [ ]
4. What is your highest professional qualification?
   Certificate in Teacher education (P1) [ ]
   Diploma [ ] Degree [ ] Masters [ ]

Other (specify) ……...

5. Which subject do you teach?

   English [ ] Kiswahili [ ] Mathematics [ ]

   Science [ ] Social Studies [ ]

6. Which year/years were you inducted? ……

PART B: Cognitive Factors

This refers to knowledge, attitude, and expectations of both the mentor and the mentee during the induction process. The attitude of the mentor towards the profession and the school will greatly influence the attitude of the new teacher. Knowledge cuts across mastery of content, pedagogy and the professional requirement of the teacher. Knowledge, attitude and expectations of the mentor is expected to greatly influence the knowledge, attitude and expectations of the mentee.

Please use the scale 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree 5 = strongly agree; to respond to the questions below.

i) Mentor demonstrated high levels of mastery of content during the induction process. ☐

ii) Knowledge of teaching improved after I was taken through induction process. ☐

iii) Expectations to be a better teacher were met when I was taken through mentorship programs. ☐

iv) Attitude/emotions/feeling towards teaching improved when I went through mentorship. ☐

PART C: Behavioural Factors

Refers to the skills, practice and self-efficacy of both the mentor and the mentee. Skills refers to the know how to deal with students and teachers and all other members of the school community. Practice is the process applying teaching skills within the school to meet the expectations of the mentor and or employer. Self - efficacy is trusting own capabilities to organize and perform duties that one is required to.

Please use the scale 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree 5 = strongly agree; to respond to the questions below.

i) I improved my teaching skills after I was taken through induction process. ☐

ii) I have always or mostly practiced the teaching skills which I learnt from my mentor. ☐

iii) I improved my ability to prepare a lesson, deliver a lesson and prepare students for examinations. ☐

iv) After going through mentorship, am now more confident and can carry out duties entrusted to me conscientiously. ☐

PART D: Motivation

Is the drive to perform work conscientiously? This drive can both be Intrinsic or extrinsic. Intrinsic motivation is when the drive is coming from within the individual. Extrinsic motivation is when the drive is geared towards the attainment of a certain reward. Mentors can influence mentees to develop intrinsic motivation.

Please use the scale 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree 5 = strongly agree; to respond to the questions below.

i) I am working towards attaining a high mean score for self-fulfilment without expecting any reward or approval from anyone after the induction process. ☐

ii) I am working towards attaining a high mean so that I get some approval/recognition. ☐

iii) I expect a reward from the school if i attain a high mean score. ☐

iv) My main motivation is to see my students succeed just like other students in performing schools in the country. [ ]

PART E: Students' Academic Achievement

Students' Academic Achievement is the mean marks obtained by candidates (class eight pupils) in KCPE examinations.

Please tick (√) in the appropriate box in the year you prepared candidates (standard eight pupils) for KCPE.

Please use the scale; **1**= I - 35marks; **2**=(36 - 45)marks; **3**=(46 -55)marks; **4**=(56 - 65)marks; **5**=above 65mks.

ACHIEVEMENT of KCPE examination in various years when you prepared candidates. The subject name is ……		1	2	3	4	5
i)	The mean mark of KCPE exam in my subject in 2015 was?					
ii)	The mean mark of KCPE exam in my subject in 2016 was?					

iii)	The mean mark of KCPE exam in my subject in 2017 was?					
iv)	The mean mark of KCPE exam in my subject in 2018 was?					
v)	The mean mark of KCPE exam in my subject in 2019 was?					

Appendix II: List of figures and tables

Table 4. 21: Newly recruited teachers who were not inducted (English)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 36	0	0	0	0	0
36 – 45	2	3	2	0	1
46 – 55	1	1	2	4	1
56 -65	0	0	0	0	0
Above 65	0	0	0	0	0
Total	3	4	4	4	2

Table 4. 22: Newly recruited teachers who were not inducted (Kiswahili)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 36	1	0	0	0	1
36 – 45	2	2	4	2	1
46 – 55	1	4	2	2	0
56 -65	0	0	0	0	1
Above 65	0	0	0	0	0
Total	4	6	6	4	3

Table 4. 23 Newly recruited teachers who were not inducted (Mathematics)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 36	1	0	0	0	1
36 – 45	3	5	4	3	1
46 – 55	1	2	2	2	0
56 -65	1	0	0	0	0
Above 65	0	0	0	0	0
Total	6	7	6	5	2

Table 4. 24: Newly recruited teachers who were not inducted (Science)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 35	0	0	0	0	0
36 – 45	1	1	2	1	2
46 – 55	1	0	2	1	2
56 -65	0	0	0	1	1
Above 65	1	1	0	0	0
Total	3	2	4	3	5

Table 4. 25: Newly recruited teachers who were not inducted (Social studies)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 35	0	0	0	0	0
36 – 45	0	0	1	2	0
46 – 55	0	0	1	2	1
56 -65	0	1	1	1	1
Above 65	0	0	0	0	0
Total	0	1	3	5	2

Table 4. 26: Newly recruited teachers who were inducted (English)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 35	0	0	0	0	0
36 – 45	0	0	0	1	1
46 – 55	2	2	3	2	4
56 -65	0	1	0	1	0
Above 65	0	0	0	0	0
Total	2	3	3	4	5

Table 4. 27: Newly recruited teachers who were inducted (Kiswahili)

Range of mean marks scored.	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 36	0	0	0	0	0
36 – 45	2	0	1	2	4
46 – 55	0	3	4	3	3
56 -65	0	0	0	0	0
Above 65	0	0	0	0	0
Total	2	3	5	5	7

Table 4. 28: Newly recruited teachers who were inducted (Mathematics)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 36	0	0	0	0	0
36 – 45	0	0	0	1	3
46 – 55	0	0	1	4	4
56 -65	0	0	0	0	1
Above 65	0	0	0	0	0
Total	0	0	1	5	8

Table 4. 29: Newly recruited teachers who were inducted (Science)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 36	0	0	0	0	0
36 – 45	0	0	0	3	2
46 – 55	0	0	2	1	3
56 -65	0	1	0	0	0
Above 65	0	0	0	0	0
Total	0	1	2	4	5

Table 4. 30: Newly recruited teachers who were inducted (Social Studies)

Range of mean marks scored	Frequency 2015	Frequency 2016	Frequency 2017	Frequency 2018	Frequency 2019
Below 36	0	0	0	0	0
36 – 45	0	0	0	1	2
46 – 55	1	2	3	3	5
56 -65	0	0	0	1	0

Above 65	0	0	0	0	0
Total	1	2	3	5	7

Table 4. 31 Subject mean scores for teachers who were not inducted (English)

2015	2016	2017	2018	2019
42.2	42.04	38.42	48.55	43.54
44.85	45	45.26	47.8	49.8
50.08	39.61	47	46	
	48.47	47.95	51.93	

Table 4. 32 Subject mean scores for teachers who were not inducted (Kiswahili)

2015	2016	2017	2018	2019
35.66	41.58	43.95	45.54	35.43
42.26	36.2	38.32	42.97	44.48
42.84	47.35	39.75	46.06	57.41
46.98	46.13	44.15	53.65	
	54.13	47.64		
	47.89	55.36		

Table 4. 33 Subject mean scores for teachers who were not inducted (Mathematics)

2015	2016	2017	2018	2019
35.65	37.58	40.71	45.77	34.29
43.18	38.37	36.3	43.63	43.21
36.59	45.25	41.53	37.86	
39.4	45.43	45.63	48.76	
55.2	39.04	54.1	46.71	
57.21	54.76	46.81		
	50.64			

Table 4. 34 Subject mean scores for teachers who were not inducted (Science)

2015	2016	2017	2018	2019
40.61	44.5	40.5	40.81	38.61
49.4	70.2	43.3	47	43.72
71.2		52.63	56.7	49.26
		46		50.3
				56.05

Table 4. 35: Subject mean scores for teachers who were not inducted (Social studies)

2015	2016	2017	2018	2019
	58.24	40.71 46.09 59.96	40.35 39.82 51.59 48.08 59.67	47.65 60.71

Table 4. 36 Subject mean scores for inducted teachers (English)

2015	2016	2017	2018	2019
49.35 46.41	51.6 48.61 58.22	49.68 54.05 51.04	43.42 48 48.11 59.26	45.58 48.48 51.09 51.09 55.33

Table 4. 37 Subject mean scores for inducted teachers (Kiswahili)

2015	2016	2017	2018	2019
43.75 44.82	50.19 49.46 48.22	42.89 46.06 49.95 49.22 49.78	40.14 45.54 46.71 48.9 49.04	45.4 39.06 44.65 44.48 48.19 50.19 47.34

Table 4. 38: Subject mean scores for inducted teachers (Mathematics)

2015	2016	2017	2018	2019
		48.35	39.5 53.26 49.04 47.3 47.04	39.6 43.34 43.12 47.98 53.68 54.59 50.08 57.41

Table 4. 39 Subject mean scores for inducted teachers (Science)

2015	2016	2017	2018	2019
	58	47.06 49.8	37.78 43.15 44.4 46.28	37.2 40 46.23 51.82 46.23

Table 4. 40: Subject mean scores for inducted teachers (Social studies)

2015	2016	2017	2018	2019
48.31	52 50.29	50 50.74 46.2	35.57 53 48.3 52.23 59.6	45.05 42.86 49 53.27 53.67 55 47.47

Table 4. 41: KCPE ACHIEVEMENT 2015

SCHOOL	ENG	KISW	MATHS	SCI	SSCRE
A	47.15	42.19	46.98	51.18	51.35
B	39	35.66	37.67	38.05	40.31
C	4.091	42.26	39.85	44.13	43.43
D	50.08	43.73	45.79	47.01	49.34
E	42.6	41.4	39.4	40.53	39.69
F	33.91	39.67	35.65	40.61	42.63
G	42.95	42.84	36.59	41.76	43.57
H	43.11	44.05	43.51	48.16	48.03
I	45.59	47.35	51.59	51.97	48.81
J	44.85	44.82	45.16	45.25	46.95
K	57.39	55.2	54.78	59.07	60.13
L	49.35	47.81	57.21	50.35	49.81
M	47.06	43.75	43.32	50.39	47.56
N	44	47	43.18	46.06	49.36
O	46.41	47.47	44.65	54.76	49.38
P	44.97	55.03	48.02	55.74	48.31

Table 4. 42: KCPE ACHIEVEMENT 2016

SCHOOL	ENG	KISW	MATHS	SCI	SSCRE
A	53	44.84	50.19	53.77	54.61
B	39.61	41.58	37.58	34.41	39.15
C	42.98	46.13	44.01	41.13	45.03
D	48.47	45.4	46.52	42.68	43.62
E	42.04	36.2	39.04	41.52	35.02
F	38.88	38.74	38.37	32.93	36.44
G	41.73	47.89	45.43	45.05	51.41
H	45.63	47.76	44.72	44.35	45.05
I	40.03	43.95	40.08	37.92	38.48
J	48.61	48.22	44.51	43.96	46.19
K	56.96	54.76	54.13	57.18	58.24
L	58.22	52.34	50.64	46.55	46.5
M	46.16	49.46	45.88	48.89	48.66
N	45.62	50.28	45.25	45.9	51.35
O	51.6	54.52	46.48	49.67	48.76
P	43.33	59.26	50.71	51.87	50.92

Table 4. 43: KCPE ACHIEVEMENT 2017

SCHOOL	ENG	KISW	MATHS	SCI	SSCRE
A	53.27	48.76	49.95	50.69	51.33
B	45.26	39.75	40.71	41.64	42.98
C	50.62	47.64	48.56	45.7	49.16
D	47.95	44.15	46.49	43.3	46.09
E	38.42	42.89	45.63	46.22	41
F	37.59	38.32	36.3	34.81	37.81
G	43.56	46.06	41.54	42.85	43.58
H	41.15	49.43	43.69	43.31	43.99
I	38.87	40.65	41.58	43.16	40.71
J	51.04	49.78	47.54	47.06	51.55
K	56.1	54.1	55.36	52.63	59.96
L	49.68	44.49	46.81	50.46	46.21
M	43	49.22	43.72	43.68	43.24
N	47.45	45.61	48.35	44	49.09
O	54.05	52.97	48.92	50.13	46.55
P	48.2	62.38	49.34	49.46	50.74

Table 4. 44 KCPE ACHIEVEMENT 2018

SCHOOL	ENG	KISW	MATHS	SCI	SSCRE
A	44.22	41.51	48.9	46.47	48.3
B	43.42	46.35	45.77	47.44	51.59
C	41.22	41.57	44.14	40.81	45.51
D	51.93	46.71	46.71	44.4	48.08
E	47.8	42.6	47.04	46.28	41.48
F	37.78	42.97	37.86	41.41	40.35
G	38.14	40.14	40.75	37.78	40.03
H	47.2	49.2	44.39	47.57	44.88
I	41.93	41.31	38.99	38.65	39.82
J	48.11	49.04	43.44	43.15	43.76
K	56.32	53.26	53.65	56.7	59.67
L	59.26	45.38	49.04	52.28	53.56
M	48.55	45.54	43.63	46.26	42.84
N	44.51	44.38	47.3	41.4	45.77
O	48	37.79	46.56	43.35	42.19
P	41.3	46.01	46.46	37.75	35.31

Table 4. 45: KCPE ACHIEVEMENT 2019

SCHOOL	ENG	MATHS	KISW	SCI	SSCRE
A	45.65	43.12	44.65	42.74	42.86
B	45.58	40.15	40.6	49.26	47.65
C	44.22	38.95	39.04	38.61	41.02
D	48.48	43.08	48.19	46.23	47.47
E	43.54	50.08	44.63	40	39.79
F	31.17	34.29	35.43	34.91	30.54
G	40.81	37.1	39.06	37.2	40.5
H	44.68	41.54	44.22	41.24	41.46
I	42.71	43.4	45.4	43.72	42.69
J	51.09	47.34	50.19	51.82	53.95
K	59.89	57.41	54.46	56.05	60.71
L	55.33	50.17	54.59	48.96	53.63
M	46.71	43.21	44.48	39.73	42.81
N	42.57	43.34	48.31	46.02	47.57
O	51.09	47.98	52.53	45.84	43.88
P	48.7	47.66	61.21	45.88	45.05

Table 4. 46 Correlations: Cognitive factors

			COGNITIVE ALL QUESTIONS	ALL SUBJECTS INDUCTED
Spearman's rho	COGNITIVE ALL QUESTIONS	Correlation Coefficient	1.000	.008
		Sig. (2-tailed)	.	.944
		N	128	83
	ALL SUBJECTS INDUCTED	Correlation Coefficient	.008	1.000
		Sig. (2-tailed)	.944	.
		N	83	83

Table 4. 47 Correlations: Behavioural factors

			BEHAVIOURAL ALL QUESTIONS	ALL SUBJECTS INDUCTED
Spearman's rho	BEHAVIOURAL ALL QUESTIONS	Correlation Coefficient	1.000	.143
		Sig. (2-tailed)	.	.196
		N	128	83
	ALL SUBJECTS INDUCTED	Correlation Coefficient	.143	1.000
		Sig. (2-tailed)	.196	.
		N	83	83

Table 4. 48 Correlations: Motivation

			MOTIVATION ALL QUESTIONS	ALL SUBJECTS INDUCTED
Spearman's rho	MOTIVATION ALL QUESTIONS	Correlation Coefficient	1.000	-.047
		Sig. (2-tailed)	.	.674
		N	128	83
	ALL SUBJECTS INDUCTED	Correlation Coefficient	-.047	1.000
		Sig. (2-tailed)	.674	.
		N	83	83

Table 4. 49 Ttest for English (Group Statistics)

	GPROUPS	N	Mean	Std. Deviation	Std. Error Mean
ENG MEANS-BOTH GROUPS	1.00	17	45.7941	3.73755	.90649
	2.00	17	50.5659	4.27498	1.03684

Table 4. 50 Independent Samples Test (English)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
ENG MEANS-BOTH GROUPS	Equal variances assumed	.082	.776	-3.465	32	.002	-4.77176	1.37723	-7.57708	-1.96645
	Equal variances not assumed			-3.465	31.439	.002	-4.77176	1.37723	-7.57905	-1.96448

Table 4. 51 51Ttest for Kiswahili (Group statistics)

	GROUPS-KISW	N	Mean	Std. Deviation	Std. Error Mean
KISW MEANS-BOTH GROUPS	1	23	44.9448	5.90837	1.23198
	2	22	46.5445	3.19101	.68033

Table 4. 52 Independent Sample test (Kiswahili)

		Levene's Test for Equality of Variances	t-test for Equality of Means					
								95% Confidence Interval of the Difference
		Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower
KISW MEANS-BOTH GROUPS	Equal variances assumed	.035	-1.123	43	.268	-1.59976	1.42500	-4.47355
	Equal variances not assumed		-1.137	34.138	.264	-1.59976	1.40734	-4.45941

Table 4. 53 Ttest for Mathematics (Group Statistics)

	GROUPS-MATHS	N	Mean	Std. Deviation	Std. Error Mean
MATHS MEANS-BOTH GROUPS	1	26	45.0350	8.02733	1.57429
	2	14	48.1636	5.45481	1.45786

Table 4. 54 Independent Samples test (Mathematics)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
MATHS MEANS-BOTH GROUPS	Equal variances assumed	1.325	.257	-1.302	38	.201	-3.12857	2.40359	-7.99438	1.73724
	Equal variances not assumed			-1.458	35.731	.154	-3.12857	2.14563	-7.48125	1.22411

Table 4. 55 Ttest for Sciences (Group Statistics)

	GROUPS-SCIENCE	N	Mean	Std. Deviation	Std. Error Mean
SCIENCE MEANS-BOTH GROUPS	1	17	49.4582	9.59846	2.32797
	2	12	45.6625	5.90796	1.70548

Table 4. 56 Independent Samples tests (Science)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SCIENCE MEANS-BOTH GROUPS	Equal variances assumed	1.910	.178	1.214	27	.235	3.79574	3.12772	-2.62182	10.21329
	Equal variances not assumed			1.315	26.627	.200	3.79574	2.88585	-2.12941	9.72088

Table 4. 57 Ttest for Social Studies (Group Statistics)

	GROUPS-SOCIAL STUDIES	N	Mean	Std. Deviation	Std. Error Mean
SOCIALSTUDIES MEANS-BOTH GPS	1	11	49.3518	7.62610	2.29936
	2	18	49.5867	5.24766	1.23689

Table 4. 58 Independent Sample tests (Social Studies)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SOCIALSTUDIES MEANS-BOTH GPS	Equal variances assumed	2.523	.124	-.098	27	.922	-.23485	2.38628	-5.13109	4.66139
	Equal variances not assumed			-.090	15.844	.929	-.23485	2.61093	-5.77419	5.30449

Table 4. 59 Ttest for all Subjects (Group Statistics)

	ALL BUJECT GROUPS	N	Mean	Std. Deviation	Std. Error Mean
ALL SUBJECTS MEANS	1.00	94	46.4553	7.34412	.75749
	2.00	83	48.1735	4.95397	.54377

Table 4. 60 Independent Samples Test (All Subjects)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
ALL SUBJECTS MEANS	Equal variances assumed	7.091	.008	-1.800	175	.074	-1.71817	.95454	-3.60207	.16572
	Equal variances not assumed			-1.843	164.118	.067	-1.71817	.93246	-3.55933	.12298

Table 4. 61 Regression Analysis (Model Summaryb)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.058[a]	.003	-.009	4.97614

a. Predictors: (Constant), ALL SUBJECTS NOT INDUCTED
b. Dependent Variable: ALL SUBJECTS INDUCTED

Table 4. 62 Coefficientsa of Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	46.360	3.527		13.146	.000
	ALL SUBJECTS NOT INDUCTED	.039	.076	.058	.521	.604

a. Dependent Variable: ALL SUBJECTS INDUCTED

Appendix III: Participant information consent form

PARTICIPANT INFORMATION CONSENT FORM

RESEARCH TITLE: An investigation of the relationship between induction of newly recruited teachers and the students' academic ACHIEVEMENT.

PRINCIPLE INVESTIGATOR: NAME – Eston M. Ndwiga

AFFILIATION- A Master's student in Strathmore University

CONTACTS – Cell Phone; 0723637663

- Email; eston.ndwiga@strathmore.edu

ADDITIONAL INVESTIGATOR: NAME - DR. CHARLES SOTZ

AFFILIATION – A Senior Lecturer in Strathmore University

CONTACTS – cfsotz@gmail.com

I ……...agree to participate in this research project conducted by **Eston M. Ndwiga.** The research has been explained to me and I understand that it seeks information about **teacher induction and the students' academic achievement in KCPE examination.**

1. **Introduction and Purpose of the Study.**
   For a student to graduate with a Master's degree in Education Management in Strathmore University, he/she is expected to conduct research and write a report (dissertation). The data on teacher induction and students' academic achievement in KCPE will facilitate completion of the research project (dissertation).

2. **Description of the Research**
   Participation in this research entails filling of the questionnaire in the fields that are relevant to the teacher.

3. **Research Participation**
   To participate in this research, a teacher must have been employed by Teachers' Service Commission (TSC) between 2015 and 2019. He/she must have prepared a candidate class (class eight pupils) for KCPE and must be teaching in a public primary school in Nyandarua South Sub-County.

4. **Potential Risks and Discomforts**
   There are no known risks associated with this study. Some valuable time of the teacher will be used during filling of the questionnaires. The teachers will be requested to fill the questionnaires at their own free time.

5. **Potential Benefits**
   There are no benefits to the participants of this study.

6. **Confidentiality**
   All participant in this research are not expected to write their names or the names of their institutions in the questionnaire. All participants will remain anonymous. This will ensure that confidentiality of participants is maintained.

   Authorization
   By signing this form, you authorize the use and disclosure of the information provided in the questionnaire for this research.

7. **Compensation**
   This study will not attract compensation of any form.

8. **Voluntary Participation and Authorization**
   This study is voluntary. Participants will not be forced to participate in the study. Participants are also free to respond only to those questions they are comfortable with.

9. **Withdrawal from the Study and/or Withdrawal of Authorization**
   Participants are free to withdraw from the study by not forwarding their filled questionnaires. After forwarding the filled questionnaires it is not possible to withdraw from the study since we will not be able to tell which questionnaire was forwarded by who.

10. **Cost/Reimbursements**
    Participants will not incur any costs during the study.

I voluntarily agree to participate in this research program

☐ YES
☐ NO

I understand that I will be given a copy of this signed Consent Form.

Name of Participant (print):……

Signature……. Date……...

Name of Witness (print):……

Signature:……. Date:…….

Person Obtaining Consent:……

Signature:……. Date:……..

Appendix IV: Research license from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: **294210**

Date of Issue: **18/March/2021**

RESEARCH LICENSE

This is to Certify that Mr.. ESTON MURITHI NDWIGA of Strathmore University, has been licensed to conduct research in Nyandarua on the topic: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN INDUCTION OF NEWLY RECRUITED TEACHERS AND THE STUDENTS\' ACADEMIC ACHIEVEMENT IN PUBLIC PRIMARY SCHOOLS IN NYANDARUA SOUTH SUB-COUNTY for the period ending : 18/March/2022.

License No: **NACOSTI/P/21/9473**

294210

Applicant Identification Number

Director General

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

QR Code

Verification

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

APPENDIX V: Strathmore's Institutional Ethics Review Committee Approval

Strathmore UNIVERSITY

9th March 2021

Mr Ndwiga, Eston
eston.ndwiga@strathmore.edu

Dear Mr Ndigwa,

RE: An Investigation of the Relationship Between Induction of Newly Recruited Teachers and The Students' Academic Performance in Public Primary Schools in Nyandarua South Sub-County

This is to inform you that SU-IERC has reviewed and **approved** your above **master's** research proposal. Your application reference number is **SU-IERC0967/21**. The approval period is **9th March 2021 to 8th March 2022**.

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 48 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 48 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and also obtain other clearances needed

Yours sincerely,

Dr Virginia Gichuru,
Secretary; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
09 Mar 2021
Email:ethicsreview@strathmore.edu
P.O BOX 59857-00200
NAIROBI-KENYA

Cc: Prof Fred Were, Chairperson; SU-IERC

Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

Appendix VI: Letter of authority to conduct research from Nyandarua County Director of Education (TSC)

TEACHERS SERVICE COMMISSION

Telephone: 0776285230
Email:cdirnyandarua@tsc.go.ke
cdirnyandarua@gmail.com
Web: www.tsc.go.ke
When replying please quote;
Ref. No.TSC/523824

TSC COUNTY DIRECTOR
NYANDARUA COUNTY
P.O. BOX 224-20303
OL KALOU
KENYA

Date: 13th January, 2021

ESTON M NDWIGA

TO WHOM IT MAY CONCERN,

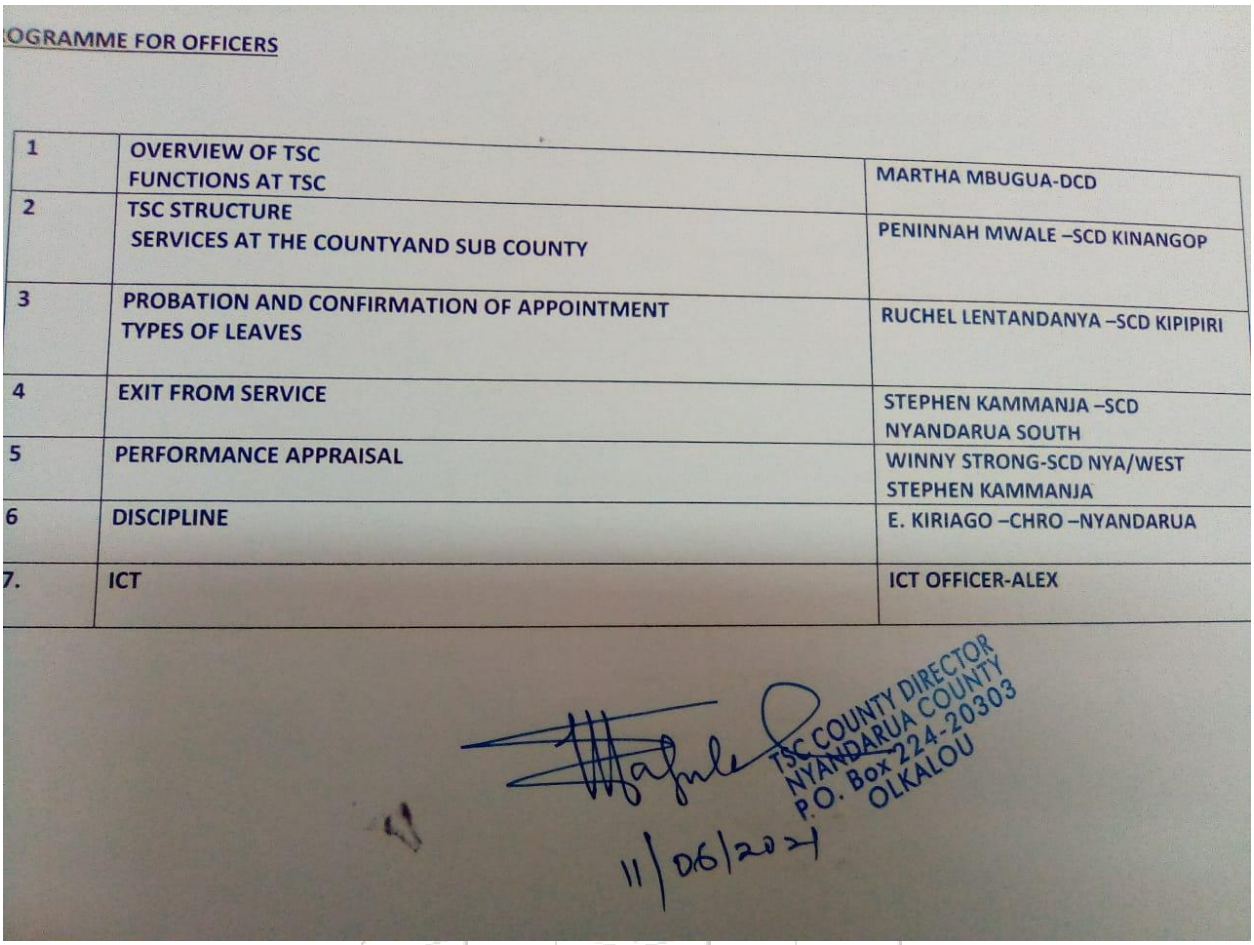
RE: AUTHORITY TO CONDUCT RESEARCH.

The above named is a teacher in Nyandarua county, He has been authorised to conduct his research in your institution for his dissertation entitled **AN INVESTIGATON OF THE RELATIONSHIP BETWEEN INDUCTION OF NEWLY RECRUITED TEACHERS AND THE STUDENT ACADEMIC PERFORMANCE IN NYANDARUA SOUTH SUB COUNTY.**
Kindly assist him.

TSC COUNTY DIRECTOR
13 JAN 2021
SIGN.....
NYANDARUA

RUSSELL WAFULA
TSC COUNTY DIRECTOR
NYNDARUA

Appendix VII: A sample induction program by Nyandarua County TSC officials



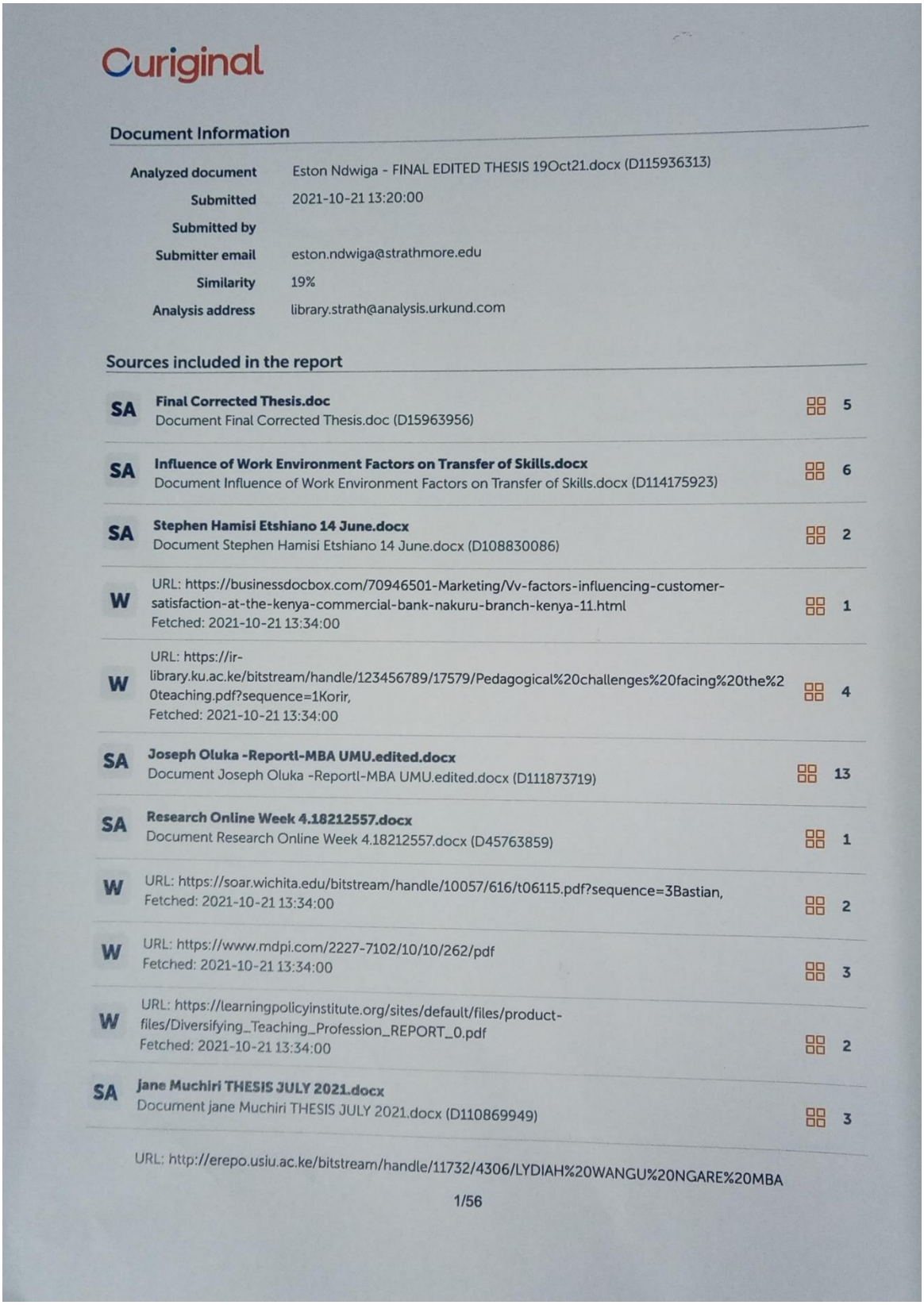
OGRAMME FOR OFFICERS

1	OVERVIEW OF TSC FUNCTIONS AT TSC	MARTHA MBUGUA-DCD
2	TSC STRUCTURE SERVICES AT THE COUNTYAND SUB COUNTY	PENINNAH MWALE –SCD KINANGOP
3	PROBATION AND CONFIRMATION OF APPOINTMENT TYPES OF LEAVES	RUCHEL LENTANDANYA –SCD KIPIPIRI
4	EXIT FROM SERVICE	STEPHEN KAMMANJA –SCD NYANDARUA SOUTH
5	PERFORMANCE APPRAISAL	WINNY STRONG-SCD NYA/WEST STEPHEN KAMMANJA
6	DISCIPLINE	E. KIRIAGO –CHRO –NYANDARUA
7.	ICT	ICT OFFICER-ALEX

TSC COUNTY DIRECTOR
NYANDARUA COUNTY
P.O. Box 224-20303
OLKALOU

11/06/2024

APPENDIX VIII: Plagiarism report



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Submitter email	eston.ndwiga@strathmore.edu
Similarity	19%
Analysis address	library.strath@analysis.urkund.com

Sources included in the report

SA	**Final Corrected Thesis.doc** Document Final Corrected Thesis.doc (D15963956)	5
SA	**Influence of Work Environment Factors on Transfer of Skills.docx** Document Influence of Work Environment Factors on Transfer of Skills.docx (D114175923)	6
SA	**Stephen Hamisi Etshiano 14 June.docx** Document Stephen Hamisi Etshiano 14 June.docx (D108830086)	2
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W	URL: https://ir-library.ku.ac.ke/bitstream/handle/123456789/17579/Pedagogical%20challenges%20facing%20the%20teaching.pdf?sequence=1Korir, Fetched: 2021-10-21 13:34:00	4
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W	URL: https://learningpolicyinstitute.org/sites/default/files/product-files/Diversifying_Teaching_Profession_REPORT_0.pdf Fetched: 2021-10-21 13:34:00	2
SA	**Jane Muchiri THESIS JULY 2021.docx** Document jane Muchiri THESIS JULY 2021.docx (D110869949)	3

URL: http://erepo.usiu.ac.ke/bitstream/handle/11732/4306/LYDIAH%20WANGU%20NGARE%20MBA

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