DEPENDABILITY OF STUDENTS LEARNING OUTCOMES ON PERFORMANCE APPRAISAL FOR TEACHERS IN PUBLIC SECONDARY SCHOOLS IN KISII COUNTY, KENYA

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DECLARATION

Students' Declaration

I declare that this thesis is my original work and has not been presented in any university/institution for certification. The thesis has been complemented by referenced works duly acknowledged. Where text, data (including spoken words) graphics, pictures or tables have been borrowed from other works including the internet, these are specifically accredited and references cited using current APA system and in accordance with anti-plagiarism regulations.

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Supervisors' Declaration

We confirm that the work reported in this thesis was carried out by the candidate under our supervision as University Supervisors.

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DEDICATION

I dedicate this thesis to the Almighty God for the gift of life and to my children: Stephanie, Candy, Gretel and Sally for their prayers and suppleness during the time which I was pursuing this Ph.D. programme.

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ABBREVIATIONS AND ACRONYMS

AITSL	Australian Institute of Teaching and School Leadership
AM	Accountability Model
ATPD	Australian Teacher Performance and Development
CPD	Continuous Professional Development
CVC	Content Validity Coefficient
DAS	Development Appraisal System
FfT	Framework for Teaching
INSET	In-Service Education and Training
IQMS	Integrated Quality Management System
ISPFTED	Integrated Strategic Planning Framework for Teacher Education and Development
KCSE	Kenya Certificate of Secondary Education
KESI	Kenya Education Staff Institute
KICD	Kenya Institute of Curriculum Development
KNEC	Kenya National Examinations Council
KPSHA	Kenya Primary School Heads Association
KSSHA	Kenya Secondary School Heads Association
KUPPET	Kenya Union of Post Primary Education and Training
MET	Measures of Effective Teaching
MMRD	Mixed Methods Research Design
NACOSTI	National Commission for Science, Technology and Innovation
NBPTS	National Board for Professional Teaching Standards
NCLB	No Child Left Behind
OBE	Outcome-based Education
PDM	Professional Development Model
SSIS	Semi-structured Interview Schedule

TPAQ	Teacher Performance Appraisal Questionnaire
RISE	Research-based Inclusive System of Evaluation
SACMEQ	Southern Africa Consortium for Monitoring Educational Quality
SATQ	Student Appraisal of Teachers Questionnaire
SLO	Student Learning Outcomes
SMB	School Management Board
SPSS	Statistical Package for Social Sciences
TEA	Teacher Evaluation Activities
TEPIK	Teacher Performance and Integrity in Kenya
TPAD	Teacher Performance Appraisal and Development
TSC	Teachers Service Commission
TRIPOD	Student Survey Questionnaires
VAM	Value Added Models
WDI	Wisconsin Department of Instruction

ABSTRACT

The underlying purpose of performance appraisal for teachers is to promote quality teaching and student learning outcomes. However, there is a dearth of research-based literature on dependability of student learning outcomes on performance appraisal for teachers in public secondary schools in Kisii County hence the need for this study whose objectives were to establish the relationships between performance appraisal variants of teacher qualifications, professional development, teacher experience, appraisal ratings and student survey ratings with student learning achievement. The theoretical framework was based on Locke's (1968) goal-setting and Vrooms' (1964) expectancy theories. The study adopted the explanatory sequential mixed methods research design. The population was 50,379 comprising of 3,759 teachers and 46,620 students. In phase one, principals, deputy principals and heads of departments participated in their capacity as teachers. Using the simple random sampling technique, a sample of 758 consisting of 362 teachers and 397 students was determined using Slovene's formula. In the second phase, a sample of 27 comprising of 9 principals, 9 deputy principals and 9 heads of department was purposively selected on the basis of their roles as appraisers under the TPAD framework. Questionnaires for teachers and students were used to collect data in phase one while a semi structured interview schedule for principals, deputy principals and heads of department was used in phase two. The instruments were piloted on 1% of the sample and their validity assessed by two experts in research and educational management respectively. Reliability of the teacher questionnaire was found to be.749 and .771 for the student questionnaire for 7 items in each instrument. Reliability of the semi-structured interview schedule was ascertained using the constant comparative method. Data collected was analyzed with the aid of the Statistical Package for the Social Sciences (SPSS) computer programme. Data was presented in contingency tables and analyzed in terms of frequencies, percentages, Pearson's correlation coefficient, chi-square and linear regression based on teacher appraisal variables and student learning achievement. Qualitative data was analyzed thematically using direct respondent quotations that were triangulated with findings from phase one. The findings show that the contribution of teacher performance under the TPAD framework to learning achievement was minimal at R=.085. The R^2 computed yielded a value of .007, suggesting that teacher performance explained .7% of students' learning achievement in the study locale. However, the multiple regression model constructed to measure influence of performance appraisal on student learning achievement yielded R=.475 while R^2 computed was .226 suggesting that the model could explain 22.6% of student learning achievement in the study locale. As a result, all the five null hypotheses of this study were upheld. These findings led to the conclusion that TPAD contributes minimally to student learning achievement in public secondary schools in Kisii County. The findings of this study are significant because they provide research-based information useful to TSC and other education stakeholders in developing programmes to elevate and motivate teachers through professional development. Based on the findings, it is recommended that TSC together with other education stakeholders should consider the re-engineering of teacher appraisals to fit within the broader school performance management system that incorporates variables influencing student learning achievement. Finally, further research is recommended to develop a performance management model for schools in which performance appraisal for teachers shall be integrated.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter presents the introduction and background to the study under the following sub-headings: Background to the study; statement of the problem; purpose of the study; research objectives; research hypotheses; significance of the study; limitations and delimitations of the study; assumptions of the study; theoretical and conceptual framework; and operational definition of key terms.

1.2 Background to the Study

Research studies show that student learning outcomes depend on many factors. For instance, a research synthesis by Hattie (2009) shows that student learning outcomes depend on factors attributed to the students themselves (50%), impact of teachers (30%), home environment factors (5%), school environment (5%), influence of peers (5%) and school principal (5%). Hattie's findings seems to suggest that 30% of student learning outcomes depend on factors attributed to teachers.

Extant literature portrays some specific teacher-related factors such as qualifications, development and experience as significantly influencing student learning outcomes although there is no consensus on the matter. For example, teacher qualifications were found found to significantly influence student learning outcomes in studies by Adeyemi (2010); Goe (2007); Yala and Wanjohi (2011) respectively. However, studies by Buddin and Zamarro (2009); Kimani, Kara and Njagi (2013); Koedel and Betts (2007); Kosgei, Jairo and Ayugi (2013) refuted the assertion that teacher qualifications significantly influence student learning outcomes.

Research studies also show that professional development for teachers significantly influence student learning outcomes (Hill, Ball, Blunk, Goffney & Rowan, 2007; Yoon, Duncan, Lee, Scarloss & Shapley, 2007). Nonetheless, there is scanty information on studies that refute these assertions. Furthermore, teacher experience is reported as significantly influencing student learning outcomes in studies by Carroll and Foster (2010); Loeb and Beteille (2008); Goe (2007); Rockoff, Jacob, Kane and Staiger (2008); and, Yala and Wanjohi (2011). However, experience is not significantly related to student learning outcomes in a study carried out in Nyandarua County (Kimani, Kara, and Njagi, 2013).

Moreover, literature postulates that student learning outcomes are attributable to teacher behaviours such as feedback, instructional quality and direct instruction, although the contribution tends to decline beyond the first five years in teaching (Clotfelter, Ladd, & Vigdor, 2007; Darling-Hammond, 2007; Gordon, Kane & Staiger, 2006; Kane, Kerr & Pianta, 2014; and Rockoff et al, 2008).

The contribution of teachers to student learning outcomes can be determined using the performance appraisal ratings. Performance appraisal starts with establishment of performance standards followed by communication of performance expectations, measurement of actual performance, comparison of actual performance with anticipated performance and ends with initiation of corrective action where necessary (Surbhi, 2015). Performance appraisal embraces the four stages of Locke's (1968) goal-setting theory notably setting of goals; enlisting acceptance and participation of employees; providing appropriate support and resources; and lastly, providing timely employee performance appraisal feedback (Okumbe, 1999).

Similarly, performance appraisal for teachers may be linked to Victor Vrooms' (1964) expectancy theory which suggests that teachers will be motivated by an appraisal system whose outcomes are strongly valued (valence); bestows teachers with self-confidence to

achieve performance expectations (expectancy); and, ensures certainty that achievement of pre-determined performance targets will lead to desired rewards (instrumentality). There is evidence in literature of reforms on performance appraisal for teachers aiming at improving student learning outcomes in several parts of the world such as New Zealand, USA, Australia, South Africa and Kenya.

The performance appraisal system in New Zealand describe three levels of teacher development: Beginning classroom teachers, classroom teachers and experienced classroom teachers respectively. The first level comprises of teachers who are provisionally registered in the first two years of teaching while the second level constitute teachers who have had three successful attestations at the classroom level. The third level consists of registered teachers with teaching experience of between three and five years respectively (OECD, 2010). Performance of teachers in each of the three categories is based on established professional teaching standards.

Consequently, an evaluation conducted by the Education Research Office in New Zealand (ERO, 2014) on approaches to teacher appraisal revealed that teacher appraisal systems were elaborate in the schools studied. However, there was limited proof that the appraisal systems adequately influenced students learning outcomes. Additionally, principals in the schools studied did not understand how they could utilize teacher appraisals to achieve targeted students learning outcomes.

Likewise, performance appraisal systems for teachers in the USA embrace three levels of professional development namely: Newly employed teaches; experienced teachers; and experienced teachers who need support (Charlotte and Mc-Greal, 2000). Moreover, measurement of teacher performance using Research-based Inclusive System of Evaluation (RISE) produced reliable results (Chaplin, Gill, Thompkins & Miller, 2014). The system called RISE is based on the Framework for Teaching (FfT) which consider

teaching under four domains of planning and preparation, classroom management, instructional strategy and, professional responsibilities (Danielson, 2013).

Equally, the use of student surveys called 7Cs to evaluate the performance of teachers yielded reliable results in the study on Measures of Effective Teaching (Bill and Melinda Gates Foundation, 2012). Additionally, Value Added (VAM) models were successfully used to determine the contribution of teachers to student learning outcomes by tracking changes in student test scores in local curriculum-based assessments for a period of up to three years (Johnson, Lipscomb, Gill, Booker, & Bruch, 2012). However, Chaplin et al (2014) observes that:

> RISE and 7Cs ratings may capture teacher skills that affect student outcomes that are not measured in the tests used for the VAM estimates. For example, RISE and 7Cs ratings might capture teachers' contributions to students' creativity, perseverance, and positive behaviors, which may not be perfectly correlated with test scores" (Chaplin et al, 2014, p. ii).

Despite positive research findings on the reliability of using RISE, 7Cs and VAM estimates in performance appraisal for teachers certain limitations suffice. For example, some components of RISE and 7Cs may not significantly be correlated with VAM estimates, but this does not compromise their validity (Chaplin et al, 2014). Despite the fact that students reliably evaluated the performance of their teachers in the MET (2012) study, there is inadequate literature on its applicability in performance appraisal for teachers around the world.

Nonetheless, in South Africa, quality of teaching is generally poor despite efforts of government and the private sector (CDE, 2015). The integrated Strategic Planning Framework for Teacher Education and Development (ISPFTED, 2011-2021) also referred to as the 'Plan', delinks teacher appraisal for development from appraisal for remuneration and salary progression. The appraisal system was marred with lack of consensus on the implementation between teachers and the government (CDE, 2015).

In Kenya, the Kenya National Education Sector Plan (NESP, 2013-2018) underscores the Government's commitment to enhance student learning outcomes by addressing a number of quality issues including use of assessments and introduction of relevant development programmes to enhance teachers' pedagogical skills (Republic of Kenya, 2014). Consequently, the performance appraisal policy for teachers (TSC, 2016) was introduced in order to "improve teaching standards through a systemic appraisal approach, with a view to evaluate teachers' performance and promote professional development for enhanced learning outcomes" (TSC, 2016.p.2). The new appraisal framework defines teaching standards with seven performance competency areas five of which are related to student learning outcomes namely professional knowledge and application; time management; professional development; learner safety and teacher conduct; and, collaboration with parents, guardians and stakeholders (TSC, 2016).

The new performance appraisal framework rates the teacher using a five-point Likert scale on a termly basis. Overall rating scores in excess of 81% percent translates to 'very good' performance indicating that the teacher achieved and exceeded set targets. The other ratings are between 61%-80%-Good; 41%-60%-Average; 21%-40%-Below average and 0%-20%-Inadequate performance respectively (TSC, 2016). Good performance indicates that the teacher fully met the set targets while average performance implies that the teacher met most of the targets. Likewise, below average performance indicates that some of the targets were met while inadequate performance indicates that no target was met.

Notwithstanding, performance appraisal in the reviewed countries is undergoing transformation, a phenomenon described as 'work in progress' (OECD, 2009a) which implies that an ideal appraisal system is yet to be established. Furthermore, there is scanty research-based literature on the dependability of student learning outcomes on performance appraisal for teachers particularly in secondary schools at international and local levels. Similarly, performance appraisal systems are not uniform across countries but they exhibit

certain similarities and differences. For instance, the appraisal system in Kenya does not differentiate teachers in terms of their qualifications and experience like is the case in USA, New-Zealand and Australia.

1.3 Statement of the Problem

Extant literature underscores the fact that performance appraisal for teachers is important in enhancing student learning outcomes. In an ideal situation, high teacher performance appraisal ratings should correspond with high student learning outcomes measured by test scores in a specific subject. Research on dependability of student learning outcomes on teacher traits such as qualifications, development, experience, application of professional knowledge; time management; learner protection; safety and teacher conduct; and, collaboration with parents, guardians and stakeholders present mixed findings. Equally, though student surveys on teacher performance yield reliable results there is paucity of information on their use in performance appraisal for teachers in Kenya. Despite government interventions to improve performance appraisal for teachers, student learning outcomes at national level and specifically in public secondary schools in Kisii County are low. Although improvement of the teacher performance appraisal framework seeks to better student learning outcomes, it remains unclear as to whether use of appraisal ratings for teachers can reliably predict student earning outcomes, hence, the need for this study.

1.3.1 Purpose of the Study

The purpose of this study was to assess dependability of student learning outcomes on performance appraisal for teachers in public secondary schools in Kisii County.

1.3.2 Objectives of the Study

The specific objectives of this study were to:

1. Determine the relationship between teachers' qualifications and student

learning achievement in public secondary schools in Kisii County

2. Establish the influence of professional development on student learning achievement

3. Determine the relationship between teachers' experience and student learning achievement

4. Establish the relationship between appraisal ratings and student learning achievement

5. Determine the relationship between student survey ratings and student learning achievement

1.3.3 Hypotheses of the Study

This study sought to test the following five hypotheses:

1. H_o: There is no statistically significant relationship between teacher qualification and student test scores in public secondary schools in Kisii County, Kenya (at α=.05 confidence level).

   H_1: There is a statistically significant relationship between teacher qualification and student test scores in public secondary schools in Kisii County (at α=.05 confidence level).

2. H_o: Professional development for teachers does not significantly influence student test scores in public secondary schools in Kisii County (at α=.05 confidence level).

   H_1: Professional development for teachers significantly influence student test scores in public secondary schools in Kisii County (at α=.05 confidence level).

3. H_o: There is no significant relationship between teacher experience and student learning achievement in public secondary schools in Kisii County

(at α=.05 confidence level).

H_1: There is a significant relationship between teacher experience and student learning achievement in public secondary schools in Kisii County (at α=.05 confidence level).

4. H_o: Appraisal ratings are not significantly related with student learning achievement (at α=.05 confidence level).

   H_1: There is a statistically significant relationship between appraisal ratings and student learning achievement scores in public secondary schools in Kisii County (at α=.05 confidence level).

5. H_o: There is no statistically significant relationship between student survey ratings and student learning achievement (at α=.05 confidence level).

   H_1: There is a statistically significant relationship between student survey ratings and student learning achievement (at α=.05 confidence level).

1.4 Significance of the Study

The findings of this study have both theoretical and practical implications. Theoretically, the study contributes to literature on teacher contribution to student learning outcomes especially in public secondary schools in Kisii County. Information on teacher contribution is obtained through the performance appraisal process which is directly linked with student test scores in respective subjects. Practically, this study provides information that is valuable to policy makers and researchers.

For instance, the Ministry of Education, TSC, Kenya Education Management Institute (KEMI), and School Boards of Management (BOMs) will particularly find the results invaluable especially when developing programmes seeking to elevate the status and motivation of teachers through professional development. Teacher unions such as Kenya National Union of Teachers (KNUT) and Kenya Union of Post Primary Education Teachers (Kuppet) will find results beneficial to aid negotiations with Government through TSC for better terms and conditions of service based on reliable data on the performance

for individual teachers.

The findings of this study are inconclusive hence they will be useful to researchers in the field of education especially in their endeavors to develop an ideal teacher performance appraisal model for use in secondary schools. The results also present valuable baseline information on the contribution of teachers to student test scores in public secondary schools in Kisii County.

Teachers and students in public secondary schools will equally benefit especially if the results lead to necessary policy reform on teacher appraisal, then, teachers will be highly motivated for being able to reliably associate their performance with student test scores. In addition, teachers will be able to use student test scores in regulating their performance to the benefit of their students. On the other hand, students especially in secondary schools stand to gain by being enlightened on how they can appraise their teachers, a role that is gaining credibility in the contemporary world.

1.5 Limitations of the Study

This study encountered several limitations. Firstly, there was paucity of local literature linking key research variables hence reliance on the available international literature. For instance, available local literature on performance appraisal did not link professional development and teacher performance to student learning outcomes. In all cases where performance appraisal was conducted the appraisal tools were not uniform or identical in terms of their items. This challenge was mitigated by ensuring that only ratings on specific items found in all appraisal tools with a link to student test scores were considered such as professional knowledge and application; time management; learner protection; safety and teacher conduct; professional development, and, collaboration with parents, guardians and stakeholders. Besides, no appraisal rates were used from an instrument without all the stated factors.

Students who participated in this study had not been inducted on how to fill the questionnaires nor did they have prior experience on filling this kind of questionnaire. As a result, students were initially tense as if they were sitting an exam thus taking more time than anticipated to complete the questionnaire. This challenge was mitigated by the researcher who was physically present to constantly assure students that the questionnaire was not an examination. Students also received necessary guidance from the researcher on how to fill the questionnaires before commencing on with the exercise.

Scheduling of interviews with teachers and principals seemed challenging and in several occasions re-scheduling was necessary even at the last minute with cost implications to the researcher. As a result, there was constant communication between the researcher and interviewees in order to ensure that interviews were conducted as scheduled and that rescheduling was done conveniently without unnecessary additional financial burden to both the researcher and interviewees.

1.6 Delimitations of the Study

This study assessed dependability of student learning outcomes on performance appraisal for teachers using the explanatory mixed method research design. The TPAD performance appraisal tool consists of seven items but only five of the seven items (professional knowledge and application; time management; learner protection; safety and teacher conduct; professional development, and, collaboration with parents, guardians and stakeholders) were considered in this study due to their connection with student test scores. As a consequence, aspects on the performance of a teacher with no linkage to student test scores were not considered.

The participants in this study were principals, teachers and students in public secondary schools because the teacher performance appraisal policy is not mandatory in private schools. Principals and teachers who participated in the first phase also participated in the

second qualitative phase of the study in cases where it was deemed necessary by the researcher. Likewise, the population consisted of teachers who were pursuing further studies in various universities and institutions of higher learning and those on paid study leave for the purpose of sampling because they were permanent TSC employees. However, teachers who did not teach during the period under consideration were not selected for this study. The findings arising from this study should be generalized to the extent of the methodology and aspects of teacher performance considered.

Although students are not directly involved in appraising their teachers under the existing framework, this study elicited their views on the performance of their teachers to provide additional insights on the relationship between performance appraisal ratings and student test scores. Students did not participate in the second phase due to the design adopted in this study. In addition, despite professional qualifications and teacher experience not being considered in the existing appraisal framework, they were factors considered in this study because they are teacher traits likely to influence performance. Generalizations on the influence of performance appraisal for teachers on student learning outcomes should not include these factors whose purpose was to establish whether an expanded performance appraisal framework could yield different results.

Performance appraisal ratings for teachers were obtained in 11 subjects notably: Mathematics, English, Kiswahili, Biology, Chemistry, Physics, Geography, History, Christian Religious Education, Agriculture, and Business Studies. Appraisal ratings for each principal and or teacher were obtained only in one preferred subject although in some cases teachers taught two subjects. Findings of this study are relevant under the stated circumstances and due care should be observed if the results are to be applied elsewhere.

1.7 Assumptions of the Study

This study was based on the following assumptions:

a) Most of the factors associated with teacher performance such as qualifications, development, experience and teacher behaviours can be altered or changed.

b) In order to maximize the performance of teachers, their traits and behaviours in the classroom should change.

c) The underlying purpose of performance appraisal for teachers is to promote student learning outcomes by enhancing teacher competency on a continuous basis through professional development

d) Professional development takes a specific career growth path which involves acquisition of certain key competencies at various stages over time

e) Experience is in terms of the number of years in the teaching service is equivalent to professional growth experienced as per six stages of Steffy, Wolfe and Enz (2000) model.

1.8 Theoretical Framework of the Study

The two underlying theories of this study are Locke's (1968) goal-setting and Vrooms' (1964) expectancy theories respectively. The theories are complementary in explaining the relationships between performance appraisal and student learning outcomes.

1.8.1 The goal-setting theory

Locke's goal-setting theory suggests that individual employees establish goals which motivate them to achieve higher performance (Salaman, Storey & Billsberry, 2005). The goal-setting theory seems to suggest that employee performance behaviours are likely to change depending on the goals of the task to be performed. Through goal-setting, employees are likely to benefit by having enhanced focus on a particular task or objective; increased efforts; enhanced persistence on the task; and, stimulation of creativity and innovativeness in a four-stage process as shown in Figure 1.1

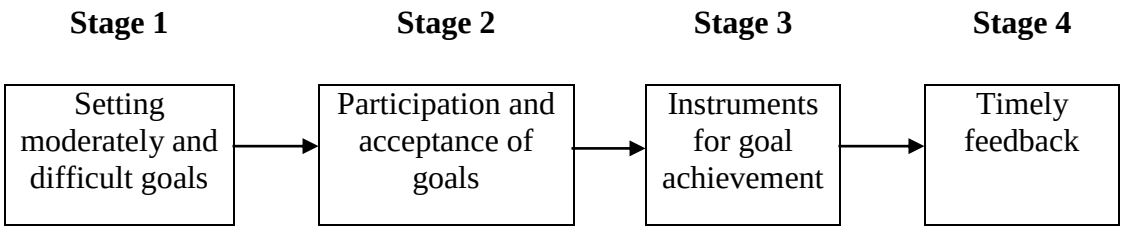

Figure 1.1: A four-step goal setting model. ***Source:*** Okumbe, 1999.

The first stage involves setting of SMART goals (Simple, Measurable, Achievable, Realistic, and Time-bound) by management. At the second stage, the management enlists participation of employees in the process of setting goals and to adopt the goals as their own. During the third stage, management provides appropriate support and resources to employees for goal-achievement. Lastly, in the fourth stage the management provides timely employee performance appraisal feedback.

The goal-setting theory is applied in performance appraisal which entails five stages notably: Establishment of performance standards, communication of performance standards, measurement of actual performance, comparison of actual and anticipated performance and initiating corrective action where necessary (Surbhi, 2015). The goal-setting theory emphasizes that employees are able to modify their goals depending on their performance. If employees clearly understand performance appraisal framework, they are likely to be engaged in the appraisal process in a productive manner that enhances their professional development and student learning outcomes.

1.8.2 The expectancy theory

Vrooms' expectancy theory suggests that employees are motivated by three factors namely the strength of an employee's preference for a particular outcome (valence), probability that action or effort will lead to a particular performance (expectancy), and probability that performance will lead to a desired reward (instrumentality). The expectancy theory is applicable in performance appraisal for teachers which entails the establishment of

performance standards, communication of performance standards, measurement of actual performance, comparison of actual and anticipated performance and initiating corrective action where necessary (Surbhi, 2015).

The performance standards set should be worthwhile to teachers (valence) and should also match the qualifications, professional development and experience of teachers in order to boost their self confidence that their effort will yield the expected performance outcomes (expectancy). Moreover, attainment of the expected level of performance should confer to teachers valued benefits or rewards or motivation (instrumentality). If the outcomes of the teacher performance appraisal and development are valued by the teachers, they are likely to motivate teachers to actualize performance goals set.

1.8 Conceptual framework of performance appraisal and learning outcomes

The conceptual framework of this study is based on empirical research findings that depict performance appraisal variants of qualification, development, experience, appraisal ratings and student survey ratings as influencing student learning achievement as shown in Figure 1.2. Student surveys are used as an alternative method of appraising teachers as supported in literature (Bill and Melinda Gate Foundation, 2012).

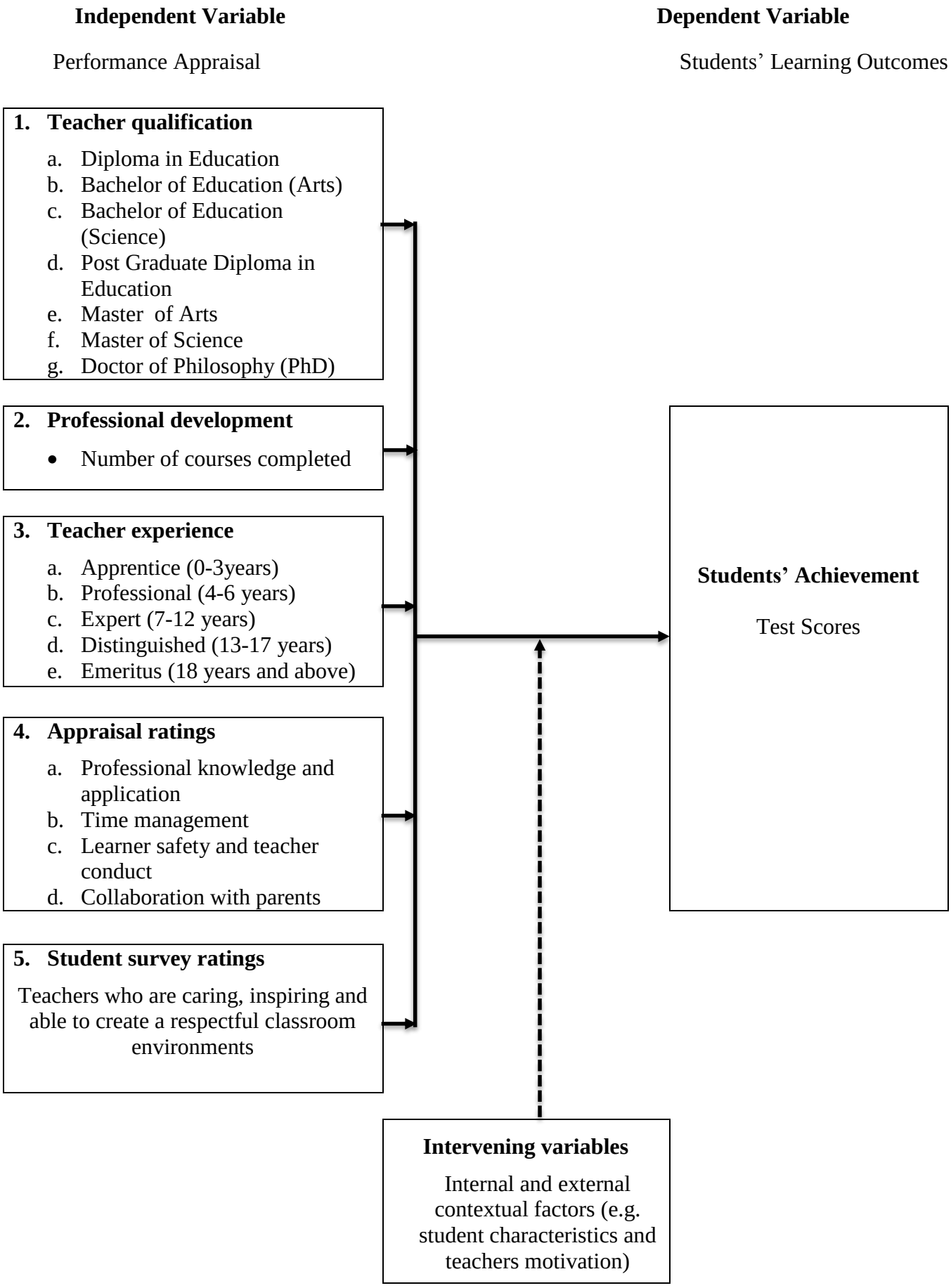

Figure 1.2: Conceptual framework of performance appraisal and learning outcomes

Source: Researchers' Own

Figure 1.2 shows the relationships between the independent and dependent variables. Literature portrays that significant relationships exist between the performance appraisal variables (qualification, professional development and experience) and student learning achievement (Adeyemi, 2010; Goe, 2007; Yala & Wanjohi, 2011). The theoretical framework informs that teachers can set goals on qualifications, development, and experience that would enable them attain certain ratings through performance appraisal and or student survey ratings.

Performance appraisal under the TPAD (2016) framework, consists of seven competency areas five of which are linked with student learning achievement namely professional knowledge and application, time management, learner safety and teacher conduct, professional development, and collaboration with parents. According to the theoretical framework, performance targets set under the TPAD framework are in line with Locke's goal-setting theory but they should yield outcomes that are valued by teachers in line with the 'valence' construct of Vrooms' expectancy theory. The outcomes of attaining or exceeding performance targets and enhancing student learning achievement consistently should elevate the professional status of the teacher. If the performance appraisal practice can guarantee the stated outcomes in line with the 'instrumentality' construct of the expectancy theory, teachers are likely to sustain their high level of performance

Additionally, multiple use of performance appraisal measures is recommended in literature (Goe, 2007). As a result, alternative appraisal for teachers could be achieved by administering student surveys. Available literature shows that student surveys provide reliable measures of teacher performance and as such there is a likelihood that teacher performance ratings generated through TPAD will be similar to those generated through student surveys. In this study, the Student Appraisal of Teachers Questionnaire (SATQ) was developed using the concept of 7Cs that was employed to develop the student survey questionnaire in the MET study of 2009.

In this study, student learning outcomes was the dependent variable which was determined by achievement in test scores attained by students during the TPAD performance appraisal cycle. The relationships between the dependent and independent variables were influenced by intervening variables as informed by literature that emanate from the external and internal teaching contexts as well as student characteristics. The external context consists of factors such as the physical facilities, equipment and school-community relationships while the internal teaching context constitutes class characteristics such as size, average ability, and heterogeneity (Medley, 1982).

Furthermore, intervening variables included the individual student characteristics such as ability, interests, values and background. The impact of intervening variables on the relationships between the dependent and independent variable was examined qualitatively during the second phase of this study. The conceptual framework postulates that performance appraisal variants of qualification, professional development, teacher experience, appraisal ratings and student surveys influence student learning achievement.

1.9 Operational Definitions of Significant Terms

Dependability	The extent to which student test scores rely on teacher traits and behaviours
Learning Experiences	Refers to the interactions between teachers and learners that occur in a classroom or school where learning takes place
Learning Outcomes	Refers to student test scores attained at the end of the school term
Performance Appraisal	Refers to determination of teacher performance by measuring their traits and behaviours that influence student learning outcomes
Planning and Preparation	Refers to the teacher's understanding of content to be taught, knowledge of student backgrounds, and design of instruction and assessment
Professional Development	Refers to growth in knowledge and skills arising from experience in the teaching role and continuous on-job training
Professional Responsibilities	Refers to the teacher's display of high ethical standards and a deep sense of professionalism
Student Perception Surveys	Questionnaires used by students to measure teacher performance based on seven thematic areas
Teacher Experience	Progressive competence demonstrated by teachers by the number of years taken in the active and continuous teaching.
Teacher Performance	Refers to extent to which qualification, development, experience and teacher behaviour influence student learning achievement
Teacher Qualification	Refers to the highest academic and professional certification held by a teacher

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The purpose of this study was to assess dependability of student learning outcomes on performance appraisal for teachers in public secondary schools in Kisii County. Literature review focused on two main concepts namely performance appraisal (Independent variable) and students learning outcomes (dependent variable). Specifically, literature was reviewed according to the main research variables and the five research objectives notably: Performance appraisal and student learning outcomes, teacher qualifications and student learning achievement, professional development and student learning achievement, teacher experience and student learning achievement, appraisal ratings and student learning achievement, and student survey ratings and student learning achievement. The research gaps that were identified are summarized at the end of this chapter.

2.2 Performance Appraisal and Students' Learning Outcomes

Performance appraisal is a key ingredient of the whole performance management system which is used as a parameter for evaluating performance of employees against set standards (Dessler, 2008). Performance appraisal according to Sapra (2012) is a process of reviewing past performance, rewarding past performance, goal setting for future performance and employee development (p.114). Moreover, performance appraisal is viewed as the evaluation of individual employee traits, behaviours and output in a specified period of time (Karimi, Malik & Hussain, 2011).

Learning outcomes refers to what the learners can actually do with what they know and understand in a specific situation. (Anabel, Khan& Shah, 2015). Similar understanding is

upheld by Donnelly and Fitzmaurice (2005). In this study learning outcomes refers to student test scores attained at the end of the school term.

Performance appraisal systems tend to focus either on traits, behaviours or work-related outcomes or a combination of the factors. Figure 2.1 shows the process of performance appraisal.

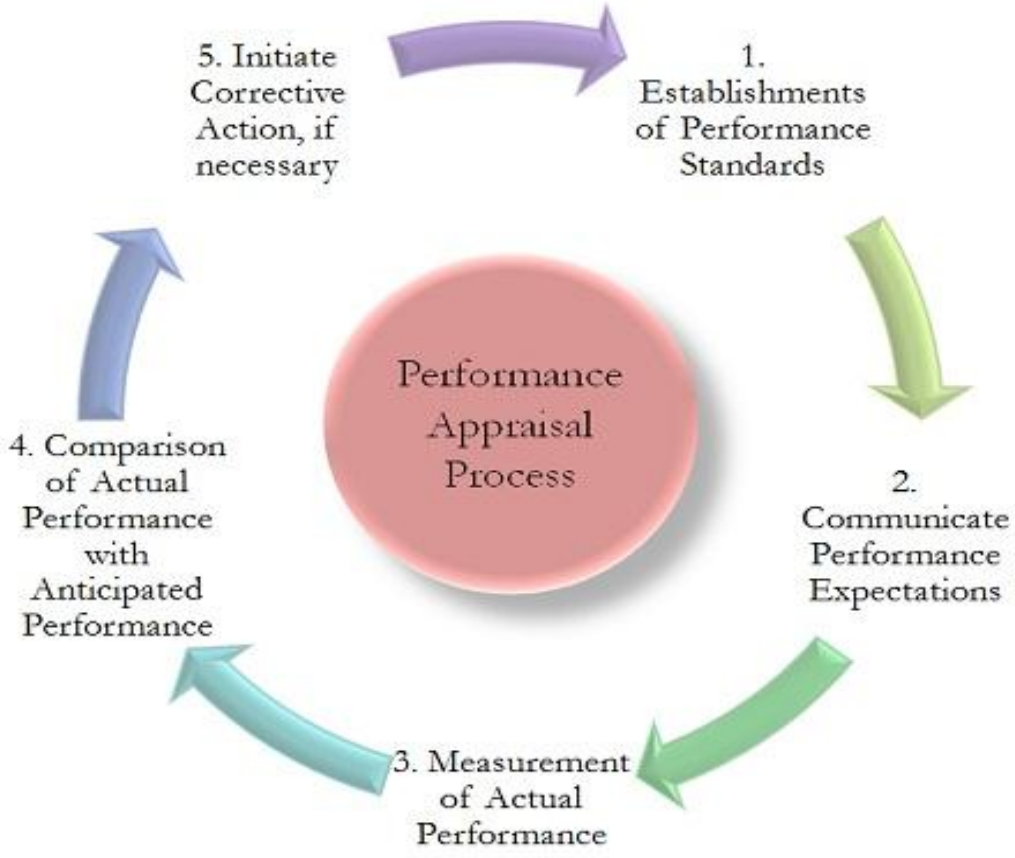

Figure 2.1: Performance Appraisal Process. *Source:* Surbhi (2015)

The performance appraisal process as illustrated in Figure 2.1 starts with establishment of performance standards followed by communication of performance expectations, measurement of actual performance, comparison of actual performance with anticipated performance, and initiating corrective action where necessary. Attention should be extended to communication, commitment and collaboration in order to create an environment in which appraisal can result in quality instruction (Stronge, 2006).

The purpose of performance appraisal for teachers is three-fold: to provide information on individual performance, determine performance improvement mechanisms and provide

ways of holding teachers accountable for their work (Stronge, 2006). Performance appraisal leads to improved performance (Warokka, Gallato & Moorthy, 2012). Extant literature shows that the performance appraisal criteria for teachers focuses on multiple aspects of traits and behaviours in teaching (Densel & Reichl, 2011). Moreover, literature shows that employee traits, behaviours, competencies, goal achievement, and improvement potential are common performance appraisal criteria (Boyd, Grossman, Lankford & Wyckoff, 2011).

The performance appraisal criteria for teachers in countries reviewed in this study shows that behaviours, competencies and improvement potential are commonly adopted. Teachers are appraised on pre-set standards formulated from what they know and are expected to do. In Australia for instance, the performance appraisal system for teachers reviewed in 2011 recognize 3 teaching domains namely: Professional knowledge, professional practice and professional engagement (AITSL, 2011). Similarly, the Danielson's framework for teaching (FfT) is used in a number of counties in USA which recognize four domains of teaching notably: Planning and preparation, classroom management, instructional strategy and professional responsibilities (Danielson, 2013).

In Kenya, the new Teacher Performance Appraisal and Development (TPAD) policy implemented in 2016 by Teachers Service Commission (TSC) focuses on one teacher trait (professional development) and six teacher behaviours all of which are referred to as competency arrears namely: (1) professional knowledge and application; (2) time management; (3) innovation and creativity in teaching; (4) learner protection, safety, discipline and teacher conduct; (5) promotion of co-curricular activities; and, (6) professional development; and, (7) collaboration with parents/guardians and stakeholders (TSC, 2016). With exception of the 3rd and 5th criteria the rest identify student learning achievement as an outcome of teacher performance.

Student learning outcome is the independent variable in this study. Education reform target improvement of student learning outcomes and teachers play an important role in this respect (Harwell, 2013). Educational outcomes are what the learners can actually do with what they know and understand in a specific situation (Anabel, Khan, & Shah, 2015; Donnelly & Fitzmaurice, 2005). However, goals, objectives, courses and standards are not interchangeable terms for the word outcome (Orodho, 2009). Outcome-based learning requires that learners must demonstrate achievement of an outcome as well as the processes which have been followed (Bossiere, 2004). In this study, student learning outcomes were synonymous to student learning achievement.

Several frameworks are found in literature that were developed over the years to classify and explain learning outcomes (Anderson & Krathwohl, 2001; Biggs & Collins, 1982; Bloom's, 1956; Dave, 1970; Fink, 2003; Harrow, 1972; Krathwohl, 2002; Simpson, 1972). In this study Anderson-Krathwohl's (2001) and Bloom's (1956) taxonomies are reviewed respectively.

a) Anderson-Krathwohl's (2001) taxonomy for teaching, learning and assessing

Anderson-Krathwohl's taxonomy was driven by concerns over important things that learners should learn, how instruction should be planned for higher levels of learning, appropriate assessment instruments and procedures as well as the alignment of outcomes, instruction and assessment (Orodho, Odundo, Waweru, & Mwanik, 2017). Table 2.1 shows Anderson-Krathwohl's cognitive processes and action verbs for outcomes statements.

Table 2.1.

Anderson-Krathwohl's cognitive processes and action verbs for outcome statements

Cognitive process	Outcome statement	Action verbs
Remember	Retrieve relevant knowledge from long-term memory	*Recognizes, recall, define, describe, identify, list, match, select, state, and reproduce*
Understand	Construct meaning from information and concepts	*Paraphrase, interpret, give examples, classify, summarizes, infer, compare, discuss, explain, rewrite, extrapolate, and translate*
Apply	Carry out a procedure or use a technique in a given situation. This might involve routinely applying procedures or determining which procedure to use in a particular situation	*Change, demonstrate, predict, relate, show how, solve, determine, employ*
Analyze	Separate information into parts and determine how the parts relate to one another and how they relate to an overall purpose or structure	*Analyze, compare, contrast, organize, distinguish, examine, illustrate, point out, relate, explain, differentiate, organize, attribute*
Evaluate	Make judgements based on criteria and (or) standards	*Comment on, check, criticize, judge, critique, discriminate, justify, interpret , support*
Create	Put elements together to form a coherent or functional whole , or recognize elements into a new pattern	*Combine, design, plan, rearrange, reconstruct, rewrite, generate, produce*

Source: Orodho et al (2017). *Monitoring and evaluation in education and social sciences: towards sustainable development*, Kanezja publisher, Nairobi

Table 2.1 shows Anderson and Krathwohl's taxonomy which borrows from Bloom's taxonomy in a number of ways. For instance, it recognizes that different cognitive processes exist as the types of knowledge. It also asserts that in order understand how learners actually learn, one must consider both the type of knowledge they are attempting to acquire and the cognitive processes that need to be applied to that knowledge (Orodho et al, 2017). Anderson and Krathwohl's taxonomy identified four distinct types of knowledge (Factual, conceptual, procedural, and metacognitive) as well as six cognitive processes (remember, understand, apply, analyze, evaluate and create).

Factual knowledge calls for demonstration of basic knowledge required to work in a discipline and include knowledge of terminology and of specific details. Moreover, conceptual knowledge deals with how things are related. It involves knowledge of classifications and categories, principles and generalizations as well as theories, models and structures (Orodho, Odundo, Waweru, & Mwanik, 2017).

Procedural knowledge is concerned with how to do things. It involves knowledge of subject-specific skills and algorithms, techniques and methods, and knowledge of criteria for determining when to use particular procedures. Furthermore, metacognitive knowledge deals with cognition in general and awareness of one's cognition and how to control thinking processes. It includes strategic knowledge, knowledge about cognitive tasks and self-knowledge (Orodho et al, 2017).

b) Bloom's (1956) Taxonomy

Nevertheless, the original works of Bloom and his co-workers are still the most widely quoted in the literature (Kennedy, Hyland & Ryan, 2006). Bloom and his colleagues developed a hierarchy of thinking processes that consisted of the cognitive, affective and psychomotor domains. In each of the three domains, learners' ability to perform progressed from simple to complex activity. Similarly, performance of higher-order activity depended on the ability of the learner to perform lower-order activities.

The cognitive domain consists of six successive levels of thinking processes: Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. The lower-order activities in the cognitive domain starts with knowledge which constitute of activities that equip the learner with the ability to recall or remember facts without necessarily understanding them. Table 2.2 present action verbs associated with the six levels of knowledge by Benjamin Bloom.

Table 2.2

Levels of learning in Bloom's cognitive domain

Level of learning	Action verbs for stating learning outcomes
Knowledge	*Arrange, collect, define, describe, duplicate, enumerate, examine, find, identify, label, list, memorize, name, order, outline, present, quote, recall, recognize, recollect, record, recount, relate, repeat, reproduce, show, state, tabulate, and tell.*
Comprehension	*Associate, change, clarify, classify, construct, contrast, convert, decode, defend, describe, differentiate, discriminate, discuss, distinguish, estimate, explain, express, extend, generalize, identify, illustrate, indicate, infer, interpret, locate, paraphrase, predict, recognize, report, restate, rewrite, review, select, solve, and translate.*
Application	*Apply, assess, calculate, change, choose, complete, compute, construct, demonstrate, develop, discover, dramatize, employ, examine, experiment, find, illustrate, interpret, manipulate, modify, operate, organize, practice, predict, prepare, produce, relate, schedule, select, show, sketch, solve, transfer, use.*
Analysis	*Analyze, appraise, arrange, break down, calculate, categorize, classify, compare, connect, contrast, criticize, debate, deduce, determine, differentiate, discriminate, distinguish, divide, examine, experiment, identify, illustrate, infer, inspect, investigate, order, outline, point out, question, relate, separate, sub-divide, test.*
Synthesis	*Argue, arrange, assemble, categorize, collect, combine, compile, compose, construct, create, design, develop, devise, establish, explain, formulate, generalize, generate, integrate, invent, make, manage, modify, organize, originate, plan, prepare, propose, rearrange, reconstruct, relate, reorganize, revise, rewrite, set up, summarize*
Evaluation	*Appraise, ascertain, argue, assess, attach, choose, compare, conclude, contrast, convince, criticize, decide, defend, discriminate, explain, evaluate, grade, interpret, judge, justify, measure, predict, rate, recommend, relate, resolve,*

Source: Kennedy, Hyland and Ryan (2006). Writing and Using Learning Outcomes. A Practical guide.

Table 2.2 shows the second level of comprehension as the ability to understand and interpret learned information (Kennedy et al, 2006). The third level is application (the ability to use learned material in new situations). The fourth level is analysis which is the ability to break down information into its components while the fifth level is synthesis which is the ability to put parts together. The sixth level is evaluation which consists of the highest-order activities in cognitive domain depicting the ability to judge the value of

material for a given purpose (Kennedy et al, 2006). Table 2.3 present activities that fall under the affective domain.

Table 2.3

Levels of learning in Bloom's affective domain

Level of learning	Action verbs for stating learning outcomes
Receiving (A willingness to receive information)	*Ask, choose, describe, follow, give, hold, identify, locate, name, point to, select, site, erect, reply, and use*
Responding (Individual interest and participation in learning)	*Answer, assist, act, compile, conform, discuss, help, label, perform, practice, present, read, recite, report, select, tell, and write*
Valuing (Demonstrate value acceptance and commitment)	*Appreciate, cherish, treasure, demonstrate, initiate, invite, join, justify, propose, respect, and share*
Organization (Bringing together different values, resolving conflicts and internalizing the values)	*Adhere, alter, arrange, combine, compare, complete, defend, explain, formulate, generalize, identify, integrate, modify, order, organize, prepare, relate and synthesize*
Characterization (Possession of a value system to control behaviour in a consistent and predictable manner)	*Act, discriminate, display, influence, listen, modify, perform, practice, propose, qualify, question, revise, solve, and verify*

Source: Kennedy, Hyland and Ryan (2006). Writing and Using Learning Outcomes. A Practical guide.

The second category of learning activities shown in Table 2.3 constitute the affective domain which is concerned with issues relating to the emotional component of learning. Activities of the affective domain ranges from basic willingness to receive information to the integration of beliefs, ideas and attitudes (Kennedy et al, 2006) and comprises of five categories of receiving, responding, valuing, organization and characterization.

The psychomotor domain is not widely used in education but literature shows that it is commonly used in laboratory science subjects, health sciences, art, music, engineering, drama and physical education (Simpson, 1972). Blooms work on this domain was

incomplete attracting contributions from other scholars like Dave (1970) and Simpson (1972). The latter produced a more comprehensive hierarchy that consisted of seven levels of skills development and coordination. Table 2.4 shows Simpsons' levels of skills development.

Table 2.4

Simpsons' levels of skills development and coordination

Level of Development	Action verbs for stating learning outcomes
Perception (Ability to use observed cues to guide physical activity)	*Choose, describe, detect, differentiate, distinguish, identify, isolate, relate, and select*
Set (mindset) (Readiness to take a particular course of action)	*Begin, display, explain, move, proceed, react, show, state, and volunteer*
Guided response (The trial-and-error attempts at acquiring a physical skill)	*Copy, trace, follow, react, reproduce, and respond*
Mechanism Learned responses become more habitual and movements can be performed with some confidence and level of proficiency.	*Assemble, calibrate, dismantle, fasten, fix, grind, heat, manipulate, measure, mend, organize, and sketch*
Complex Overt Responses Physical activities involving complex movement patterns are possible.	*Assemble, build, calibrate, construct, dismantle, display, fasten, fix, grind, heat, manipulate, measure, mend, mix, organize, and sketch*
Adaptation (Skills are well developed and the individual can modify movements to deal with problem situations or to fit special requirements)	*Adapt, alter, change, rearrange, reorganize, revise, and vary*
Origination (The skills are so highly developed that creativity for special situations is possible)	*Arrange, build, combine, compose, construct, create, design, initiate, make, originate*

Source: Simpson (1972).*The classification of educational objectives in the psychomotor domain: The psychomotor domain*

Table 2.4 shows activities in the psychomotor domain that mainly emphasize physical skills involving co-ordination of the brain and muscular activity. However, Bloom's taxonomy has been widely used in writing learning outcomes because it provides a ready-made structure and list of verbs. However, Bloom's original list of verbs was limited and has been extended by various authors over the years. The use of correct verbs is key to successful writing of learning outcomes (Kennedy, Hyland & Ryan, 2006). Learning outcomes emanate from outcome-based education (OBE). According to Kennedy et al (2006) international trends in education shows a shift towards learner-centred or outcome-based approach which focus on what the students are expected to be able to do at the end of a learning activity. In outcome-based education, learning outcomes focus on what the learner has achieved and can demonstrate at the end of a learning activity rather than the intentions of the teacher.

Orodho, Odundo, Waweru and Mwanik (2017) are cognizant of the fact that the philosophy of outcomes-based education and training is being accepted by training institutions and examination bodies nationally. Outcomes-based education focuses and organizes everything around what is essential for all students to be able to do successfully at the end of the learning experiences. Erasmus, Loedff, Mda and Nel (2010) argue that outcomes-based education commences with a clear picture of what is important for students to be able to do, then curriculum organization, instruction, and assessment to ensure that learning ultimately happens.

Paquet, Morgan and Mello (2014) observe that the use of Student Learning Outcomes (SLOs) in teacher evaluation is fairly new, and rigorous research on its effectiveness is not yet available. However, Paquet et al (2014) found some policies or recommendations on SLOs in newly enhanced teacher evaluation systems which included multiple measures of teacher effectiveness in 30 States in USA. In Kenya, there is paucity of research on SLOs especially during the four-year period when students are pursuing secondary school

education before sitting for KCSE examinations.

Few studies such as Kagete (2013) investigated the extent to which test results are used by teachers in classrooms to enhance learning in secondary schools in Nairobi County. In a paper presented during the International Association for Educational Assessment (IAEA) Conference in Tel-Aviv, Kagete reports that teachers did not have adequate training on how to use assessment results. Kagete stated further that teachers assessed students for diagnostic purposes only using deficient assessment methods. Furthermore, KCSE examination results were found to be minimally utilized to improve student learning.

There's hardly any empirical study in literature specifically focusing on dependability of students learning outcomes on performance appraisal for teachers in Kenya. As a result, there is need to establish the relationship between teacher performance in the five competency areas of TPAD and student learning achievement. This is because research on performance appraisal for teachers reviewed in this study does not explain relationships between performance appraisal and student learning achievement. Nonetheless, there is some evidence in literature of relationships between specific teacher traits such qualifications, development and experience and student learning achievement in secondary schools.

Student involvement in performance appraisal for teachers has provided reliable results especially in the study by Bill and Melinda Gates Foundation titled Measures of Effective Teaching (MET, 2009-2013). In the MET study, students using tripod surveys evaluated teaching quality. Student ratings correlated with classroom observation ratings by trained professionals (Kane, Kerr & Pianta, 2014). The tripod student ratings were more reliable than either value-added test score gains or classroom observations by trained professionals (Ferguson, Phillips, Rowley, & Friedlander, 2015). In the MET study, measurement of teaching was conceptualized using the Tripod 7Cs framework that present seven

components which are strongly supported by research differently and collectively. All the seven components embrace what is important to effective teaching.

The components of the tripod 7Cs framework are further classified into three categories. The first five components constitute elements of student support in which care and confer provide 'personal support', while captivate, clarify, and consolidate provide 'curricular support'. The last two components of challenge and classroom management constitute 'press' (Ferguson et al, 2015).

There is scanty of information on student involvement in performance appraisal for teachers especially in secondary schools. As a result, there is need for empirical studies on student surveys in performance appraisal for teachers to provide an alternative view on teacher performance. Teacher performance should be judged using multiple evaluations (Goe, 2007) and methods such as student performance and assessments; peer observation and collaboration; direct observation of classroom teaching and learning; student surveys and feedback; 360-degree assessment and feedback; self-assessment; parent surveys and feedback; and external observation. At least four of these methods are recommended for use in assessing teacher performance (Densel & Reichl, 2011). This study assessed dependability of student learning outcomes on performance appraisal focusing on five competency areas of TPAD and three selected teacher traits of qualifications, development and experience. Additionally, teacher performance was ascertained using an alternative method i.e. student surveys.

Performance appraisal for teachers in Kenya like in other countries, is undergoing reforms because of the unique challenges facing the process. In Australia for instance, an international survey on teaching and learning dubbed TALIS I (conducted on lower-secondary school teachers in Australia) established that most teachers (78.6%) who had received appraisal and feedback, did not find it helpful in developing their work as teachers.

The survey revealed further that 61% of the teachers felt that their work appraisal had little impact on the way they taught in the classroom. In the same study 91% of teachers reported that the most effective teachers were never given greater recognition while 92% of the teachers felt that being more innovative in teaching would not guarantee greater recognition in their schools (OECD, 2009).

The TALIS 1 study suggests that teachers did not find performance appraisal outcomes valuable in line with the 'valence' construct of Vrooms expectancy theory. Although teachers may have been confident that they can accomplish their performance expectations, they were certain that accomplishing their tasks will not yield any valuable benefits to them in terms of high recognition which is also consistent with the 'instrumentality' construct of the expectancy theory. In addition, the findings of the TALIS 1 suggests that performance appraisal for teachers should not only focus on goal attainment in agreement with Locke's goal setting theory, but should also be predictable and reliable so as lead to valued outcomes which is consistent with the expectancy theory.

In USA, a study conducted to analyze the relationship between teacher evaluation scores and student achievement on district and state tests in a school district of Midwestern employed a value-added framework where the differences between predicted and actual student achievement in mathematics, science and reading in grades 3-8 were correlated with teacher evaluation ratings. The results suggests that a rigorous performance appraisal system can influence student learning achievement substantially and provide criterion-related validity evidence through appraisal ratings (Milanowski, 2009).

In Kenya, a study conducted on teacher appraisal capturing experiences of secondary school teachers concludes that at one end of the performance appraisal continuum the purpose of performance appraisal for teachers is to enhance student achievement through professional development and argues for development of a facilitating model to help

teachers diagnose and solve pedagogical challenges in order to bolster their professional growth. The significance of a model of performance appraisal that facilitate professional growth and student learning achievement is emphasized (Odhiambo, 2005).

However, there is a dearth of research-based literature on dependability of student learning outcomes on performance appraisal for teachers especially in secondary schools and as a result, this study sought to fill this gap.

2.3 Teacher Qualifications and Students' Learning Achievement

Teacher qualifications refer to the academic and professional certification held by a teacher which are recognized by the Teachers Service Commission. In Kenya, teachers are employed by TSC following a criteria spelt out in Part III of the revised Teachers Service Commission Act, No. 20 of 2012, which define two qualifications necessary for registration of teachers. According to the TSC Act, a person who wishes to be registered as a teacher should be of good moral character and hold a relevant certificate issued to him or her under any law relating to education and training or regulations made under the TSC Act (2012).

The qualifications recognized by TSC include diploma and degree certificates issued by accredited teacher training colleges and universities notably: Diploma in Teacher Education (DTE), Bachelor of Education (B.Ed.), Bachelor of Arts (BA), Bachelor of Science (Bsc), Post Graduate diploma in Education (PGDE), Master of Arts (MA); Master of Science (Msc), Master of Education (M.Ed) and Doctor of Philosophy (Ph.D.). Teachers hold multiple certificates since attaining lower qualifications is prerequisite for acquisition of higher qualifications. Teachers with these qualifications are expected to possess competencies necessary to perform effectively. The Teacher Performance Appraisal and Development (TPAD, 2016) framework outlines seven teacher competency areas on which teacher performance is to be measured.

Darling-Hammond (2000) is cognizant of research that identified several factors which influence teacher competence and were consequently found to be related with student learning achievement such as academic ability, years of teaching experience and the behaviour of the teacher in classroom. The extent to which teacher qualifications are related to or influence student learning achievement scores is pertinent because it forms the basis for further professional training and development.

Student learning achievement is an issue of interest to governments, educators, parents and society at large (Yusuf & Adigun, 2010). Research studies have identified factors that contribute to student learning achievement for example Hattie (2003). Teacher qualifications were found to significantly influence student learning outcomes in studies by Adeyemi (2010); Goe (2007); Yala and Wanjohi (2011) respectively.

A descriptive survey to determine factors influencing performance of mathematics at KCSE examinations in Nyamaiya Division, Kenya established that teacher qualification significantly predicted student learning achievement. The study recommended that teacher qualification should be considered in policy formulation (Yala & Wanjohi, 2011). Similarly, Goe (2007) conducted a research synthesis on teacher quality. The findings indicate that high qualifications among mathematics teachers in secondary schools were strongly and consistently related with student achievement in Mathematics than in other subjects. Teachers play a significant role in determining student learning achievement (Adeyemi, 2010).

There is evidence of research studies that refute the assertion that teacher qualifications significantly influence student learning achievement (Buddin & Zamarro, 2009; Kimani, Kara & Njagi, 2013; Koedel & Betts, 2007; Kosgei, Jairo & Ayugi, 2013). A study by Buddin and Zamarro (2009) found out that teachers with advanced degrees did not influence student achievement. Similarly, Koedel and Betts (2007) conducted a study in

elementary schools in San Diego and established that teacher qualifications had little effect on student achievement.

In Kenya, a study conducted in Nyandarua County to determine teacher factors influencing student learning achievement at KCSE examinations found out that the highest professional qualification for teachers was not related with student achievement. The study employed ex-post facto research design in which data was collected using researcher-constructed questionnaires. The study also considered student academic achievement at KCSE level which is a summative evaluation process (Kimani, Kara & Njagi, 2013). In practice, students are taught by different teachers in a given subject before they sit for their KCSE examinations. As a result, it is problematic to measure and isolate an individual teachers' contribution to student achievement at KCSE examinations.

Another study conducted to establish the influence of teacher characteristics on students' academic achievement among secondary schools in Nandi district, Kenya, found out that teacher qualification was not significantly related with student learning achievement. Unlike the study by Kimani et al (2013), the study carried out in Nandi district employed a causal comparative research design (Kosgei, Jairo & Ayugi, 2013).

There is deficiency of international and local research-based literature on the relationship between teacher qualification and student learning achievement in secondary schools. Extant literature is inconclusive and leans towards Mathematics and Science subjects while the secondary school curricula in Kenya comprise of more than 11 subjects. Most of the reviewed studies are in primary schools. Furthermore, the TPAD (2016) framework does not consider teacher qualification as an aspect of appraisal. Therefore, this study sought to fill these gaps in research by generating information on the relationship between teacher qualification and student learning achievement in public secondary schools in Kisii County.

2.4 Professional Development and Students' Learning Achievement

Professional development in this study refers to growth in knowledge and skills arising from experience in the teaching role and continuous on-job training. The Teacher Performance Appraisal and Development (TPAD, 2016) consists of seven competency areas five of which have a link to student learning achievement. According to Goe (2007) competent teachers cannot be attributed to academic degrees alone. As a result, teachers as professionals are expected to develop their competencies during their teaching service for continuous improvement of student learning achievement. Performance appraisal is geared towards professional development and improvements in learning and it helps teachers to improve their teaching skills by identifying and developing specific aspects of their teaching (Goe, 2007).

Professional development is recognized as the sixth competency area in TPAD and for teachers in active service it is viewed as part of the continuum of learning throughout their careers and if effectively undertaken, it strongly links teachers and student learning outcomes (Broad & Evans, 2006). Professional development is precisely described by Broad and Evans (2006) quoting Day (1999) as consisting of:

> …..all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school, which constitute, through these, to the quality of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching; and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues throughout each phase of their teaching lives (*In* Broad & Evans, 2006, p.8).

According to Broad and Evans (2006), Day's assertions present fundamental measurement challenges to appraisers such as how to objectively measure an individual teacher's level of professional development especially when there is no defined framework. However, literature presents a number of paradigms for professional development namely: the deficit

paradigm articulated by Gall and Renchler (1985); professional growth paradigm (Feiman-Nemser, 2001); educational change paradigm (Fullan, Hill & Crevola, 2006; Warren-Little, 2001) and the problem solving paradigm (Joyce & Showers, 2002; McLaughlin & Zarrow, 2001).

Therefore professional development as conceptualized in performance appraisal ought to be grounded in a specific theory. Performance Appraisal for teachers under the TPAD framework, give credence to ability of a teacher to identify individual performance gaps, detect training needs and seek solutions through professional development (TSC, 2016). As professionals, teachers play an upper hand in as far their professional development matters are concerned.

Performance Appraisal and Development (TPAD) is consistent with the professional growth paradigm by Feiman-Nemser (2001) which describes professional development as a self-directed process often emanating from the needs and interests of the learner. In the context of TPAD, the 'learner' is the teacher since professional development does not target their students and should lead to improvement in student learning achievement.

Professional development paradigms provide important perspectives of looking at this systematic process in an integrative manner in order to bring about desired change (Day, Elliot & Kingston, 2005; Goodall, Day, Lindsay, Muijis & Harris, 2005). Professional development aims at bringing change in the classroom practices of teachers, their attitudes and beliefs, and in student learning achievement (Guskey, 2003. p.383). Figure 2.2 shows that professional development brings teachers' classroom practices, student learning outcomes and change in teachers' attitudes and beliefs.

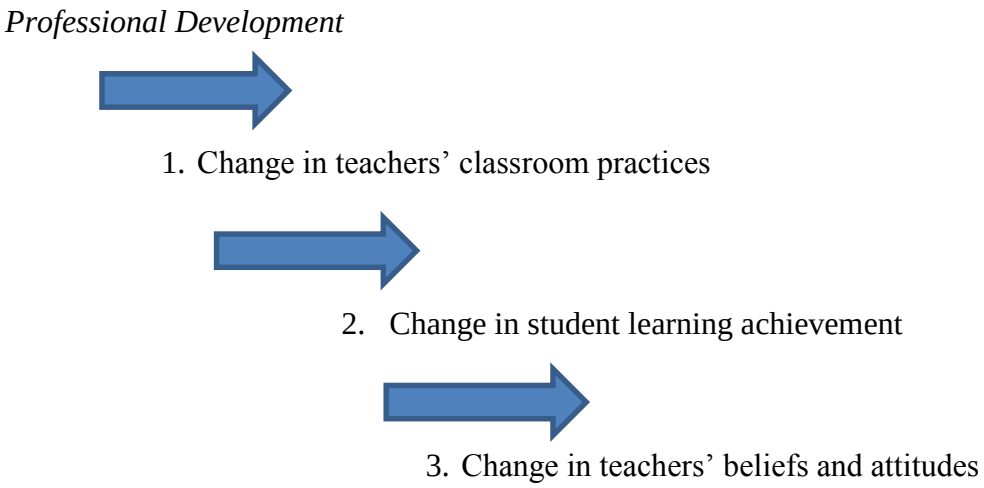

Figure 2.2: A model of teacher change. *Source:* Guskey (2002). *Teachers and Teaching: Theory and Practice.* 8 *(3/4)* 383.

Figure 2.2 shows that changes teachers make in their classroom practices through professional development results in improvements in both student learning outcomes and teachers' beliefs and attitudes. The TPAD framework recognizes that professional development brings about improvement in student learning achievement. In line with the 'valence' construct in Vrooms' expectancy theory, teachers are likely to value improvements in student achievement if they attribute it to professional development. In this regard, Guskey (2002) observes that:

> Evidence of improvement or positive change in the learning outcomes of students generally precedes, and may be a pre-requisite to, significant change in the attitudes and beliefs of most teachers" (p 384).

Teaching is a profession because as an occupation it possesses certain prestige which is attributed to its intellectual or artistic nature that emanates from the social statuses of members (Krull 2002). Professions emphasize knowledge, autonomy and responsibility (Hoyle & John, 1995) and members possess complex knowledge, beliefs and skills that are often acknowledged by members of other professions. Moreover, professional autonomy refers to the right of self-governance and independence which applies especially in the choice of methods to reach pre-determined goals and standards. Autonomy of action and

authority are pertinent for teachers in order to apply existing knowledge, attitudes and skills in specific work situations (Šteh & Požarnik, 2005).

Teacher autonomy holds a central position in professionalism because it is closely related to ethical responsibility which is the "ability to make responsible choices in promoting active learning, meaningful knowledge and autonomy in their students" (Šteh and Požarnik, 2005). The concept of teacher professionalism is closely related to professional development (Evans 2008, Hargreaves 2001). According to Corrigan and Haberman (1990) there are four basic characteristics of a profession notably knowledge; qualifications; resources and practice conditions. Internationally, there is need to increase the prestige and status of the teaching profession (Alliance for Excellent Education, 2002; Okas et al, 2014,).

Accordingly, Downey, Steffy, English, Fraser, and Poston (2004) cautions that professional development that is effective for beginning teachers is different from that which is effective for experienced teachers. Hussein (2013) suggests that:

> Professional development can no longer just be about exposing teachers to a concept or providing basic knowledge about a teaching methodology. Instead, professional development in an era of accountability requires a change in a teacher's practice that leads to increases in student learning (p.11).

Furthermore, Hussein (2013) identifies five principles that should govern effective professional development for teachers based on research. The first one was that the duration of professional development must be significant and ongoing to allow time for teachers to learn a new strategy and grapple with the implementation problem (Hammond, Wel, Andree, Richardson & Orphanos, 2009). Secondly there must be support for a teacher during the implementation stage that addresses the specific challenges of changing classroom practice (Knight and Curnett, 2009). Thirdly, teachers' initial exposure to a

concept should not be passive, but rather should engage teachers through varied approaches so they can participate actively in making sense of a new practice (Roy, 2005).

The fourth principle was that modeling is highly effective in helping teachers understand a new practice (Snow-Renner & Lauer, 2005; Penuel, Fisherman, Yamaguchi & Gallagher, 2007). Lastly, the fifth principle was that the content presented to teachers shouldn't be generic, but instead specific to the discipline (Blank, de Las Alas & Smith, 2007; Darling-Hammond et al, 2009).

Professional development for teachers is likely to yield expected results if it is embedded on Hussein's' principals. Although literature indicate that teachers across many countries in the world are willing to partake professional development, available opportunities are limited. In USA for instance, the No Child Left Behind (NCLB) Act of 2001, recognized shortage of quality professional development learning opportunities for teachers and consequently mandated teachers to receive the same. Quality professional development (PD) according to NCLB should be sustainable, intensive, and content-focused so as to have a positive and lasting impact on classroom instruction and teacher performance.

Available literature is biased towards professional development and its influence on student learning achievement in Mathematics and Science subjects in elementary schools. For instance, Yoon, Lee, Scarloss and Shapley (2007) reviewed more than 1300 studies which seemed to address the impact of professional development on student achievement. However, only nine (9) of those studies met their criteria notably: Carpenter, Fennema, Peterson, Chiang and Loef (1989); Cole (1992); Duffy et al. (1986); Marek and Methuen (1991); McCutchen et al. (2002); McGill-Franzen, Allington, Yokoi, and Brooks (1999); Saxe, Gearhart, and Nasir (2001); Sloan (1993); and Tienken (2003).

The nine studies focused on elementary school teachers and their students in Science, Mathematics, and Reading and English/Language Arts. Furthermore, seven of the nine

studies used standardized measures of achievement whereas one study used researcher-developed measures of students' knowledge of fractions. The 9th study used Piagetian conservation tasks as the outcome (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). The research synthesis reported that teachers who received an average of 49 hours of substantial professional development boosted their students' achievement by about 21 percentile points. According to the TPAD framework, professional development is a prerogative of the teacher that should be demonstrated during the appraisal process in terms of certificates or courses attended and improvement of student learning achievement.

Yoon, Duncan, Lee, Scarloss and Shapley (2007) assumed that professional development impacts directly on teachers but indirectly on students. Teachers benefit through knowledge and skills enhancement which leads to effective classroom teaching and eventually improvement in student learning achievement. Furthermore, they assumed that professional development takes place in the context of high standards, challenging curricula, system-wide accountability, and high-stakes assessments as shown in Figure 2.3.

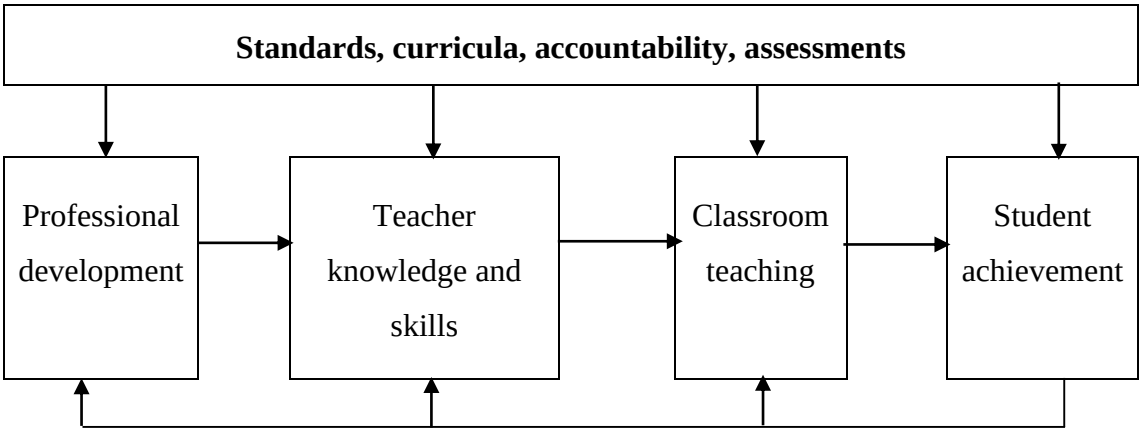

Figure 2.3: Effect of professional development on student achievement

Source: Yoon, K. S., Duncan, T., Lee, S. W., Scarloss, B., & Shapley, K. L. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (p.4.). Adopted for this study.

In Figure 2.3, Yoon et al (2007) observes that professional development enhances teacher knowledge and skills and improves classroom instruction and student achievement.

Therefore, a poorly designed evaluation or inadequate implementation would make it difficult to detect any effects from professional development. The contribution of professional development to teacher knowledge, high quality instruction and student learning achievement is also supported by Hill, Ball, Blunk, Gaffney and Rowan (2007) who also observed that there was a dearth of literature on how the components of teacher knowledge predict quality of instruction and student learning achievement. Performance appraisal under the TPAD framework attempts to link certification of teachers in professional development programmes undertaken to improvement of student learning achievement.

The impact of professional development on student achievement is a challenging exercise although there is an intuitive and logical connection. However, to establish an empirical link between professional development and student learning achievement, Yoon, Duncan, Lee, Scarloss, and Shapley (2007) suggests a four-point criteria that: (1) Appropriate research design be chosen, (2) the design should be reliably executed and professional development sufficiently implemented, (3) measures of classroom teaching practices, student achievement, and teacher knowledge, beliefs and behaviors, should be valid, reliable, age appropriate, and sensitive to and aligned with the intervention, and (4) use of specific analytical and appropriate statistical models. Yoon et al (2007) established that few studies met this criterion.

There is scanty research-based literature on dependability of student learning achievement on professional development for teachers. Literature reviewed is inconclusive on the influence of professional development on student learning achievement. Most of the reviewed literature have target populations drawn from elementary schools. Although the review by Yoon et al (2007) included students of K–12 teachers of English/language arts/reading, mathematics, and science, the coverage is narrow given that in Kenya secondary schools offer at least eleven subjects. Furthermore, TPAD (2016) considers

professional development a teacher competency area but evidence of undertaking professional courses and its influence on learning achievement is unclear. Thus this study sought to fill the gaps identified in literature in public secondary schools in Kisii County.

2.5 Teacher Experience and Students' Learning Achievement

Gathumbi, Njoroge and Hintze in their paper published in the International journal of Process Education (June, 2013) expressed their view that teaching experience is not synonymous to the number of years spent in teaching but includes competences acquired by the teacher in the course of practice though continuous professional development. Teachers like other professionals undergo several career growth stages through which they acquire different competencies. In this study teacher experience involves the acquisition of relevant competencies that elevate teacher ability and professional status through years of continuous engagement in teaching. Teacher experience is not tackled in TPAD although teachers experience growth through continuous professional development.

Models explaining the professional growth trajectory of teachers from pre-service through in-service include the model by Berliner (1994); Feiman-Nemser (1983); Fessler and Christensen (1992); Huberman (1995); Katz (1972); and Steffy, Wolfe and Enz (2000). The model by Berliner (1994) explains five cognitive professional processes that improve through the years namely (1) novice, (2) advanced beginner, (3) competent, (4) proficient, and (5) expert. Berliner's processes are distinct and linear such that teachers go through the stages systematically from pre-service through retirement. However, Lynn (2002) is of a contrary opinion that the career of teacher is not a linear transition because teachers gain experience in all career stages.

Feinman-Nemsers' (1983) model recognize research which attributed teaching as a life-long learning process in which teachers develop their ability, qualities, desires, and influence on the surroundings. However, Fessler and Christensens' (1992) model identifies

eight stages of professional growth for teachers: (1) pre-service, (2) induction, (3) competency building, (4) enthusiasm and growth, (5) career frustration, (6) career stability, (7) career wind-down, (8) career exit.

In a similar fashion, Hubermans' (1995) model presents five stages of growth: Discovery (1-3 years); stabilization (4-6 years); experimentation and interrogations (7-18 years); serenity and conservatism (19-30 years); and disengagement (31-40 years). At the discovery stage in the Hubermans' model, teachers are able to discuss, debate, and experiment with experienced peers while others may undergo a reality shock as they get pre-occupied with teaching and class management demands. Consequently, at stabilization stage, teachers after 4-6 years of teaching, have extended knowledge and skills repertoire and are able to effectively deliver subject matter in class. Teachers at the stabilization stage experience greater instructional mastery and comfort which make them committed to the teaching profession.

At the stage of experimentation and interrogations (7-8years) in Hubermans' model, teachers stretch themselves collaboratively. Experimentation gives way to a "mid-career crisis" where teaching becomes monotonous to many teachers who may consider leaving the profession. Other teachers may deliberately take themselves through a renewal phase in order to reclaim themselves into active practice. Teaching experience beyond 10 years of practice lead teachers into a stage of experimentation with materials and practice as they require stimulation. Other teachers in this stage in practice attempt to introduce changes in their schools as they seek to exercise new roles and responsibilities.

During serenity and conservation stage (19-30years) in Hubermans' model, many teachers experience loss of energy and enthusiasm that make them feel bitter to their school and profession. However, other teachers exude a sense of confidence and self-acceptance which enable them to revive some overused instructional routines. Some teachers also tend to be

conservative by resisting innovations in prevalence to their past.

The disengagement stage (31-40years) in Hubermans' model occurs towards the end of the career when teachers gradually disengage from their roles and withdraw to personal and reflective pursuits. At this stage, teachers may leave the profession either satisfied or peacefully or disappointed and worn out. Table 2.5 shows the six stages of Steffy, Wolfe and Enz (2000) model that was adopted for this study.

Table 2.5

Professional growth model by Steffy, Wolfe and Enz (2000)

Stage of Growth	Teacher Characteristics
Novice (Pre-service)	Undergoing pre-service training or in Practicum
Apprentice (1-3 years)	Ability to plan and deliver instruction, filled with energy and anticipation, love teaching and believe they have the skills to ensure high student achievement, tend to be idealistic and are passionate about helping students succeed.
Professional (4-6 years)	Exude self-confidence, view themselves as student advocates, are competent, solid, and dependable, view themselves as classroom teachers, are happiest when interacting with students, frequently seek help and assistance from other teachers, actively participate in a collegial network for support and guidance, begin to look beyond the classroom, seeing themselves and their colleagues as part of a profession and value opportunities to observe colleagues' innovative practices.
Expert (7-12 years)	Anticipate student responses, modify and adjust instruction to promote growth, competently support, facilitate, and nurture growth and development of all students, reflects on their practice facilitating growth and change, learn through their roles and understand that students are inclined to learn
Distinguished (13-17 years)	Exceed current expectations for what they are expected to know and do
Emeritus (18-30 years)	Contribute their expertise in administration, higher education and the profession after formal retirement

Source: Anna (2007). *Teachers' perspectives of career-stage appropriateness of professional learning programs*.

Table 2.5 presents the six stages of the model notably Novice stage (pre-service); apprentice stage (1-3 years); professional stage (4-6 years); expert stage (7-12 years); distinguished stage (13-17 years); and, emeritus stage (18-30 years) respectively. The model by Steffy et al (2000) shows that teachers have different career development needs and goals which are likely to make them to perceive performance appraisal outcomes differently in line with Locke's goal setting theory and the 'valence' construct of Vrooms' expectancy theory respectively. The performance of a teacher should reflect his or her level of experience and the proportionate expected student learning outcome. This would prevent veteran teachers who possess superior competences from setting easily achievable performance targets suitable for apprentice teachers.

According to Katz's (1972) model, teachers' experience in occurs in four developmental stages within the first five years in their teaching career: Survival, consolidation, renewal, and maturity. Katz's model is more applicable for teachers who are in training and undertaking teaching practice and thus not ideal for this study.

Broad and Evans (2006) postulates that frameworks on teacher professional growth "suggest potential career cycle trajectories, with varying needs at different stages. They argue that the sequence and timing of growth stages may be variant, uniquely individual, and recursive and spiraling rather than linear" (p.9). Broad and Evans (2006) observes that the career stages advanced by Steffy et al (2000) directly relate the needs, tasks and experiences that a teacher is involved with. This implies that in performance appraisal, each teacher should state the stage of career growth and the appraiser who is knowledgeable of what is expected of the teacher at that stage would vet the performance targets set by the appraisee accordingly. The Teacher Performance and Development (TPAD) framework does not consider the aspect of teacher experience.

Table 2.6 presents career stages for teachers on the basis of their ages which is important

especially in setting performance targets and choosing an appropriate professional development programme were necessary.

Table 2.6

Career stages of teachers based on life in and out of school

Stage	Characteristics
1. Ages 21-28	• Teachers consider options and avoid commitments • Most teachers leave teachings soon after completing their studies • Teachers struggle for survival, learn teaching and maintenance skills and cope with the reality shock • Teachers eventually identify with the teaching profession • New teachers teach by trial and error, seek advice and imitate their colleagues • Teachers relate with students as their young siblings and are active in extracurricular activities
2. Ages 28-33	• Teachers perceive their lives to be full of responsibility and obligations • Male teachers seek to advance up the hierarchical ladder while female teachers feel under obligation to care for their young children • A number of teachers seek promotions within the education sector • Teachers display comfort in class and develop teaching that suit them • Teachers seek innovation and are excited with pedagogy • Teachers get disappointed when their students don't co-operate
3. Ages 30-40	• Teachers express their physical and intellectual prowess through their energy, aspirations and self-confidence • Teachers tend to specialize in specific disciplines and areas • Teachers are willing and ready to assume higher responsibilities • Teachers are energetic and enjoy working with students • Some teachers experience burnout and express desire to resign • Teachers are judgemental and perceive themselves as experienced and exercise parental roles
4. Ages 40-55	• Successful teachers are found in administrative positions • Some feel they have missed out and become bitter and retrogressive about their careers and attempt to resign to what they perceive as a plateau
5. Ages 50-55	• Teachers feel comfortable but experience a decrease in energy and enthusiasm • Interested in retirement and teaching is no longer interesting for them • Interested in students' learning and enjoy working with young people • View education holistically

Source: Asaf, Shachar, Vered, and Anat (2008). *From super teacher to super teacher*. Adapted to this study

Table 2.6 illustrates a professional growth model by Asaf et al (2008) in which teachers are deemed to grow professionally both in and out of school based on their age. The model has five stages of career growth for teachers who presumably join the profession at the age of 21 years. For the first 7 years in teaching, teachers display certain common characteristics as they try to adjust and cope up with the demands of the profession. Teachers in in the 5^{th} stage are more relaxed and enjoy working with students. Thus, performance appraisal for teachers in each of the five stages should be conscious of the unique characteristics the teachers possess in order to have a positive impact on student learning (Goodall, Day, Lindsay, Munjis & Harris, 2005).

Teacher experience is consistently associated with student learning achievement (Rockoff et al, 2008). Studies that agree with this assertion include Akiri (2013); Buddin and Zamarro, (2009); Carroll and Foster, (2010); Clotfelter, Ladd and Vigdor (2007); Goe (2007); Yala and Wanjohi (2011). As a result, there's consensus that teacher experience enhances student learning during the first few years in teaching and that additional experience does not make a difference (Goe, 2007; Loeb & Beteille, 2008).

The results of a descriptive survey study on the effects of teacher effectiveness on student achievement in public secondary schools in Delta State, Nigeria, conducted by Akiri (2013) shows that experienced teachers significantly determined student learning achievement. Similarly, student achievement was found to increase with teacher experience in a study by Buddin and Zamarro (2009) although the linkage was weak. Teachers produced poor outcomes during the first two years of their teaching. Buddin and Zamarro's (2009) study employed the value-added approach to analyze student learning achievement that adjusted for fixed effects of both teachers and students.

Similar findings were reported by Carroll and Foster (2010) who found out that teacher experience influence student learning achievement especially in high schools. Likewise,

Clotfelter et al (2007) found strong positive effects between teacher experience and student learning achievement by utilizing course-specific end-of-course exams. Additionally, Goe (2007) established that teacher experience contributed to student achievement only during the first five years of teaching beyond which experience did not seem to matter. Likewise, Rice (2003) found out that teacher experience influence student learning outcomes in secondary schools beyond the first few years in teaching. Moreover, Yala and Wanjohi (2011) conducted a descriptive survey to determine factors influencing performance of mathematics in KCSE examinations in Nyamaiya Division, Kenya. The study established that teacher experience was a significant predictor of student learning achievement.

While there is consensus in a number of studies that teacher experience determines student learning achievement, several other studies reported contrary findings. A research synthesis by Wilson and Floden (2003) in Goe (2007) found out that the relationship between teacher experience and student achievement were inconsistent based on 12 studies. For instance, Aaronson et al (2007) and Betts et al (2003) find no significant correlation between teacher experience and student achievement. Similarly, Kimani et al (2013) found out that teacher experience was not significantly related to academic achievement in KCSE examinations.

Although teacher experience may be positively related with student achievement, Carroll and Foster (2010) observes that the overall level of experience in the teaching force is on the decline. This could be as result of more experienced teachers exiting the classroom to take up other senior roles within and outside the education sector. Furthermore, it is also not clear whether teacher experience in terms of number of years spent in teaching or experience in terms of additional competence acquired during the teaching service significantly determine student learning achievement. Consequently, the existing performance appraisal framework for teachers in Kenya does not emphasize teacher

experience since all teachers are subject to a similar process without differentiation in terms of their professional growth.

The act of teaching is increasingly becoming complex and as a result, teachers must keep up with the demands of their job (Broad & Evans, 2006). Professional needs for experienced teachers are varied and unique according to personal and professional circumstances, histories, and contexts and not merely due to career length or life stage. This implies that teacher development should appropriately match teachers according to their particular professional needs (Broad & Evans, 2006).

Literature reviewed in this study shows evidence that teacher experience influence student learning achievement. However, experience is an aspect of teacher performance under the TPAD framework. As a result, performance appraisal is likely to demotivate more experienced teachers who may not value the outcomes of the process in line with the 'valence' construct of Vrooms' expectancy theory. The performance goals set by more experienced teachers may be easy to achieve contrary to Locke's goal-setting theory. Hence this study sought to determine the influence of experience on student learning achievement to fill the gap created by TPAD.

2.6 Teacher Performance and Students' Learning Achievement

Teacher performance is a function of knowledge, skills and competences of teachers (Westera, 2001). In this study, teacher performance refers to extent to which qualification, development, experience and teacher behaviour influence student learning achievement. Teacher performance is influenced by teachers' attitudes like motivation and job satisfaction, and characteristics such as the level or stage of professional development and experience. Intrinsic factors more powerfully motivate teacher effort, performance, and professional conduct in the long run (Guajardo, 2011). Good teaching is only one of the ingredients necessary for successful teaching (Fenstermacher & Richardson, 2005).

However, Dörnyei and Ushioda (2011) perceive teaching as a profession whose energy is supplied from intrinsic motives.

Teachers in developing countries face increasing workload which drives them into professional misconduct hence they exert little effort in helping students to learn. Teachers lack intrinsic motivation since they have few avenues for professional development (Guajardo, 2011). Figure 2.4 shows variables underlying teacher performance according to Passos (2009).

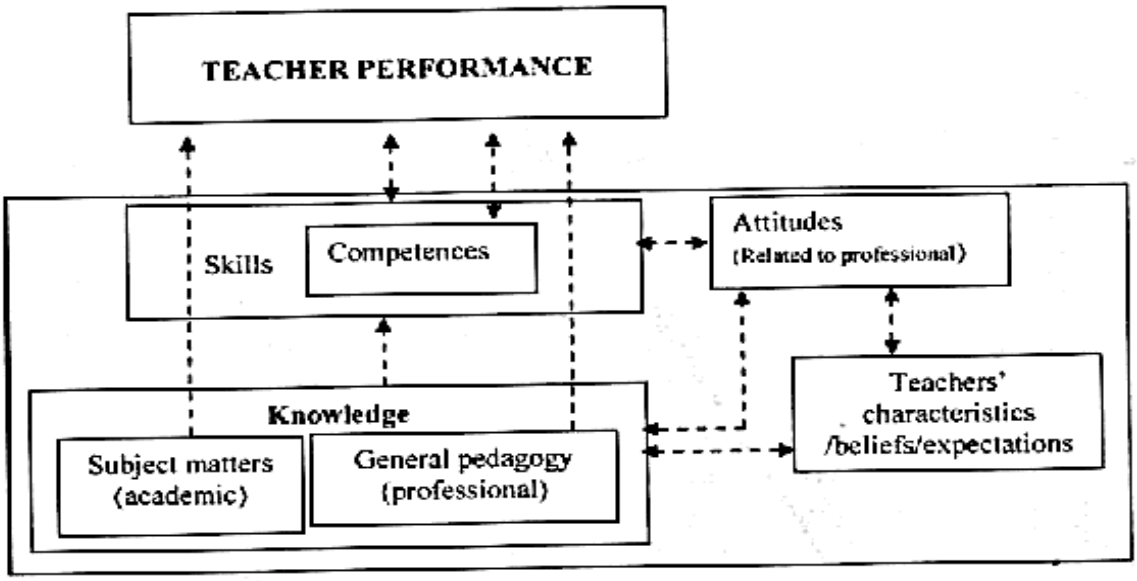

Figure 2.4: Variables underlying teacher performance *Adapted from Passos (2009.p.42):*

Teacher performance as presented in figure 2.4 is influenced directly by the academic knowledge, professional knowledge, skills, and competences of the teacher. Teacher performance can also impact on the skills and competences of the teacher through professional development.

Similarly, both academic and professional knowledge of the teacher impacts on skills and competences of the teacher through experience or professional development. Other variables that do not impact on performance directly are the teachers' characteristics, beliefs and expectations; and attitudes such as motivation and job satisfaction. Teacher performance is ascertained through the performance appraisal mechanisms such as the

Teacher Performance Appraisal and Development (TPAD) and Student surveys.

2.6.1 Appraisal Ratings and students' learning Achievement

The Teacher Performance Appraisal and development (TPAD) comprise of seven competency areas leaving out aspects of teacher experience, their beliefs and expectations, and attitudes such as motivation and job satisfaction. These variables are emphasized by Locke's Goal-setting and Vrooms' expectancy theories which guided this study. Table 2.7 shows teaching standards of the revised performance appraisal policy for teachers in Kenya with corresponding seven competency areas.

Table 2.7 *Standards of Teaching (TPAD, 2016)*

Teaching Standard/Competency Area	Competencies/Performance Indicators
1. Professional knowledge and application	- Ability to prepare professional records
2. Time management	- Ability to manage teaching time
3. Innovation and creativity in teaching	- Ability to improvise and use local materials for effective teaching
4. Learner protection, safety, discipline and teacher conduct	- Knowledge of relevant matters e.g. legal, sexual, psychological, etc.
5. Promotion of co-curricular activities	- Ability to organize and guide the activities
6. Professional development	- Ability to identify gaps, training needs and seek solutions
7. Collaboration with parents/guardians and stakeholders	- Ability to establish and maintain collaborative relationships with stakeholders

Source: Teachers Service Commission, 2016

The seven competency areas of TPAD are general standards of performance for teachers in all disciplines. According to the first TPAD competency area, the performance of a teacher is indicated by his or her ability to prepare and use professional records such as schemes of work, lesson plans and lesson notes; prepare and maintain records of work and

assess learners; give feedback on tests and maintain learners' progress records; cover the syllabus on time; use Individualized Education Programmes (EIP); and, maintain lesson observation ratings. The teacher sets one target on each of five aspects of performance that are evaluated with a maximum of five marks each totaling twenty five marks for the first competency area. The outcome of teacher performance in providing feedback on tests and maintaining progress records is the improvement in test and examination scores (TSC, 2016).

In the second TPAD competency area, teacher performance is indicated by evidence of teacher punctuality in reporting to duty; teacher presence, lessons taught or missed, records of lessons covered, records of remedial lessons, records of attending staff meetings; and, timely preparation of professional records (TSC, 2016). The teacher is expected to set at least two targets in the second competency area each of which is evaluated up to a maximum five marks making the second competency area to carry a total of ten marks. The performance of a teacher in terms of his or her presence, lessons taught or missed, records of lessons covered, records of remedial lessons, is improvement in learner performance.

Teacher performance in third and fifth competency areas have no impact on student learning achievement. However, teacher performance in the fourth, sixth and seventh competency areas of TPAD lead to improvement in student learning achievement. The performance of a teacher in the fourth competency area is indicated by evidence of the teachers' compliance with all regulations regarding children's rights; ability to use teaching aids that support learners' safety and promote self-awareness, create child friendly environment, and involvement of parents and guardians in child discipline. The teacher is expected to formulate at-least four targets that are evaluated at five marks each totaling 20 marks for the fourth competency area. The outcome of teacher performance in complying with all regulations on child rights is improvement is learner performance (TSC, 2016).

Similarly, performance of a teacher in the sixth competency area is measured base on the availability of records demonstrating the teachers' ability to identify his or her performance gaps, training needs and finding solutions through professional development programmes. The teacher sets a minimum of three performance targets evaluated at five marks each up to a total of 15 marks for the sixth competency area. Evidence of certification upon completion of professional development courses is expected to lead to improvement in student learning achievement (TSC, 2016).

Finally, the performance of a teacher for the seventh TPAD competency area is measured based on evidence of records showing the teachers' ability to establish and maintain collaborative relationships with educationists, parents or guardians and local communities (TCS, 2016). The teacher sets a minimum of two targets each of which is assessed at five marks totaling ten marks for the seventh competency area. Teacher involvement with parents and other collaborative activities is expected to impact on student learning achievement. Table 2.8 shows the TPAD evaluation criteria and rating.

Table 2.8

Performance evaluation criteria and rating (TPAD

Rating grade	**Rating indicator**	**Rating scale**	**Annual rating score**
Very good	Fully met and exceed the targets	5	81%-100%
Good	Fully met the targets	4	61%-80%
Average	Met most of the targets	3	41%-60%
Below Average	Met some of the targets	2	21%-40%
Inadequate	Did not meet the targets	1	0%-20%

Source: Teacher Performance Appraisal and Development (TSC, 2016)

The TPAD evaluation and rating criteria shown in Table 2.8 anticipates teacher performance in five levels ranging from 'very good' to 'inadequate' performance respectively. The five levels of performance are rated using a five-point Likert type scale with five points allocated for performance that meets and exceed targets while failure to

meet set targets is rated the least with one point. The annual rating scores are the average agreed scores between the appraisers and appraisees for three terms (TSC, 2016). There is at least one performance target in each of the five competency areas that links teacher performance with learning achievement. The highest level of performance of the teacher in the five competency areas attract a maximum of 25 marks (5 maximum marks for each performance target that is fully met or exceeded) (TSC, 2016). Table 2.9 shows the allocation of performance rating scores in the seven TPAD competency areas.

Table 2.9

Allocation of performance scores as per competency area

Competency Area	Maximum Targets	% Marks
1	5	25
2	2	10
3	**2**	**10**
4	4	20
5	**2**	**10**
6	3	15
7	2	10
	Total	**100**

Source: Teacher performance appraisal and development assessment tools (TSC, 2016)

Table 2.9 shows that the dependability of student learning outcomes on performance appraisal (TPAD) is 80% given that five of the seven competency areas (less 20% marks of the performance for 3rd and 5th competency areas) are expected to yield the outcome of improved student test scores. However, the performance appraisal tool doesn't show direct link between improvements in student test scores and teacher performance in specific items within each of the five competency areas. As a result, the performance of each teacher was ascertained by scores in the five targets each with a maximum of 5 marks totaling 25 marks in the five TPAD competency areas. Thus in this study the link was established by matching at least one performance target with the outcome of improvement in student learning achievement in each of the five TPAD competency areas.

Additionally, TPAD does not identify standards of performance for teachers in specific disciplines such as Languages, Mathematics, Sciences, Social Sciences, and Technical subjects respectively. The performance of teachers in different disciplines may be affected by unique factors not considered by the general standards of performance. A good example is the Virginia Standards for Professional Practice of Teachers (VSPPT) (VDOE, 2012) which define six general standards for all teachers and discipline-specific standards for teachers in of English, Mathematics, Fine Arts, and Special Education. The standards are professional knowledge, instructional planning and delivery, assessment of and for student learning, learning environment and professionalism.

The Virginia Standards for Professional Practice of Teachers (VSPPT (2012) observes that:

> Teaching standards provide a vision for the profession. They define what teachers should know and do. By creating a conceptual model for effective teaching, the standards establish a foundation upon which all aspects of teacher development from teacher education to induction and ongoing profession development can be aligned. The standards also can assist teachers in reflecting on their teaching practice and its impact on student learning. The standards should guide the development of all teachers throughout their careers as they continually seek to improve their practice (VDOE, 2012.p1)

The VSPPT (2012) asserts that teaching standards provide a road map for teachers throughout their career and that performance appraisal should be based on the standards. Although both the general standards of teaching and discipline specific standards of teaching are based on the six criteria, what teachers are expected to know and do under the two frameworks is different.

Similarly, the Australian performance appraisal system for teachers identify seven standards of teacher performance based on three domains of teaching: professional knowledge, professional practice and professional engagement respectively. Along with professional standards for teachers, the Australian appraisal system recognize four stages of career development: Graduate teachers, proficient teachers, highly accomplished teachers, and lead teachers respectively (see appendix VI).

According to AITSL (2011) "the stages reflect the continuum of a teacher's developing professional expertise from undergraduate preparation through to being an exemplary classroom practitioner and a leader in the profession" (AITSL, 2011. p.2). Table 2.10 shows the Australian professional standards for teachers.

Table 2.10

Australian professional standards for teachers

Domain	Standards
a	***Professional Knowledge***
	1. Know students and how they learn 2. Know the content and how to teach it
b	***Professional Practice***
	3. Plan and implement effective teaching and learning 4. Create and maintain supportive and safe learning environments 5. Assess, provide feedback and report on student learning
c	***Professional Engagement***
	6. Engage in professional learning 7. Engage professionally with colleagues, parents/carers and the community

Source: Australian Institute for Teaching and School Leadership (AITSL, 2011)

The Australian professional standards for teachers shown in Table 2.10 emanate from three domains of teaching which broadly capture all the activities that a teacher engages in while in the teaching service. Similar to the Australian performance appraisal system is Danielson's (2013) Framework for Teaching (FfT) that is widely used in USA which also recognize teaching under four domains of planning and preparation, classroom management, instructional strategy and professional responsibilities.

In all cases reviewed in this study, there is no consensus on what should constitute teacher performance. However, professional knowledge is common but its link with student learning achievement is not clear. Therefore, in every situation, teacher performance is ascertained on the basis of the existing framework. Gary (2003) advises that clear and specific standards of performance are major elements of a valid and reliable performance

appraisal system. Gary, observes that employee participation is necessary in order to develop reliable, valid and useful performance standards. Gary further emphasize that workers possess requisite unique and essential information necessary for developing realistic standards. Thus performance requires wider engagement of members of the teaching fraternity. Without wider participation in defining performance standards the process is likely to be subjective and unfocused leading to resistance. However, this research will contribute to existing literature important information on the range of teaching activities that impact on learning achievement upon which the performance of teachers should be measured.

Research by Iraki (2013) established that some teachers did not accept performance appraisals. The same study found out that some teachers refused to accept their weaknesses and instead blamed their students. Furthermore, Gordon Kain and Staiger (2006) observed that teacher performance is measured in terms of the teachers' effectiveness. Similarly, Berk (2005) reviewed 12 potential sources of evidence to measure teacher effectiveness: Student ratings, peer ratings, self-evaluation, videos, student interviews, alumni ratings, employer ratings, administration ratings, teaching scholarship, teaching awards, learning outcome measures and teaching portfolios. Berk recommended for a triangulation of sources because measuring teacher performance is a complex activity.

Jensen (2011) also identified eight methods that can effectively assess and improve learning and teacher performance: Student achievement; peer observation; direct observation; student surveys and feedback; 360-degree assessment and feedback; self-assessment; parent surveys and feedback; and, external observation. They advised that schools should choose at least four of these methods to assess teachers' performance. In this study performance ratings arising from direct classroom observations, self-assessment, student surveys, and, student test scores were used.

Alliance for Excellent Education (2008) concurs that "with robust, multiple measures of teacher effectiveness, complemented by targeted professional development, high-quality evaluations, and smart accountability, educators and policymakers can indeed use effectiveness measures to improve the quality of high school teaching". Besides, Kulshrestha and Pandey (2013) also identified five dimensions of a teachers' work as facilitating student learning, assessing and reporting student learning outcomes, engaging in professional learning, participating in curriculum policy and other program initiatives in an outcomes-focused environment and forming partnerships within the school community.

However, research studies by Hirsch, Emerick, Church, and Fuller (2010) and Boyd, Grossman, Lankford, and Wyckoff (2011) established that teacher performance was influenced by the teachers' school contextual factors such as physical facilities, availability of media, equipment and materials and the relationship between the school and community. Extant literature informs that measurement of teacher performance presents challenges since there's no single standard method that is universally acceptable (Hattie, 2009). In Kenya, Odhiambo (2005) observes that teachers are mainly appraised through observations which is unlikely to present a reliable feedback on performance. However, the TPAD relies on the teachers' self-evaluation and appraisers' ratings in classroom observations. This study further introduced student surveys as an alternative measure of teacher performance with impressive results.

Some proponents of performance based schemes argue that standardized tools of student learning outcomes should be used as the main indicator of teacher performance (Ingvarson, 2007). For instance, Fenstermacher and Richardson (2005) argue that the main indicator of teacher performance is student outcomes based on standardized tests of student achievement. However, the student learning achievement as an outcome variable of teacher performance in TPAD is based on test scores attained by students during the appraisal period which were used in this study.

Performance of teachers is an area that is pertinent to policymakers whose goal is to improve student learning achievement (AEE, 2008). Literature on teacher performance depicts four major areas of concern: Planning and preparation, management of classroom environments, instructional strategy and professional responsibilities (Danielson, 2013; Tournaki, Lyublinskaya & Carolan, 2009).

Teachers who perform effectively are those who have high expectations for all students, contribute to positive academic, attitudinal, and social outcomes for students, use diverse resources to plan, contribute to the development of classrooms and schools, collaborate with other teachers, administrators, parents and education professionals to ensure student success, particularly the success of students with special needs and those at high risk for failure (Goe, Bell & Little, 2008). Teachers who perform effectively impact on student learning achievement (Clotfelter, Ladd and Vigdor, 2007; Darling-Hammond, 2007). Variations in student achievement are linked to differences in the performance of teachers. (Rockoff, Kane & Staiger, 2008). Thus, teacher performance in the classroom predicts student success than anything else, and that students will benefit exponentially if they are consistently taught by teachers who perform effectively (Gordon et al, 2008).

Research studies conducted in Tennessee (USA) attests that students given the most effective teachers for three years in a row made over twice the gains of comparable students assigned to the least effective teachers (Sanders & Rivers 1996). Furthermore, research studies show that effective teachers significantly impact on a student's ability to learn by offsetting challenges such as low income levels and achievement gaps (Rivkin, Hanushek & Kain, 2005; Clotfelter et al. 2007). Hanushek (2009) confirms that student learning achievement will increase significantly if 6 to 10 percent of least effective teachers were eliminated. However, Clotfelter, Ladd and Vigdor (2007) and Harris and Sass (2007) established that performance of teachers improve over the first five years on the job and that the benefits of experience on performance are less clear after that point.

Literature reviewed in this study shows that teacher performance is measured on the basis of specific traits, behaviours or outcomes deemed to be pertinent in a particular performance appraisal system. However, there is no consensus on the specific traits, behaviours and outcomes that should form the basis of measuring teacher performance. Moreover, there is paucity of research-based information on how teacher performance as determined in various appraisal systems influence student learning achievement at the international, regional, national and local levels. Hence this study sought to determine influence of teacher performance as determined by the TPAD framework on student learning achievement in public secondary schools in order to fill the gaps identified in literature.

2.6.2 Student Survey Ratings and Student Learning Achievement

Student rating of teachers is a common practice with a long history (Berk, 2005). This is so because of its influence in making promotion and tenure decisions especially in institutions that emphasize teaching effectiveness. Extant literature shows evidence that there is some agreement among experts on faculty evaluation that student ratings provide an excellent source of evidence for both formative and summative decisions, with a recommendation for use of multiple sources (Berk, 2005). In secondary schools, there is limited literature of the use of students especially in evaluating the performance of teachers.

However, the Bill and Melinda Gates Foundation conducted a study on Measures of Effective Teaching (MET, 2009-2013) in which students using tripod surveys evaluated teaching quality. Student ratings correlated with classroom observation ratings by trained professionals (Kane, Kerr & Pianta, 2014). The tripod student ratings were more reliable than either value-added test score gains or classroom observations by trained professionals (Ferguson, Phillips, Rowley, & Friedlander, 2015).

Teaching in the MET project teaching was conceptualized using the Tripod 7Cs framework

that present seven components that are strongly supported by research differently and collectively. All the seven components embrace what is important to effective teaching. The components of the tripod 7Cs framework are shown in Table 2.11 and are further classified into three categories in which the first five components constitute elements of student support in which care and confer provide 'personal support', while captivate, clarify, and consolidate provide 'curricular support'. The last two components of challenge and classroom management constitute 'press' (Ferguson, Rowley & Friedlander, 2015).

Table: 2.11 Components of Teaching as per the Tripod 7Cs Framework

Component	Description
Care	Teachers who are emotionally supportive and interested in students
Confer	Teachers who talk with students as well as welcome and respect their perspectives
Captivate	Teachers who make learning interesting and relevant
Clarify	Teachers who explain things clearly, provide informative feedback, and clear up confusion in order to make lessons understandable
Consolidate	Teachers who summarize and integrate learning
Challenge	Teachers who press students to think rigorously and to persist when experiencing difficulty
Classroom management	Developing a respectful, cooperative classroom climate with on task behaviour

Source: Ferguson et al (2015). The influence of teaching beyond standardized test scores

The first component of care as shown in Table 2.11 deals with behaviours that support the students' emotional security. Research studies posits that teachers who care should be approachable, sympathetic, interested in the well-being of their students, listen attentively to students' concerns, provide emotional support, and take steps to alleviate challenges that students find stressful (Hamre & Pianta, 2005). The second component 'confer' refers to teachers who are welcoming and value student views. Such teachers insist on student participation though strategic questioning and discussions. Teachers who 'confer' also

value the students' unique perspectives (Allen, Pianta, Gregory, & Lun, 2011; Reeve & Jang, 2006; Rubie-Davies, 2007).

The third component of the Tripod 7Cs framework postulates that teachers are captivating when they exhibit behaviours that make instruction stimulating. They select and deliver materials in ways that are interesting, often by connecting it with things about which students already care (Crompton & Gregory, 2011; Hulleman, Godes, Hendricks, & Harackiewicz, 2010).

In the fourth component, teachers who clarify possess behaviours that promote understanding. They effectively break down complex phenomena into simpler components (Wilson & Corbett, 2001). At the same time, they provide frequent, specific feedback that lets students know what they are doing well, what they need to work on, and how to improve (Allen, Gregory, Mikami, Lun, Hamre, & Pianta, 2013; Butler, Godbole, & Marsh, 2013; Culbertson, 2012; Schacter & Thum, 2004).

The fifth component of the 7Cs framework suggests that teachers who consolidate help students organize their material for reasoning and for encoding in memory. According to Culbertson (2012), Rodger, Murray, & Cummings (2007) and Schacter and Thum (2004), teachers who consolidate effectively review and summarize material in ways that highlight the main points.

The sixth component hypothesizes teachers who press for student effort and rigour, keep classrooms under control and focused on the tasks respectively (Cooper, 2013; Cothran & Garrahy, 2003). Teachers who challenge effectively are good at pushing students academically and do not give up when students tend to have trouble (McElhone, 2012). Teachers who challenge ask open-ended questions (Rubie-Davies, 2007). Teachers who are challenging allow their student to expand their answers (McElhone, 2012).

The seventh component of the tripod 7Cs framework is classroom management which deals with teachers who keep their classrooms under control and focused on specific tasks. The seventh component suggests that teachers are consistently enforcing clear and efficient rules, guidelines, and routines. The teachers also monitor student behavior and intervene before problems occur or as rapidly as possible once they appear (Matsumura, Slater, and Crosson, 2008).

There are inadequate research studies on student involvement in performance appraisal for teachers. Literature give credit to student feedback in providing information that can help teachers improve their practice (Baker, 2011). This is because students interact with their teachers most of the time and directly consume the teacher's service (Goe, Bell, & Little, 2008). Student rating of teacher performance is recognized as one of the 8 effective teacher performance appraisal methods (Densel & Reichl, 2011).

Groves and Welsh (2010) conducted a qualitative study involving high school students in Perth, Western Australia on their learning and school experiences. The results show that students wanted their needs and interests to be incorporated into the curriculum and daily lessons, learning activities to be varied, and the curriculum, classroom and school experiences to be related to real life. On teacher qualities, students clearly described the characteristics and personal traits they viewed as important attributes of an effective teacher. Three themes emerged: Teacher qualities, impact on learning, and school experience. Teacher attitude and teaching style were also reported as influencing student perceptions of their learning and school experiences.

Student surveys were successfully used in the study on Measures of Effective Teaching (MET, 2009-2013) which produced reliable results. The (MET) project report states that:

> No one has a bigger stake in teaching effectiveness than students nor are there any better experts on how teaching is experienced by its intended beneficiaries. When asked the right questions, in the right ways, students can be an important source of information on the quality of teaching and learning in individual

classrooms (Bill and Melinda Gates Foundation, 2012. p.2).

In Kenya, the study by Odhiambo (2005) established that 23.5% of teachers preferred to be appraised by their students, 26.1% by external evaluators and 31.4 % by the principals respectively. The findings of Odhiambos' study suggests that for a balanced view of teacher performance, the performance appraisal system should consider using multiple measures of teacher performance such as self-evaluations, student surveys, and classroom observation by principals and or external evaluators. The use of student surveys calls for some contingency measures. For example, the objectivity of student teacher quality measures can be enhanced by adjusting classroom average for the instruments to exclude teaching quality responses of students with predictable emotions, motivation, mind-set and or behaviour (Ferguson, Phillips, Rowley, & Friedlander, 2015).

Literature reviewed show that student surveys produce reliable results like other methods of measuring teacher performance. However, there is limited information of its application in Kenya. It is not known whether use of student surveys can produce information equivalent to appraisal ratings through TPAD framework. As a result, this study sought to establish whether there is a statistically significant relationship between student survey ratings and student achievement test scores in public secondary schools in Kisii County in order to contribute information to fill the gaps identified in literature.

2.7 Summary and Research Gaps

Extant literature on the relationship between performance appraisal for teachers and student learning outcomes is inconclusive. What constitutes teacher performance is not uniform across the appraisal systems reviewed in this study. Existing performance appraisal systems consider performance mainly on teacher traits like qualifications, professional development, and experience; teacher behaviours and outcomes such as student learning achievement. However, there is a dearth of research-based literature on dependability of

student learning outcomes on performance appraisal for teachers especially in secondary schools. As a result, this study sought to assess the influence of TPAD on student learning achievement in public secondary schools in Kisii County. Literature was reviewed based on four research objectives.

The first objective of this study was to determine the relationship between teachers' qualifications and student learning achievement. Extant literature is inconclusive and leans towards Mathematics and Science subjects while the secondary school curricula in Kenya comprise of more than 11 subjects. Most of the reviewed studies took place in the context of primary schools. Furthermore, the TPAD (2016) framework considers knowledge and its application instead of teacher qualification as a competency area in performance appraisal for teachers. There is a deficiency of international and local research-based literature on the relationship between teacher qualification and student learning achievement in secondary schools.

The second objective of this study was to establish influence of professional development on student learning achievement. There is scanty research-based literature on the dependability of student learning achievement on professional development for teachers while extant literature is inconclusive. Most of the reviewed literature have target populations drawn from elementary schools. Although the review by Yoon, Lee, Scarloss and Shapley (2007) include students of K–12 teachers of English/language, Arts/reading, Mathematics, and Science, the coverage is narrow compared to the Kenyan secondary school situation where at least eleven subjects are offered to students. Furthermore, professional development is considered a teacher competency area by TPAD (2016) but the there is a feeble link between professional development courses completed and its influence on student learning achievement.

The third objective of this study was to determine the relationship between teachers' experience and student learning achievement. Literature shows that the overall level of experience in the teaching force is on the decline. Moreover, the TPAD framework is not clear whether teacher experience in terms of number of years spent in teaching or experience in terms of additional competence acquired during the teaching service significantly determine student learning achievement. Under the TPAD framework, experience is not an aspect of teacher performance and as a result, performance appraisal is likely to demotivate more experienced teachers who may not value the outcomes of the process in line with the 'valence' construct of Vrooms' expectancy theory. The performance goals set by more experienced teachers may be easy to achieve contrary to Locke's goal-setting theory hence the need for this study.

The fourth objective of this study was to determine the relationship between appraisal ratings and student learning achievement. Appraisal ratings were obtained on five of the seven competency areas of TPAD. The fifth objective sought to determine the relationship between student survey ratings and student learning achievement. Survey ratings were obtained using student survey questionnaires constructed for that purpose.

Literature reviewed in this study depict no consensus on the specific traits, behaviours and outcomes that should form the basis of measuring teacher performance. Moreover, there is paucity of research-based information on how teacher performance as determined in various appraisal systems influence student learning achievement at the international, regional, national and local levels. Similarly, there is limited information on the use of student surveys in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research methodology under the sub-headings: Research design, location of the study, target population, sampling techniques and sample size, research instruments, piloting, validity and reliability, data collection procedure, data analysis plan and ethical issues.

3.2 Research Design

This study adopted explanatory sequential mixed methods design (Creswell, 2012). This research design provided a framework for collection and analysis of both quantitative and qualitative data (Bryman, 2004). In the first phase of this study quantitative data was generated but because performance appraisal is a social process, there was need to link the data with the real life situation hence qualitative data was obtained in the second phase to complement quantitative findings. The use of explanatory sequential mixed methods research design provided a complete view of the relationships between performance appraisal and student learning outcomes. The design of this study is illustrated in Figure 3.1 as adopted from Creswell (2013).

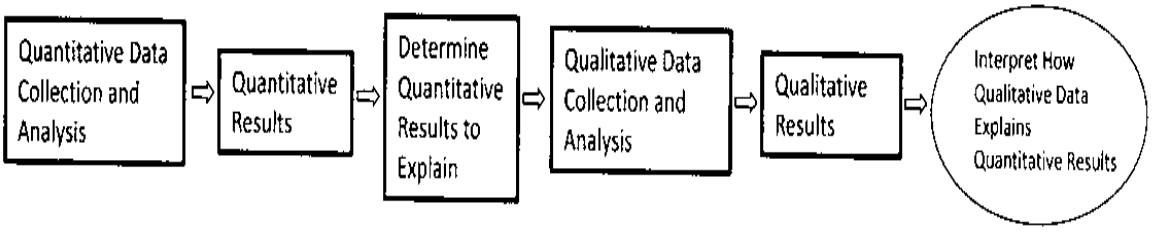

Figure 3.1: Process of explanatory sequential mixed methods design

Source: Creswell, J.W (2013). *Steps in conducting a scholarly mixed methods study*. DBER Speaker Series. Paper 48. http://digitalcommons.unl.edu/dberspeakers/48

Figure 3.1 shows how the explanatory sequential mixed methods design was implemented step by step starting from quantitative data collection, analysis, results for further explanation, qualitative data collection, analysis and results. Finally, the results from both the quantitative and qualitative phases were triangulated to provide an in-depth explanation of relationships between the study variables.

The explanatory sequential mixed methods design was suitable for this study because exclusive use of either quantitative or qualitative method could not have been sufficient in explaining how student learning outcomes depended on performance appraisal for teachers. Contextual factors and student characteristics could also impact on both teacher performance and student learning outcomes and their impact was adequately explained by using the sequential explanatory mixed method design.

In the first phase of this study, principals, deputy principals, heads of departments, teachers and students provided quantitative data through the Teacher Performance Appraisal Questionnaire (TPAQ) and Student Appraisal of Teachers' Questionnaire (SFTPQ) respectively. Data were collected holding administrative and contextual factors constant. The information was analyzed to determine dependability of student learning outcomes on performance appraisal for teachers. In the second and subsequent qualitative phase, some principals, deputy principals and heads of department who had participated in the first phase were purposively selected for the interviews on the basis of their roles as appraisers under the TPAD framework. They provided qualitative information on performance appraisal and student learning achievement to complement the quantitative findings.

3.2.1 Study Variables

Performance appraisal for teachers was an independent variable whose impact was measured through qualifications, development, experience, appraisal ratings and student survey ratings. For a broadened view, this study considered performance appraisal by

incorporating teacher traits of qualification, development and experience alongside five TPAD competency areas that was linked with student learning achievement.

Students learning outcomes was the dependent variable in this study which was depicted by learning achievement test scores aggregated per subject taught by the teacher during the performance appraisal cycle. Moreover, there were three types of intervening variables namely: Internal environmental factors such as school characteristics, physical and support facilities, media and materials available to teachers and relationship between school and the community; external environmental factors such as class size and average ability; and, individual student characteristics like ability, interests and family background (Passos, 2009). As noted in literature, the impact of teachers on student learning achievement is greater than a combination of all other factors (AEE, 2008).

3.3 Location of the Study

The locale of this study was Kisii County which is in the south western part of Kenya about 400 kilometres from Nairobi. Administratively, it is divided into nine Sub-Counties namely: Kisii Central, Marani, Kenyenya, Gucha, Nyamache, Gucha South, Sameta, Masaba South and Kisii South respectively. The County was selected for the study since student learning achievement at KCSE examinations is low despite introduction of TPAD at the same time as was the case in the other 46 counties in Kenya. Given that KCSE results reflect the collective effort of all teachers and other factors, there is a dearth of literature on how the performance of individual teachers influence learning outcomes under the TPAD framework. Similarly, there is scanty research-based information on the use of student surveys in performance appraisal for teachers. As a result, the conditions in public secondary schools in Kisii County provided ideal conditions for this study.

3.4 Target Population

The target population of this study (N) was 50,379 distributed in 333 public secondary schools in Kisii County. The population constituted of 3,759 teachers who included Principals, Deputy Principals and Heads of Departments. The population also comprised of and 46,620 students respectively. The choice of the target population was informed by gaps identified in literature review. Principals, Deputy Principals and Heads of Departments teach in their schools and play other roles as appraisers under the TPAD framework. Therefore in the first phase, Principals, Deputy Principals and Heads of Departments participated in the study in their capacity as teachers. However, in the second phase, Principals, Deputy Principals and Heads of Departments who participated in phase one were purposively selected for the interviews based on their roles as appraisers.

The target population was distributed in nine sub-counties namely: Kisii central, Marani, Kenyenya, Gucha, Nyamache, Gucha South, Sameta, Masaba South and Kisii South respectively. Table 3.1 shows the distribution of teachers in the nine sub-counties.

Table.3.1

Population of teachers by sub-county and gender

Location	**Schools**	**Teachers Gender**					
Sub-County	*No*	*Male*	*%*	*Female*	*%*	*Total*	**%**
Kisii Central	60	543	64	298	36	841	23
Marani	28	183	65	93	35	276	7
Kenyenya	42	528	71	213	29	741	20
Gucha	20	143	73	56	27	199	5
Nyamache	48	236	61	142	39	378	10
Gucha South	44	312	73	117	27	429	11
Sameta	21	165	70	71	30	236	6
Masaba South	39	217	61	136	39	353	10
Kisii South	31	211	69	95	31	306	8
Total	**333**	**2,538**	**67**	**1,221**	**33**	**3,759**	**100**

Source: County Education Office, Kisii (February, 2017)

(**Note:** *Population includes Principals, Deputy Principals and Heads of Departments*)

Table 3.1 shows that teachers were distributed in all nine sub-counties with a composition of 67% male and 33% female respectively. Teachers who participated in the first quantitative phase of the study were sampled on the basis of their gender and sub-county where their schools were located. The subjects the teachers taught were also taken into consideration. Each teacher was however expected to teach one subject although in practice many teachers handle more than one subject. Teachers for 11 subjects taught in all secondary schools were considered namely Mathematics, English, Kiswahili, Biology, Chemistry, Geography, History, Christian Religious Education, Agriculture and Business studies. The distribution of teachers in terms of their teaching subject and gender is presented in Appendix IX on page 178.

Students were involved in phase one due to the design of this study which required that student surveys be employed as an alternative measure of teacher performance as recommended in literature (Goe, 2007). The student population was approximately 46,620 constituting of 49% female and 51% male respectively.

3.5 Sampling Techniques and Sample Size

There are several techniques used in sampling and the choice of a suitable technique depends on factors such as size and homogeneity of the population and research design adopted (Orodho, 2017). The population of this study was differentiated in terms of gender, sub-county and subjects taught. The population was also heterogeneous because it consisted of principals, deputy principals, heads of departments, teachers, and, students. Moreover, the design of this study necessitated used use of different sampling techniques in the two phases of the study. The sample size depended on the technique used.

3.5.1 Sampling Techniques

Simple random sampling technique was used in the first quantitative phase to select

teachers to fill the Teacher Performance Appraisal Questionnaire (TPAQ). Teachers who were willing to participate in the study were allowed to do so considering their gender, subject taught and sub-county. The involvement of students was to generate alternative performance appraisal ratings for teachers using the Student Teacher Performance Appraisal (STPAQ) questionnaire. Simple random sampling technique was also used to select students based on teacher factors of subject and sub-county. In the second phase, purposive sampling technique was used to select principals, deputy principals, and heads of departments who participated in interviews conducted on the basis of quantitative results obtained in the first phase of the study, based on their gender and sub county.

3.5.2 Sample Size

Sampling was done separately for the quantitative phase and qualitative phase respectively. Given that the population was not homogeneous, the sample size determination for teachers and students in phase one was determined using Slovene's sample size determination formula:

$$\mathbf{n} = N / (1 + Ne^2)$$

Where, **n** = Sample size,

N = Total population and,

e = Error tolerance (Yamane, 1967).

In this study, the population of teachers (N2) was 3,759, and **e** = 0.05, hence sample size **n2** was determined at 362. The proportional allocation method was used to ensure that teachers in the sample were proportionately distributed according to gender, subject taught and sub-county (Orodho, Nzabalirwa, Odundo, Waweru, & Ndayambaje, 2016). Thus a sample fraction (f=0.0630) was determined by dividing the teacher sample (362) with the teacher population (3,759). The sample fraction was then used to allocate the teacher sample accordingly. Table 3.2 shows the population and samples selected in phase one and

phase two of this study.

Table 3.2

Population and sample selection in public secondary schools in Kisii County

Category of Population	Phase One		Phase Two	
	N	n	N	n
Principals	-	-	-	9
Deputy Principals	-	-	-	9
Heads of Department	-	-	-	9
Teachers	3,759	362	362	-
Students	46,620	397	-	-
Total	**50, 379**	**759**	**362**	**27**

Source: Teachers Service Commission, 2017. (N=*population;* n=*sample)*

Table 3.2 shows the sample of teachers (inclusive of principals, deputy principals, and heads of department) and students involved in phase one. The distribution of teachers in terms of their gender and sub-counties is presented in Appendix X on page 178. Table 3.2 also shows the principals, deputy principals and heads of department who were interviewed in the second qualitative phase drawn from among the teachers who participated in phase one of this study.

On average, each teacher handled a class size of 40 students and therefore an average 30% of students (13 students) for every teacher were randomly selected to fill the Student Appraisal of Teachers (SAT) questionnaires. The student sample of 396 could evaluate a total of 30 teachers who were selected using the simple random sampling technique from the sample of 362. The 30 teachers were allocated proportionately using the sample fraction 0.0079808 (30/3,759) according to the variables of gender, subject taught and sub-county. The students were involved in the first phase only in line with the design of this study.

The second qualitative phase involved 27 interviews of 9 principals (3 female and 6 male), 9 Deputy principals (3 female and 6 male) and 9 heads of department (3 female and 6 male)

respectively who were purposively selected from the teachers who had participated in the first phase of the study. Interviewees provided useful information to complement and corroborate quantitative data obtained in phase one (Creswell, 2012).

3.6 Research Instruments

Different data collection instruments were used during the two phases of this study.

3.6.1 Research instruments in quantitative phase I

In phase one of this study, two data collection instruments constructed by the researcher were used namely the teacher performance appraisal questionnaire (TPAQ) and Student Appraisal of Teachers Questionnaire (SATQ) respectively. Questionnaires were ideal at this stage of the study since quantitative data was sought. The questionnaire is a suitable tool for collecting quantitative data because it consists a set of questions with fixed wording, sequence of presentation, and precise indications on how to answer the questions (Orodho, 2010; 2009). As a result, TPAQ and SATQ were used as instruments of data collection in phase one.

a) Teacher Performance Appraisal Questionnaire (TPAQ)

The teacher performance appraisal questionnaire (TPAQ) was developed in line with the theoretical and conceptual framework of this study. The questionnaire was designed and structured in four parts: The first part captured the general demographic information of teachers such as age, gender, sub-county, subjects taught, class and stream and other responsibilities. The second part collected information on performance appraisal with five indicators of teacher qualification, professional development, teacher experience, and, appraisal ratings in five of the seven TPAD competency areas linked with student learning outcomes. Part three of the TPAQ obtained information on student learning achievement test scores in form of subject percentage mean scores for first, second and third terms

during the performance appraisal cycle.

b) Student Appraisal of Teachers Questionnaire (SATQ)

Student surveys were used to provide alternative appraisal ratings to complement the appraisal ratings obtained through TPAD framework. The Student Appraisal of Teachers Questionnaire (SATQ) used for that purpose, comprised of two parts: The first part collected student demographic information on gender, class and subject while part two provided information on student ratings of their teachers' performance in the classroom based on seven thematic statements: Students agreed or disagreed with each of the seven statements on a five-point Likert scale notably: "All the time", "Most of the time", "Sometimes", "Don't know" and "Never". The responses were rated from the most frequent receiving five points while the least frequent received one point respectively in order to facilitate quantitative data analysis.

The use of TPAQ and SATQ in the first phase of this study made it possible for the researcher to collect information from each teacher and student in exactly the same way. Questionnaires were used due to the sequential mixed methods research design adopted by this study and for their suitability in collecting quantitative data (Orodho et al, 2016).

3.6.2 Research instruments in qualitative phase II

The semi structured interview schedule (SSIS) was the only instrument used in the second phase to interview principals, deputy principals and heads of department. All the three groups of interviewees are involved in TPAD as both appraisers and appraises. Hence their involvement in the qualitative phase of this study provided information that complemented quantitative results in line with the design of this study. The SIS constituted of 13 open-ended questions which required principals and teachers to provide information on specific aspects of performance appraisal as per the four research objectives of this study.

The SSIS was specifically designed for that purpose and it enabled the researcher to ask same questions in the same manner and provided room for further probing (Orodho et al, 2016).

The semi-structured interview schedules comprised of interview guides which contained questions organized according to the study objectives. Interview guides provide a clear set of instructions concerning the questions to be asked or the main topics to be probed (Orodho, 2017). Interviews were ideal because there was need to obtain complete and detailed understanding of the influence of performance appraisal on student learning outcomes and they also provided room for further probing (Orodho et al, 2016).Verbal information obtained from both principals and teachers and other relevant observations made by the researcher were documented in writing.

3.7 Piloting of the Study

The purpose of piloting was improve the validity and reliability of data collection instruments. Both the TPAQ and SATQ used in the first phase were pre-tested in one secondary school which was randomly sampled in Kisii Central Sub-County. The participants included 4 teachers and 32 students who collectively amounted to 1% of the study sample (Orodho, 2017). The purpose of pre-testing was to provide information about the length, language, focus, and instrument defects or ambiguity (Orodho, Khatete & Mugiraneza, 2016). The instruments were checked for their comprehensibility and layout to ensure that the language and structure were appropriate, and that the meanings of the questions were the same to the respondents as they were to the researcher (Young, 2009).

The PTSIS used in the second phase were pre-tested on 1 principal and 3 teachers who had participated in the first phase of piloting in line with the design of this study. The instrument was assessed for its length, focus, and item ambiguity (Orodho et al, 2016b). The items in the interview guide were also checked for their relevance to ensure that data obtained was

complemented quantitative findings and create a complete understanding of the influence of performance appraisal on student learning outcomes (Venkatesh, Brown & Bala, 2013). The procedures used during piloting were identical to those that were followed during the actual study which enabled the researcher to make meaningful observations (Orodho, 2017). The principal, teachers and students who participated in the pilot stage were excluded in the final study. After piloting, the data collection instruments used in both phase one and two were tested for their validity and reliability respectively.

3.7.1 Validity of the Research Instruments

The validity of research instruments was assessed by two faculty members of Kenyatta University who supervised this research (Sangoseni, Hellman & Hill, 2012). One of the supervisors is a professor of research and the other an expert in educational management. The three instruments used in this study were assessed for face and content validity to determine if they could truly measure the influence of performance appraisal on student learning achievement (Orodho, 2017).

a) Validity of the Teacher Performance Appraisal Questionnaire (TPAQ)

The importance of the items in TPAQ was examined in the context of performance appraisal for teachers and student learning outcomes to ensure that the instrument measured the content is was intended to measure-content validation. The items were further checked for their readability, clarity and comprehensiveness (Orodho, 2016). The classification of items in the instrument was done in three categories: “essential”, “essential but not necessary” and “not necessary” respectively (Orodho, 2017). As a result, 11 items were considered ‘essential’ and retained in the TPAQ out of original 14 items.

b) Validity of Student Appraisal of Teachers Questionnaires (SATQ)

The items in the SATQ were checked to ensure that they did not include those that required

student responses with predictable emotions, motivation, mind-sets and or behaviour (Ferguson et al, 2015). Items were further examined for their readability, clarity and comprehensiveness resulting into all the 10 items being considered as 'essential' hence retained in the instrument out of the original 17 items. All items that were not classified as 'essential' were discarded (Orodho, 2016).

c) Validity of the Semi-Structured Interview Schedule (SSIS)

Due to the explanatory sequential mixed methods design in this study, content validity of the SSIS was determined using a convergent approach. In this process, content validity for the TPAQ and SATQ (used during the first quantitative phase) and that of the SSIS (used during the second qualitative phase) were triangulated (Creswell, 2014). As a validity procedure, triangulation was used to search for convergence among the three different sources of information to form themes or categories leading to 13 items in the PTSIS being retained form the original 14 items. One item was discarded for lack of convergence.

3.7.2 Reliability of Research Instruments

Reliability was determined separately for each of the three instruments employed in this study using the internal consistency technique. Reliability is the extent to which a research instrument produces the same results on repeated trials (Orodho, 2009). Several methods are used to compute internal consistency of an instrument but, this study used the Cronbach's Coefficient Alpha for the TPAQ and SATQ because of its suitability given that items in the two instruments were not scored dichotomously (Orodho, 2017).

i) Reliability of TPAQ

Items for qualifications, development, experience, appraisal ratings and learning achievement were tested for internal consistency using Cronbach coefficient Alpha method. The reliability of TPAQ as shown in Table 3.3 for the 7 items averaged at .768.

Data with relatively high internal consistency would have alpha coefficient ≥.7 which can be generalized to reflect opinions of all respondents in the target population (Mandrish & Schaffer, 2005).

Table 3.3

Cronbach Alpha reliability coefficients for items in TPAQ

Item	Correlation	N
Teacher qualification	.781	4
Professional development	.763	4
Teacher experience	.836	4
Performance appraisal	.821	4
Student learning Achievement		
Term 1	.785	4
Term 2	.739	4
Term 3	.725	4

Source: Field Data

Table 3.3 shows Cronbach's coefficient Alpha (α) for the 7 items in TPAQ yielded 5 values within the range of $.8 \geq \alpha \geq .7$ which is considered 'satisfactory' while the other two items fell within the range of $.9 \geq \alpha \geq .8$ considered as 'good' reliability respectively according to George and Mallery's (2003) criteria for describing Cronbach's Coefficient Alpha. As a result, all the 7 items were adopted in the TPAQ instrument that was used for collecting data during the first quantitative phase of the study.

ii) Reliability of SATQ

The Student Appraisal of Teachers Questionnaire (SATQ) consisted of 7 items whose internal consistency was determined using Cronbach's coefficient Alpha. This was done after piloting using questionnaires from 32 students as shown in Table 3.4. On average, coefficient $\alpha = .783$ which is considered 'satisfactory' by George and Mallery (2003).

Table 3.4.

Cronbach Alpha reliability coefficients of items in SATQ

Item	Correlation	N
Supportive and interested in students	.835	32
Respects student perspectives	.701	32
Provides interesting and relevant teaching	.794	32
Provides clear expectations and lessons	.786	32
Summarizes and integrates learning	.729	32
Encourages and motivates students	.857	32
Develops conducive classroom environment for learning	.784	32

Source: Field Data

Table 3.4 shows the seven items in SATQ were adopted because they met the threshold set out by George and Mallery (2003). The coefficient **α** for 2 items in the SATQ lies within the range of $.9 \geq \alpha \geq .8$ which is "Good" while **α** values of the other 5 items lie within the range of $.8 \geq \alpha \geq .7$ which is 'sufficient' or adequate reliability. As a result, all the 7 items of the SATQ were retained in the instrument that was used to gather data during the first quantitative phase of this study.

iii) Reliability of SSIS

Reliability of the SSIS was ascertained using the constant comparative method (Orodho, 2017). In this process, qualitative data obtained during piloting was reviewed line by line and in detail to identify apparent concepts which were coded and catalogued while preserving the context of occurrence (Orodho, 2017). The interview transcripts were then coded to ascertain underlying concepts and themes that could complement and corroborate data obtained in phase one of the study (Parker & Mobey, 2004). The qualitative information obtained through PTSIS did not require quantifiable comparisons.

3.8 Data Collection Procedure

The researcher obtained a permit from the National Commission for Science, Technology

and Innovation (NACOSTI) (see Appendices and VII) and paid courtesy calls to the County Commissioner and Director of Education respectively. The latter, issued a letter of introduction to schools through principals (See Appendix VI).

3.8.1 Data collection procedure in quantitative phase one

In the first phase, the researcher visited one school in each of the nine sub-counties. The names of schools in each sub-county were written on bottle top liners and concealed in an opaque container. Liners were picked from the container one at a time without replacement until the last liner. The name of the school on the liner was listed on a paper systematically in series. The first school on the list was visited in each of the nine sub-counties. While in school, the researcher first consulted with the principal or deputy principal to establish if the school was suitable for the study. Suitability of the school depended on the willingness of the management to allow the researcher to conduct research in the school.

The first school in the generated list to fulfil the suitability conditions was eventually used for research in each sub-county. The researcher spent sufficient time to familiarize with the teachers and then administered the TPAQ directly. On average, the TPAQ was filled within 15 minutes. In the TPAQ each teacher nominated a class whose students participated in the study. With assistance from the school administration, the researcher was able to administer the SATQ to 13 randomly selected students for each teacher as per the completed TPAQ. The students filled the SATQ in the presence of the researcher and returned them immediately.

3.8.2 Data collection procedure in the qualitative phase two

The second qualitative phase was a follow-up on the first quantitative phase in which nine principals, deputy principals and heads of departments were purposively selected one from

each sub-county based on the subject taught as required by the researcher. Eventually, 27 interviewees were selected.

The researcher met the interviewees individually and discussed and agreed on the schedule of interviews showing the date, time and place. The researcher communicated with the interviewees reminding them of the scheduled interviews in advance. All interviews were conducted in schools in different days and timings as was agreed between the researcher and the interviewees. On average, one interview took about 30 minutes to complete. The verbal responses provided to interview questions were transcribed in writing on interview schedules.

3.9 Data Analysis

The first phase of this study produced quantitative data while qualitative data generated in the second phase. Analysis of data was done on the basis of the hypotheses of the study.

3.9.1 Phase One: Quantitative Data Analysis

Quantitative data was organized in a codebook and entered into the computer with the aid of the latest version of the Statistical Package for Social Sciences (SPSS) for windows computer programme initially to test for distribution assumptions using the Kolmogorov-Smirnov (z-test). The use of the K-S test helped in establishing whether the sample came from a hypothesized continuous distribution rendering data suitable for further statistical analyses (Bolen, Mulugeta, Greenfield, Conley & Health, 2014).

Descriptive statistics was presented in contingency tables showing the gender, frequencies and percentages of data obtained from teachers and students. To establish the strength of relationships between performance appraisal and student learning outcomes, inferential statistics such as Pearson's correlation coefficient, chi-square and linear regression were generated and presented according to five research hypotheses.

a) Hypothesis 1

The first hypothesis of this study sought to test relationship between teacher qualification and students' learning achievement. Descriptive data were produced in a contingency table for teacher qualification showing qualification, frequencies, and percentages of teachers in 7 levels of qualifications. Student test scores for term 1, 2 and 3 recorded during the appraisal period were also described using a bar graph. To establish the relationship between the two variables and influence of qualifications on learning achievement, the Pearson's correlation coefficient, chi-square and linear regression were generated with aid of the Statistical Package for Social Sciences (SPSS) for windows computer programme.

A linear regression model was developed to find out the strength of the relationship between the variables of teacher qualification and student learning outcomes. The linear regression model is expressed as:

$$S = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where,

S= Student learning achievement

β_0 = Constant term i.e. predicted value of student learning outcome if teacher qualification is zero

β_1= Beta coefficient (contributions of teacher qualification on student learning achievement)

X_1= Teacher qualification

ε= Standard error (other variables that may affect student learning achievement but not included in the model and were assumed not to interfere with teacher qualification e.g. student characteristics)

Teacher qualification was evaluated in terms of its predictive power (Pallant, 2005 *in* Orodho, 2017). The standard linear regression was used to determine R-Square (R^2) which is the coefficient of determination of the amount of variability explained in student learning

achievement by teacher qualification. Furthermore, standard linear regression also established the regression weight (Beta - β_1) which is the amount of contribution of teacher qualification to student learning achievement, while holding other variables constant (Creswell, 2013; Orodho, Khatete & Mugiraneza, 2016a). The beta weight further indicated the change in teacher qualification for every unit change in percentage of student learning outcomes. The significance of beta coefficient was established at α=.05 level of statistical significance (Creswell, 2014; Orodho et al, 2016a).

b) Hypothesis 2

The second hypothesis was to test the strength of the relationship between professional development and students' learning achievement. Descriptive data were presented in a contingency table showing the number of professional development courses completed prior to and during the performance appraisal period, frequencies, percentages and the mean student test scores. To measure the strength of relationship between number of professional development courses completed and student learning achievement, the Pearson's correlation coefficient, chi-square and linear regression statistics were generated with aid of the latest version of the Statistical Package for Social Sciences (SPSS) for windows computer programme. A linear regression model was developed is expressed as:

$$S = \beta_0 + \beta_2 X_2 + \varepsilon$$

Where,

S= Student learning achievement

X_2= Professional development courses completed

Using the regression model, the number of professional development courses completed prior to and during the appraisal period was evaluated in terms of its predictive power of student learning achievement (Pallant, 2005 *in* Orodho, 2017). The standard linear regression model was used to determine R-Square (R^2) which is the coefficient of

determination of the amount of variability explained in student learning achievement by the number of professional development courses completed. Furthermore, the standard linear regression model also established the regression weight (Beta – β_2) which is the amount of contribution of professional development to student learning achievement, while holding other variables constant (Creswell, 2013; Orodho, Khatete & Mugiraneza, 2016a). The beta weight further indicated the change in professional development for every unit change in percentage of student learning achievement. The significance of beta coefficient was established at α=.05 level of statistical significance which is widely applied in social science studies (Creswell, 2014; Orodho et al, 2016a).

c) Hypothesis 3

The third hypothesis sought to establish the strength of the relationship between teaching experience and students' learning achievement. Descriptive data were presented in a contingency table showing level of experience, frequencies, percentages and mean student learning achievement scores. Consequently, inferential statistics notably the Pearson's correlation coefficients, chi-square and linear regression were generated with aid of the Statistical Package for the Social Sciences (SPSS) for windows computer programme. The purpose for inferential statistics was to test the hypothesis by establishing the predictive power of experience on student learning achievement. As a result, a linear regression model was developed expressed as $\mathbf{S= \beta_0 + \beta_3 X_3 + \varepsilon}$

Where,

S = Student learning achievement

$\mathbf{X_3}$**=** Teacher experience

The standard linear regression model was used to determine R-Square (R^2) which is the coefficient of determination of the amount of variability explained in student learning achievement by teacher experience. Furthermore, standard linear regression also

established the regression weight (Beta – β_3) which is the amount of contribution of teacher experience to student learning achievement, while holding other variables constant (Creswell, 2013; Orodho, Khatete & Mugiraneza, 2016). The beta weight further indicated the change in teacher experience for every unit change in percentage of student learning achievement. Due to wide applicability in social sciences, the significance of beta coefficient was established at α=.05 level of statistical significance (Creswell, 2014; Orodho, Nzabalirwa, Odundo, Waweru, & Ndayambaje, 2016b).

d) Hypothesis 4

The fourth hypothesis sought to determine relationship between appraisal ratings and students' learning achievement. Descriptive data were produced in a contingency table showing level of performance, frequencies, percentages, average performance ratings (TPAD) and mean student learning achievement scores for each performance level.

In order to establish the strength of relationship between appraisal ratings under TPAD and student learning achievement the Pearson's correlation coefficient, chi-square and multiple linear regression were generated with aid of the latest version of the Statistical Package for the Social Sciences (SPSS) for windows computer programme.

The multiple linear regression model developed to explain the strength of the relationship between appraisal ratings and student learning outcomes is expressed as

$$\mathbf{S= \beta_0 + \beta_4 X_4 + \varepsilon}$$

Where,

S = Student learning achievement

X_4 = Appraisal ratings (TPAD)

The predictor variable of appraisal ratings (TPAD) was evaluated in terms of its predictive power on student learning achievement (Pallant, 2005 *in* Orodho, 2017). The standard

multiple linear regression model was used to determine R-Square (R^2) which is the coefficient of determination of the amount of variability explained in student learning achievement by appraisal ratings (TPAD). Furthermore, the standard linear regression model also established the regression weight (Beta) which is the amount of contribution of appraisal ratings (TPAD) while holding other variables constant (Creswell, 2013; Orodho, Nzabalirwa, Odundo, Waweru, & Ndayambaje, 2016).

The analysis of beta weight **β** made it possible to determine the contribution of appraisal ratings (TPAD) to student learning achievement. For instance, β_4 refers to the contribution of appraisal ratings (TPAD) to student learning achievement. The beta weight further indicated the change in appraisal ratings (TPAD) for every unit change in percentage of student learning achievement. As is usually the norm in social sciences research, the significance of the beta coefficient was established at α=.05 level of statistical significance (Creswell, 2013; Orodho, Nzabalirwa, Odundo, Waweru, & Ndayambaje, 2016b).

e) Hypothesis 5

The fifth hypothesis was set to establish the relationship between student survey ratings and students' learning achievement. Descriptive data were presented in a contingency table showing the of performance, frequencies, percentages, average performance ratings (student survey) and mean student learning achievement scores for each performance level.

To establish the strength of relationship between student survey ratings and student learning achievement the Pearson's correlation coefficient, chi-square and multiple linear regression were generated with aid of the latest version of the Statistical Package for the Social Sciences (SPSS) for windows computer programme. The multiple linear regression model developed to explain the strength of the relationship between student survey ratings and student learning outcomes is expressed as $\mathbf{S= \beta_0 + \beta_5 X_5 + \varepsilon}$

Where,

S = Student learning achievement

X_5 = Student survey ratings

The predictor variable of teacher performance (student survey) was evaluated in terms of its predictive power on student learning achievement (Pallant, 2005 *in* Orodho, 2017). The standard multiple linear regression model was used to determine R-Square (R^2) which is the coefficient of determination of the amount of variability explained in student learning achievement by student survey ratings. Furthermore, the standard linear regression model also established the regression weight (Beta) which is the amount of contribution of student survey ratings while holding other variables constant (Creswell, 2013; Orodho, Nzabalirwa, Odundo, Waweru, & Ndayambaje, 2016b et al, 2016).

The analysis of beta weight **β** made it possible to determine the contribution of student survey ratings to student learning achievement. For instance, β_4 refers to the contribution of student survey ratings to student learning achievement. The beta weight further indicated the change in student survey ratings for every unit change in percentage of student learning achievement. As is usually the norm in social sciences research, the significance of the beta coefficient was established at **α**=.05 level of statistical significance (Creswell, 2013; Orodho, Nzabalirwa, Odundo, Waweru, & Ndayambaje, 2016b).

A standard multiple regression model was constructed to measure the influence of performance appraisal for teachers on student learning achievement considering teacher traits of qualification, development, and experience and the performance of teachers as per the four competency areas of TPAD that are linked with student learning achievement, and, teacher performance through the student surveys. The multiple linear regression model is expressed as:

$$S= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where,

S= Student learning achievement

β_0 = Constant term (predicted value of dependent variable if the composite of independent variable (performance appraisal ratings, student feedback on teacher performance) are zero

β_1= Contributions of teacher qualification on student learning achievement

β_2= Contributions of professional development on student learning achievement

β_3= Contributions of teacher experience on student learning achievement

β_4= Contributions of teacher performance (TPAD) on student learning achievement

β_5= Contributions of teacher performance (student survey) on student learning achievement

X_1= Teacher qualification

X_2= Professional development

X_3= Teacher experience

X_4= Appraisal ratings (TPAD)

X_5= Student survey ratings

ε= Standard error (other variables that may affect student learning outcomes but not included in the model and were assumed not to interfere with student learning outcomes e.g. student characteristics)

Five composite predictor variables of performance appraisal were evaluated in terms of their predictive power on student learning achievement (Pallant, 2005 *in* Orodho, 2017). The standard multiple linear regression model was used to determine R-Square (R^2) which is the coefficient of determination of the amount of variability explained in student learning achievement by performance appraisal. Furthermore, the standard multiple linear regression model also established the regression weight (Beta) which is the amount of contribution of a variant of performance appraisal while holding other variables constant (Creswell, 2013; Orodho, Nzabalirwa, Odundo, Waweru, & Ndayambaje, 2016b).

The analysis of beta weight **β** made it possible to determine which of the variants of performance appraisal that had a larger contribution on student learning achievement. For instance, β_1 refers to the contribution of teacher qualifications to student learning achievement controlling for β_2 (professional development), β_3 (teacher experience), β_4 (teacher performance-TPAD), and, β_5 (teacher performance -student survey). The beta weight further indicated the change in performance appraisal for every unit change in percentage of student learning achievement scores. The significance of each beta coefficient was established at α=.05 level of statistical significance (Creswell, 2014; Orodho, Khatete & Mugiraneza, 2016).

3.9.2 Phase Two: Qualitative Data Analysis

The second qualitative phase of this study generated data obtained from 9 Principals, 9 Deputy Principals and 9 Heads of Departments respectively. Interviewees narrated their experiences and expressed their opinions regarding relationships between study variables which were recorded in writing by the researcher. Figure 3.2 is a schematic description of the process through which qualitative data was analyzed. Orodho, Khatete and Mugiraneza (2016) observe that analysis of qualitative data goes through "editing, coding and examining the relationships between variables, interpretation and presentation" (p.159).

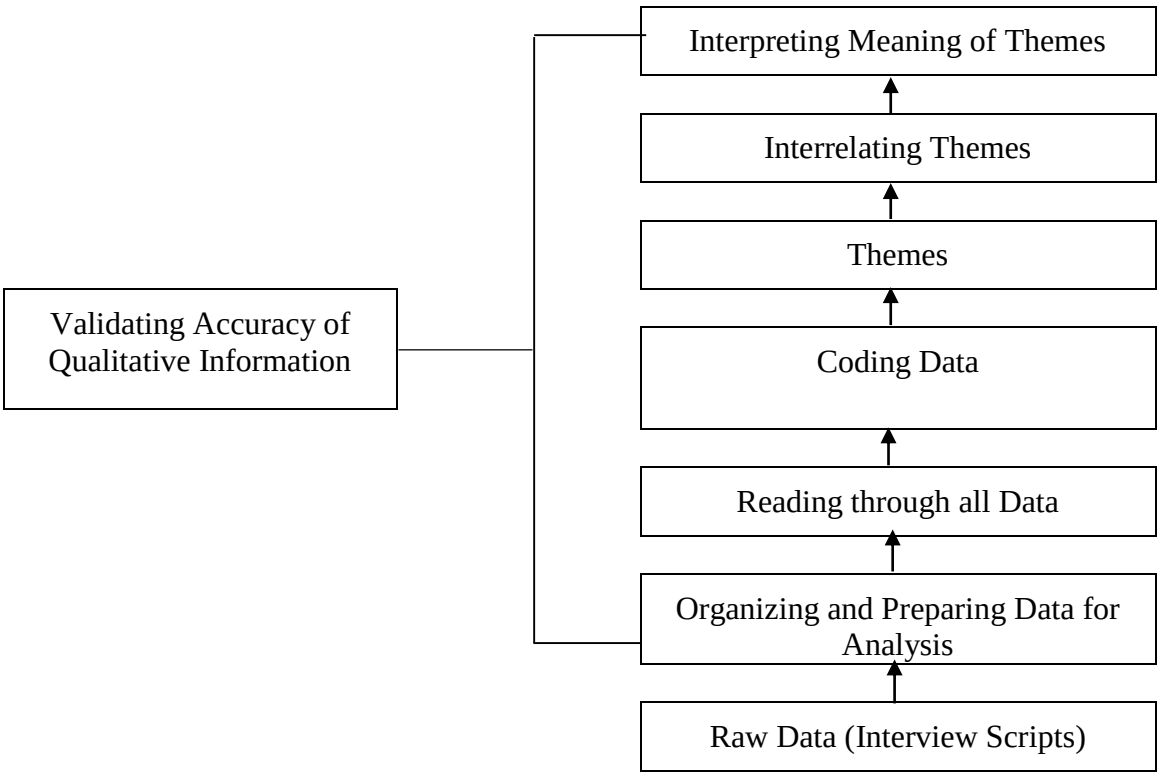

Figure 3.2: Steps of qualitative data analysis

Source: Creswell (2014). *Research Design.* Adapted for this study

The 1st step was to organize and prepare raw data contained in interview scripts for analysis by typing it. The 2nd step entailed reading all the typed data and editing it where necessary to reflect its overall meaning and credibility. In the 3rd step, data were coded into three major categories notably: anticipated, unanticipated, and unusual findings respectively (Creswell, 2014). The 4th step involved using the codes to generate a description on seven themes for analysis. The 5th step was concerned with thematic presentation of data on qualitative analysis in narrative form. The 6th step involved triangulation and interpretation of the qualitative findings (Creswell, 2014).

3.9.3 Triangulation of the Quantitative and Qualitative Research Findings

This study determined dependability of student learning achievement on performance appraisal for teachers in public secondary schools. Both quantitative and qualitative findings were generated in the first and second phases respectively. The findings were

triangulated to provide vivid explanations of the complex nature of relationships between the study variables. Yeasmin and Rahman (2012) define triangulation as "a process of verification that increases validity by incorporating several viewpoints and methods" (p.156). Figure 3.3 shows a basic triangulation model adopted in this study.

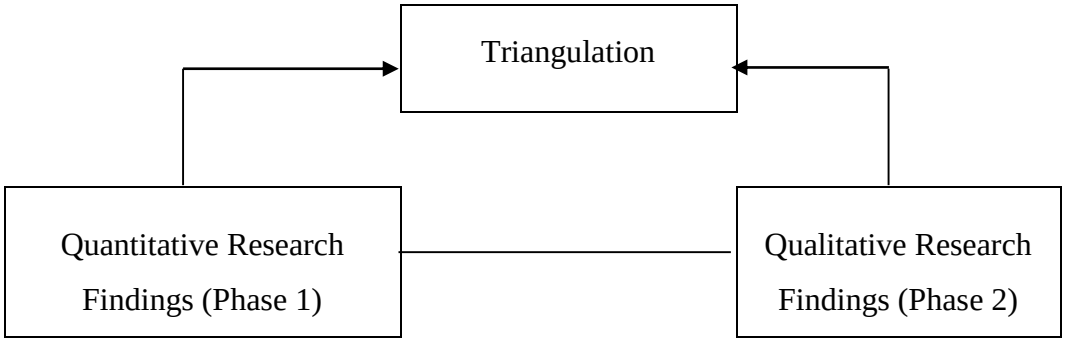

Figure 3.3: Basic triangulation research model

Source: Yeasmin and Rahman (2012). 'Triangulation' research method as the tool of social science research. *Bup Journal,* 1*(1).*

Figure 3.3 illustrates the triangulation process adopted in this study which shows how both quantitative and qualitative data were integrated after analysis. The triangulation process depicts the methodological triangulation approach that was described by Denzin (1970) *as cited* by Yeasmin and Rahman (2012, p.157). Yeasmin and Rahman (2012) identified four approaches to triangulation notably: Data triangulation, investigator triangulation, theoretical triangulation, and, methodological triangulation. Data triangulation involves retrieval of data from a number of different sources to form one body of data while investigator triangulation involves use of multiple observers to gather and interpret data.

The methodological triangulation approach was ideal because of the explanatory sequential mixed methods research design adopted. Methodological triangulation involved seeking answers from qualitative data for questions emerging from quantitative findings according to the research objectives. Yeasmin and Rahman (2012) particularly observed that methodological triangulation is the most profound of all triangulation approaches.

3.10 Logistical and Ethical Considerations

The study was carried out with keen observance of the logistical issues before, during and after the two phases of this study (Orodho, 2017). Ethical issues that were considered included acknowledgement of all information sources to avoid plagiarism and gaining consent of key stakeholders such as school principals, teachers and students before data was collected. Due caution was exercised to avoid interruptions on normal school programmes during data collection. In some cases, the researcher was denied entry to some schools due to ongoing programmes but was later allowed after consultations with principals.

Questionnaires maintained strict confidentiality because instructions therein discouraged principals, teachers and students from disclosing their names and schools. As a result, the researcher administered questionnaires during evening prep and weekends in some schools and collected all filled questionnaires directly. Furthermore, privacy and confidentiality of information obtained from students in this research was consciously guarded given they provided information about their teachers. In the second qualitative phase, principals and teachers were interviewed after following the interview schedules that were planned and agreed upon by the researcher and interviewees. Information provided by the interviewees was recorded in writing in interview blanks during the interview itself. All persons or organizations that contributed or supported this study in one way or another are acknowledged.

CHAPTER FOUR

PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the general demographic information, findings, interpretations and discussions according to four research objectives: To determine relationship between teacher qualification and student learning achievement, influence of professional development on student learning achievement, relationship between teacher experiences and student learning achievement, influence of teacher performance (TPAD) on student learning achievement, and, influence of teacher performance (student surveys) on student learning achievement. Presentation and triangulation of quantitative research findings is done before presenting qualitative findings. Finally, triangulation is done for quantitative and qualitative results from the first and second phase of this study respectively.

4.2 General and Demographic Information

The general and demographic information include return rate, research problems, sampling units, gender, subject taught, qualifications, experience and professional development courses completed.

4.2.1 General Information

Data collection in both phases of this study were collected within a period of three months during the first school term of 2017. The study took place during the period of heavy rainfall in Kisii County which showed down the process. In the first quantitative phase, questionnaires for teachers were administered to a sample of 362 teachers. Thereafter, a convenient sample of 30 teachers were selected using simple random sampling technique. The performance of these teachers was evaluated by a sample of 396 students determined using Slovenes' formula. Each teacher was evaluated by 13 students using the SATQ.

The evaluation of teachers by students presented some sort of challenge given that many students wanted to participate but were restrained due to sample size. All teachers and students who constituted the study sample at the first phase completed their respective questionnaires and submitted them leading to 100% response rate. Saldivar (2012) posits that response rate refers to the number of questionnaire responses divided by number of individuals to whom the questionnaires were administered. High response rates were achieved because of the data collection technique adopted where all questionnaires were filled in the presence of the researcher and collected immediately.

4.2.2 Demographic Information

The demographic information of principals, teachers and students was analyzed according to population characteristics of gender, sub-county, and subject as appropriate. Table 4.1 shows details of teachers who participated in the first quantitative phase.

Table: 4.1

Frequency distribution of teachers per sub-county

Sub-County	M	F	**n**	**%**
Kisii Central	52	30	82	22.2
Marani	16	9	25	7.4
Kenyenya	51	21	73	22.2
Gucha	13	5	18	3.7
Nyamache	22	14	31	11.1
Gucha South	28	11	40	11.1
Sameta	14	7	21	7.4
Masaba South	22	14	36	7.4
Kisii South	20	9	30	7.4
Total	**238**	**120**	**362**	**100**

Source: Field data (**M**=Male; **F**=Female)

Note: Teacher population **N**= 3,759; Sample **(n)** =362
(Principals, Deputy Principals, and Heads of Departments are included)

Table 4.1 shows the distribution and percentages of teachers who took part in phase one from the nine sub- counties considered in this study.

4.3 Phase One: Quantitative Research Findings

Quantitative data was organized in an SPSS code book, entered into the computer and tested for distribution assumptions using the Kolmogorov-Smirnov (z-test). The K-S statistic (z) is based on the largest vertical difference between the theoretical and the empirical cumulative distribution function. The K-S test is used to decide if a sample comes from a hypothesized continuous distribution (Bolen, Mulugeta, Greenfield, Conley & Health, 2014).

In this study, the SPSS hypothetical normal distribution was compared with the distributions of independent study performance appraisal variables notably teacher qualification, professional development, experience, appraisal ratings, student survey ratings and the dependent variable-student learning achievement. Table 4.2 shows results of a two-tailed significance test statistics.

Table 4.2

Kolmogorov-Smirnov test results for normality

		1	2	3	4	5	6
Normal Parameters[a,b]	**n**	362	361	362	360	361	362
	Mean	2.57	1.16	1.75	4	3.88	3.45
	Std. Deviation	1.527	0.364	0.489	0.816	0.668	0.644
Most Extreme Differences	Absolute	0.417	0.51	0.419	0.215	0.282	0.311
	Positive	0.417	0.51	0.277	0.215	0.26	0.25
	Negative	-0.296	-0.334	-0.419	-0.215	-0.282	-0.311
Kolmogorov-Smirnov	z-value	7.512	9.124	7.572	1.358	5.068	5.614
p-value		0.000	0.000	0.000	0.000	0.000	0.000

(**α**=.05) *Source:* Field data

Where;

1. Teacher qualification
2. Professional development
3. Teacher experience

4. Teacher performance (TPAD)
5. Teacher performance (Student Survey)
6. Student learning achievement scores

The statistics in Table 4.2 shows that all the six variables yielded p-values = .001 which implies that data followed the hypothetical normal distribution since $p<.05$. The K-S test results implies that data obtained in the first quantitative phase of this study was suitable for further analysis. This study used the K-S test because of its sensitivity to all types of differences between two populations and for being one of the most useful and general non-parametric methods for comparing two samples (Bolen, Mulugeta, Greenfield, Conley, & Health, 2014).

4.3.1 Relationship between qualification and students' learning achievement

The first objective was to establish the relationship between teacher qualification and student learning achievement. Teacher qualifications were listed from the lowest to the highest and allocated with points ranging from 1-6 for the lowest and highest level respectively. Table 4.3 shows that most teachers (65%) had a Bachelor of Education (B.Ed.) qualification while teachers with Ph.D. certificates constituted 2.5% respectively. The teacher qualifications were analyzed in 6 categories namely: Diploma in Teacher Education (DTE), Bachelor of Education (B.Ed.-Arts/Sc), Bachelor of Arts or Bachelor of Science with a Post Graduate Diploma in Education (BA/B.Sc. with PGDE), Master of Education (M.Ed.), Master of Arts (MA), Master of Science (M.Sc.) and, Doctor of Philosophy (Ph.D.)

Table 4.3

Frequency distribution of teachers by qualification and student achievement

Qualification	f	%	Achievement %
DTE	27	7.5	62.3
B.Ed. (Arts/Sc.)	236	65.0	61.7
BA/B.Sc. with PGDE	18	5	60.1
M.Ed.	27	7.5	60.9
MA/MSc.	45	12.5	61.7
Ph.D.	9	2.5	60.5
Total	**362***	**100.0**	**M= 61.2 %**

Note: (* *Principals, Deputy Principals and Heads of Department included*)
n=362; M=Mean

Source: Field data

Descriptive statistics in Table 4.3 shows that the average mean % test scores on student achievement ranged between 60.1 % and 62.3% for students taught by teachers with BA/BSc degree certificates with PGDE and DTE respectively. The descriptive results shows a 2.1% variation on student achievement between the lowest and the highest. However, students taught by teachers with the lowest diploma qualification had the highest achievement scores at 63.1% compared with 60.5% for students taught by teachers with Ph.D certificates respectively. It was thus necessary to establish whether qualifications held by teachers were significantly related with student learning achievement by testing the first research hypothesis.

Hypothesis One

1. H_o: *There is no significant relationship between teacher qualifications and students' learning achievement in public secondary schools in Kisii County.*

The relationship between teacher qualifications and student achievement scores shown in Table 4.3 was determined using Pearson's Correlation Coefficient method. The results

computed by the latest SPSS computer programme were ***r*** (362) = -.178, p>.05. These results show that teacher qualification was not significantly related with student learning achievement since p>.05 confidence level.

Chi-square tests were performed for further analysis which yielded χ^2 (df= 24, N = 362) = 41.321, p<.015 showing a significant association between teacher qualification and student learning achievement since the p-value of .015 is less than the critical p-value set at .05 confidence level. To measure the predictive power of teacher qualifications on learning achievement, a simple linear regression model developed to predict student learning achievement based on teacher qualification yielded results shown in Table 4.4. Teacher qualification yielded Persons' R=.178 which indicates a weak positive relationship with student learning outcomes in public secondary schools in Kisii County

Table 4.4

Regression model summary on teacher qualification and learning achievement

Predictor variable	**Regression Statistics**	*Learning achievement*
Teacher Qualification	R	.178
	R-squared (R^2)	.032
	Adjusted R- Squared (R^2)	-.007
	Beta **(β_1)**	-.091
	p-Value	.375
	Standard error of Estimate (E)	.776
	Constant **(β_0)**	3.446

(n=362; **α**=.05)

NB: Principals, Deputy Principals and Heads of Department are included)

Source: Field Data

Table 4.4 shows that the R-Squared (R^2) computed yielded a value of .032, suggesting that teacher qualification explained 3.2% of student learning achievement scores in the study locale. The adjusted (R^2) also indicates that teacher qualification explained .7% of the variation in student learning achievement scores and is lower than R^2 predicted. This is expected since adjusted R^2 is usually lower than R^2 predicted because of incorporating

other data characteristics, such as sample size, data pairs and degree of freedom (Orodho, 2017). The p-value computed by the Statistical Package for the Social Sciences (SPSS) was .375 which is more than the statistical confidence level α=.05 set to measure the significance level of the relationship between teacher qualification and student learning achievement scores.

The null hypothesis was thus upheld that teacher qualification does not have a significant relationship on student learning achievement in public secondary schools in Kisii County. This finding is not unusual given that learning achievement is a function of many factors with varying magnitudes (Hattie, 2009). The standard error of estimate (E) was found to be .776, suggesting that there were other factors of the magnitude of .776 that influence student learning achievement that were not observed or taken into consideration during the first quantitative phase of the study. The contribution of teacher qualification to student learning achievement was indicated by beta weight β_1= -.091 which shows that one unit change in teacher qualification is expected to cause -.091 change in student learning achievement.

4.3.2 Professional development and students' learning achievement

The second research objective was to determine the influence of professional development on student learning achievement. Professional development was considered in terms of the number of professional courses completed by the teacher prior to and during the performance appraisal cycle. Data was obtained on a five-point scale starting with one course completed up to 4 courses and lastly 'no course' completed respectively. Descriptive statistics on the number of professional courses completed and the average test scores on learning achievement are presented in Table 4.5.

Table 4.5

Frequency distribution of professional development and learning achievement

Number of development courses completed	*f*	%	Achievement
1	51	14.1	62.1
2	48	13.3	59.7
3	52	14.4	61.6
4	93	25.6	62.4
None	120	33.2	60.1
Total	**362***	**100**	**M=61.2%**

(**Principals, Deputy Principals and Heads of departments Included; f*= Frequency) n=362; M= Mean

Source: Field Data

The results presented in Table 4.5 shows that most teachers (33.2 %) had not completed any professional development course. The results shows that student learning achievement for teachers who had not completed any course was not the lowest as was expected. Although student achievement for teachers who had completed 4 development courses had the highest percentage score of 62.4%, achievement for teachers with no course completed was 60.1% which was slightly higher than achievement for teachers who had completed two professional courses (59.7%). However, to establish the extent of relationship between the number of courses completed and student learning achievement, relevant inferential statistics were generated to test the second hypothesis of this study.

Hypothesis two

2. H_o: *Professional development for teachers does not significantly influence students' learning achievement in public secondary schools in Kisii County*

The extent of relationship between professional development and student learning achievement scores shown in Table 4.5 was measured using Pearson's Correlation

Coefficient method. The results computed by the latest SPSS computer programme were ***r*** (30) = .200, (p>.05). These results show that professional development was not significantly related with student learning achievement since p>.05 level of confidence.

In addition, the association between professional development and student learning achievement scores was determined using chi-square (χ^2) tests which yielded χ^2 (df= 4, N = 30) = 3.000, (p =.558). This result, determined with the aid of SPSS computer programme, shows that professional development is not significantly associated with student learning achievement scores since in the p-value is more than the critical p-value set at .05 confidence level. In order to measure the predictive power of professional development on learning achievement, the results in Table 4.5 were regressed on a model constructed for that purpose and the results are shown in Table 4.6.

Table 4.6

Regression model summary of professional development and learning achievement

		Dependent variable
	Regression Statistics	*Learning achievement*
Predictor: *Professional Development*	R	.200
	R-squared (R^2)	.040
	Adjusted R- Squared (R^2)	.002
	Beta **(β_2)**	.328
	p-Value	.317
	Standard error of Estimate (E)	.773
	Constant **(β_0)**	2.775

*(*n=362; **α**=.05)
(NB: Principals, Deputy Principals and Heads of Department are included)
Source: Field Data

Table 4.6 presents results of a linear regression model in which professional development yielded Persons' R=.200 which indicates a weak positive relationship with student learning achievement scores in public secondary schools in Kisii County. The R-Squared (R^2) computed yielded a value of .04, suggesting that professional development explained 4%

of student learning achievement scores in the study locale. The adjusted (R^2) also indicates that professional development explained .2% of the variation in student learning outcomes and is lower than R^2 predicted. The p-value computed by the Statistical Package for Social Sciences (SPSS) was .317 which is more than the statistical significance level $\boldsymbol{\alpha}$=.05 confidence level. The null hypothesis was upheld as a result of these findings.

The standard error of estimate (E) was found to be .773, suggesting that there were other factors of the magnitude of .773 that influence student learning achievement scores that were not observed or taken into consideration during the first quantitative phase of the study hence the need for the second qualitative phase. The contribution of professional development to student learning achievement scores was indicated by beta weight $\boldsymbol{\beta_2}$= .328. This result shows that one unit change in professional development is expected to cause .328 change in student learning achievement scores.

4.3.3 Teacher experience and students' learning achievement

The third research objective was to establish the influence of teacher experience on student learning achievement. Teachers were grouped according to their teaching experience into five stages following Steffy and Wolfe's (2000) model notably: Apprentice (<3years), professional (4-7 years), expert (8-13 years), distinguished (13-17 years) and emeritus (18 years and above). This model was used because of its suitability to teachers in secondary schools (Anna, 2007). The lowest group of teachers was accorded the lowest point and vice versa. Teachers were therefore rated on a five point- scale with the lowest given 1 point while the highest group was accorded 5 points. The descriptive statistics are presented in the Frequency distribution Table 4.7 which shows level of experience, frequency and corresponding average student learning achievement recorded during the appraisal period.

Table 4.7:

Frequency distribution of teachers by experience and student learning achievement

Levels of experience	f	%	Achievement %
Apprentice (< 3 years)	65	17.9	66.1
Professional (4-7 years),	39	10.8	59.2
Expert (8-13 years)	114	31.5	58.1
Distinguished (13-17 years)	84	23.2	60.8
Emeritus (18 years and above).	60	16.6	61.7
Total	**362**	**100**	**61.2%**

*(*n=362; **α**=.05)

(NB: Principals, Deputy Principals and Heads of Department are included)

Source: Field data (n= 362)

Table 4.7 shows that less than 16.6 % of the teachers were of emeritus status but majority of the teachers were at expert status (31.5%). Apprentice teachers constituted 17.9% of the teacher population in Kisii County. The corresponding student learning achievement was within the range of 51.2% and 56.1% respectively. Students taught by apprentice teachers recorded the highest achievement compared with professional teachers although the magnitude was small. In order to establish the extent of relationship between experience and student learning achievement the third hypothesis was tested using Pearson's Correlation Coefficient, Chi-square and linear regression respectively.

Hypothesis three

3. H_o: *There is no significant relationship between teacher experience and students' learning achievement in public secondary schools in Kisii County*

The results of Pearson's Correlation Coefficient computed by the latest SPSS computer programme were ***r*** (30) = .188, p>.188. These results show that teacher experience was not significantly related with student learning achievement since p>.05 level of confidence. In addition, chi-square (χ^2) tests performed to establish the extent to which teacher experience was associated with student learning achievement scores yielded χ^2 (df= 20, N = 30) = 18.314, p<.567. This result shows that teacher experience was not significantly associated

with student learning outcomes since in the p-value is more than the critical p-value set at .05 level of confidence.

Further analysis of descriptive results on Table 4.7 involved a simple linear regression model constructed to predict student learning achievement (mean scores) based on teacher experience (years in teaching). The results are presented in Table 4.8 which shows that teacher experience yielded Persons' R=.188 which indicates a weak positive relationship with student learning achievement in public secondary schools in Kisii County.

Table 4.8

Regression model summary for teacher experience and student learning achievement

		Dependent variable
Predictor:	*Regression Statistics*	*Learning achievement*
Teacher Experience	R	.188
	R-squared (R^2)	.036
	Beta **(β_3)**	.091
	p-Value	.328
	Standard error of Estimate (E)	.773
	Constant **(β_0)**	2.922

(*n*=362; **α**=.05)
(NB: Principals, Deputy Principals and Heads of Department are included)
Source: Field Data

Table 4.8 shows that R-Squared (R^2) computed yielded a value of .036, suggesting that teacher experience explained 3.6% of student learning achievement in the study locale. The p-value computed by the Statistical Package for Social Sciences (SPSS) was .328 which is more than the statistical significance level **α**=.05 that was set to measure the significance level of the relationship between teacher experience and student learning achievement scores. These findings led to the third hypothesis being retained. This study concluded that there was no statistically significant relationship between teacher experience and student learning achievement in public secondary schools in Kisii County.

The standard error of estimate (E) was found to be .773, suggesting that there were other factors of the magnitude of .773 that influence student learning achievement scores that were not observed or taken into consideration during the quantitative phase of the study. The contribution of teacher experience to student learning achievement was indicated by beta weight β_3= .091. This result shows that one unit change in teacher experience is expected to cause .091 change in student learning achievement scores.

4.3.4 Appraisal ratings and students' learning achievement

The fourth objective was to establish the relationship between appraisal ratings and student learning achievement. Appraisal ratings were analyzed descriptively based on five levels of teacher experience in percentage form along with the corresponding percentage of student learning achievement as presented in Table 4.9.

Table 4.9

Frequency distribution of appraisal ratings and student achievement

		Appraisal Ratings	Learning Achievement
Levels of Experience	**f**	**%**	**%**
Apprentice (< 3 years)	65	65	66.1
Professional (4-7 years),	39	69	59.2
Expert (8-13 years)	114	62	58.1
Distinguished (13-17 years)	84	67	60.8
Emeritus (18 years and above).	60	70	61.7
Total	**362**	**M=66.6**	**M=61.2**

(n=362; M=Mean)

(*NB: Principals, deputy principals, and Heads of Department included*)

Source: Filed Data

Table 4.9 shows that appraisal ratings determined under five TPAD competency areas linked with student learning achievement ranged between 62% for expert teachers and 70% for emeritus teachers respectively. Appraisal ratings seems to be slightly higher compared with student learning achievement. However, to measure the extent or relationship between appraisal ratings and student learning achievement, Pearson's Correlation Coefficient, chi-

square and linear regression statistics were generated with the aid of the latest SPSS computer programme.

Hypothesis four

4. H_o: *Appraisal ratings are not significantly related with students' learning achievement in public secondary schools in Kisii County*

Using the Pearson's Correlation Coefficient method the statistics presented in Table 4.9 yielded ***r*** (27) = -.008, p<.484 for appraisal ratings. These results show that appraisal ratings are not significantly related with student learning achievement since the p-value obtained is more than the set critical p<.05 level of significance. In addition, chi-square tests produced the result χ^2 (df = 12, N = 27) = 13.275, p<.349. These results show that appraisal ratings are not significantly associated with student learning achievement since p>.05 level of confidence. Finally, results on appraisal ratings and learning achievement were regressed using a model constructed for that purpose to determine the predictive power of appraisal ratings on student learning achievement. Table 4.10 present the linear regression results

Table 4.10

Regression model summary on appraisal ratings and learning achievement

		Dependent variable
Predictor:	*Regression Statistics*	*Student learning achievement*
Teacher performance (TPAD)	R	.085
	R-squared (R^2)	.007
	Adjusted R- Squared (R^2)	.006
	Beta **(β_4)**	.009
	p-Value	.964
	Standard error of Estimate (E)	.137
	Constant **(β_0)**	3.594

(N=362; **α**=.05)

(NB: *Principals, Deputy Principals and Heads of Department included*);

Source: Field Data

The results of the linear regression model in Table 4.10 shows that appraisal ratings yielded Persons' R=.085 which indicate a weak positive relationship with student learning achievement. The R-Squared (R^2) computed yielded a value of .007, suggesting that ratings explained .7% of student learning achievement in the study locale. The adjusted R^2 also indicates that appraisal ratings explained .6% of the variation in student learning achievement and is lower than the R^2 predicted.

Furthermore, the *p*-value computed by the Statistical Package for the Social Sciences (SPSS) was .964 which is more than the statistical significance level ($\boldsymbol{\alpha}$=.05) level of confidence. These findings led to the fourth hypothesis being upheld. Additionally, the standard error of estimate (E) was found to be .137, suggesting that there were other factors of the magnitude of .137 that influence student learning achievement that were not observed or taken into consideration during the first quantitative phase of the study hence the need for the second qualitative phase. The beta weight $\boldsymbol{\beta}$ for teacher performance (TPAD) shows that the contribution to student learning achievement $\boldsymbol{\beta_4}$= .009. This result shows that one unit change in appraisal ratings is expected to cause .009 change in student learning achievement.

4.3.5 Student Survey Ratings and Students' Learning Achievement

The fifth research objective was to find out the relationship between student survey ratings and student learning achievement. The surveys were administered for 30 teachers randomly selected form the sample of 362 teachers who had completed filling the Teacher Performance Appraisal Questionnaire (TPAQ). A total of 396 students were involved with each teacher being evaluated by at-least 13 students who constituted 3o% of the average class size of 40 students. Survey ratings were obtained from students using the SATQ on seven thematic areas that were different from the ones used in acquiring appraisal ratings under the TPAD framework. Survey ratings were measured on a five-point Likert scale

with the lowest allocated one point and the highest five points respectively. Student survey ratings were analyzed descriptively and results presented in Table 4.11 alongside the corresponding student achievement.

Table 4.11

Student survey ratings and students' learning achievement

Levels of Experience	f	Student Surveys (%) n=396	Achievement % n=396
Apprentice (< 3 years)	5	60	56.1
Professional (4-7 years),	3	68	51.2
Expert (8-13 years)	10	65	54.1
Distinguished (13-17 years)	7	61	53.8
Emeritus (18 years and above).	5	67	55.7
Total	**30**	**M=64.2**	**M=54.18**

(M=Mean; N=30)

(*NB: Principals, deputy principals, and Heads of Department included*)

Source: Filed Data

Table 4.11 shows that student survey ratings averaged at 64.2 % (n=396) compared with 66.6% (n=362) for appraisal ratings obtained through TPAD framework as shown in Table 4.9. However, both appraisal ratings and student survey ratings are deemed to be "Good" according to TPAD rating and evaluation criteria which implies that teachers achieved all performance targets (61%-80%). However, student survey ratings recorded higher percentages compared with student learning achievement. In order to measure the extent of relationship between teacher performance (student surveys) and student learning achievement, Pearson's Correlation Coefficient, chi-square and linear regression statistics were generated with the aid of the latest SPSS computer programme.

Hypothesis five

4. H_o: *There is no statistically significant relationship between teacher performance by student surveys and students' learning achievement in public secondary schools in Kisii County*

Pearson's Correlation Coefficient method the statistics presented in Table 4.11 yielded ***r*** (27) = -.008, p<.484 for student survey ratings. These results show that teacher student survey ratings are not significantly related with student learning achievement since the p-value obtained is more than the set critical p<.05 level of significance. In addition, chi-square tests produced the result χ^2 (df = 8, N = 27) = 6.715, p<.568 which shows that student survey ratings are not significantly associated with student learning achievement since p>.05 level of confidence. Finally, results were regressed using a model constructed for that purpose to determine the predictive power of student survey ratings on student learning achievement and the results are presented in Table 4.12.

Table 4.12

Regression summary on student survey ratings and learning achievement

		Dependent variable
Predictor:	*Regression Statistics*	*Student learning achievement*
Teacher performance (student survey)	R	.067
	R-squared (R^2)	.006
	Adjusted R- Squared (R^2)	.005
	Beta **(β_5)**	-.086
	p-Value	.668
	Standard error of Estimate (E)	.238
	Constant **(β_0)**	3.594
	Standardized Beta (B)	-.103

(*n*=30; **α**=.05)
(NB: *Principals, Deputy Principals and Heads of Department included*);
Source: Field Data

The results of the linear regression model in Table 4.12 shows that student survey ratings yielded Persons' R=.067 which indicate a weak positive relationship with student learning achievement. The R-Squared (R^2) computed yielded a value of .006, suggesting that student survey ratings explained .6% of student learning achievement in the study locale. The adjusted R^2 also indicates that teacher performance explained .5% of the variation in student learning achievement and is lower than the R^2 predicted.

Furthermore, the *p*-value computed by the Statistical Package for the Social Sciences (SPSS) was .668 which is more than the statistical significance level ($\boldsymbol{\alpha}$=.05) level of confidence. These findings led to the fifth hypothesis being upheld. Additionally, the standard error of estimate (E) was found to be .238, suggesting that there were other factors of the magnitude of .238 that influence student learning achievement that were not observed or taken into consideration during the first quantitative phase of the study hence the need for the second qualitative phase. The beta weight $\boldsymbol{\beta}$ for student survey ratings shows that the contribution to student learning achievement $\boldsymbol{\beta_5}$= -.086. This result shows that one unit change in student survey ratings are expected to cause -.086 change in student learning achievement.

The five hypotheses of this study suggested that dependability of student learning outcomes on student survey ratings was minimal. Quantitative research findings confirmed the assertions leading to the upholding of all the five null hypotheses. Linear regression analyses shows that the contribution of performance appraisal to student learning achievement is minimal since TPAD recorded .7% while performance by student surveys contributed .6% respectively. The contribution of qualification (3.2%), professional development course completed (4%) and experience were (3.6%). The relationship between the variables of teacher qualification, professional development, experience, appraisal ratings and student survey ratings was determined by the Pearson's Correlation Coefficient method and the results are presented in Table 4.13.

Table 4.13

Relationships between variants of performance appraisal

	Variables	Teacher Qualification	Professional Development	Teacher Experience	Appraisal and Student Survey Ratings
Pearson Correlation	Teacher Qualification	1	.106*	-.141	-.022
	Professional Development	.106*	1	-.327*	-.141
	Teacher Experience	-.141	-.327*	1	-.332*
	Appraisal and Student Survey Ratings	-.022	-.141	.332*	1

N= 30, * significant at α=.05

Table 4.13 shows that there is significant relationship between teacher qualification and professional development since the *p*-value of .03 is less than the critical alpha value set at .05. Similarly, there is a significant relationship between professional development and teacher experience given that *p*=.001 which is less than the alpha value set at .50 level of confidence. Finally, the findings show that there is a significant relationship between teacher experience and appraisal and student survey ratings (*p*=.018). These results show that there is a linear relationship between the performance appraisal variants.

As a result, the combined effect of the five variants of performance appraisal was measured by a multiple regression model developed for that purpose which yielded results showing the variance ($F(5, 21) = 1.226$; $t=3.098$; $p<.05$). It was found that teacher qualification did not significantly predict student learning achievement scores ($\boldsymbol{\beta_1}$= -.197; t= -1.637; $p<.05$), as did professional development ($\boldsymbol{\beta_2}$ = .399; t=1.172; $p<.05$), teacher experience ($\boldsymbol{\beta_3}$= .236; t= 1.987; $p<.05$), appraisal ratings ($\boldsymbol{\beta_4}$= .062; t = -.417; $p<.05$) and, student survey ratings β_5= -.221; t = -.904; $p< .05$) respectively. The F-value (1.226) which is significant at .332 ($p<.05$) shows that the joint effect of teacher qualification, professional development, teacher experience, appraisal ratings and teacher student survey ratings on student learning achievement was not statistically significant. Table 4.14 shows the multiple regression

summary of the five predictors.

Table 4.14

Multiple regression statistics of performance appraisal and students' learning outcomes

Independent variable Predictor:	**Regression Statistics**	**Dependent variable** *Student learning outcomes*
Performance appraisal	R	.475
	R-squared (R^2)	.226
	Adjusted R- Squared (R^2)	.042
	p-Value	.332
	Standard error of Estimate (E)	.757
	Constant **(β_0)**	3.446
	Coefficients	
Teacher qualification	Beta **(β_1)**	-.197
	p-Value	.116
	Standard error of Estimate (E)	.121
	Standardized Beta (**B**)	-.386
Professional development	Beta **(β_2)**	.399
	p-Value	.254
	Standard error of Estimate (E)	.340
	Standardized Beta (**B**)	.243
Teacher experience	Beta **(β_3)**	.236
	p-Value	.060
	Standard error of Estimate (E)	.119
	Standardized Beta (**B**)	.490
Teacher performance (TPAD)	Beta **(β_4)**	.062
	p-Value	.681
	Standard error of Estimate (E)	.148
	Standardized Beta (**B**)	.090
Teacher Performance (Student surveys)	Beta **(β_5)**	-.221
	p-Value	.376
	Standard error of Estimate (E)	.245
	Standardized Beta (**B**)	-.185

(N=30; **α**=.05; NB: *Principals included*); *Source:* Field Data

The multiple regression model produced results shown on Table 4.14. The Pearson's R=.475 which indicate a weak and positive relationship between performance appraisal

and student learning achievement in public secondary schools in Kisii County. The R-Squared (R^2) computed yielded a value of .226, suggesting that performance appraisal explained 22.6% of student learning outcomes in the study locale. The adjusted (R^2) also indicates that performance appraisal explained 4.2% of the variation in student learning outcomes. Orodho (2017) posits that adjusted R^2 is usually lower than R^2 predicted owing to data characteristics such as sample size, data pairs and degrees of freedom.

Furthermore, the p-value computed by the Statistical Package for Social Sciences (SPSS) was .332 which is more than the statistical significance level ($\boldsymbol{\alpha}$=.05) that was set to measure the significance level of the extent to which performance appraisal predicted student learning outcomes. Additionally, the standard error of estimate (E) was found to be .757, suggesting that there were other factors of the magnitude of .757 that influence student learning outcomes but were not observed or taken into consideration during the first quantitative phase of the study.

4.4 Phase Two: Qualitative Data Analysis

Quantitative findings from phase one indicated that teacher performance (TPAD) contributed minimally to student learning achievement. The results also indicate that the approach employed in phase one left out other factors influencing student learning outcomes that could be attributed to performance appraisal. The second phase was thus necessary in order to provide more information on these factors so as to widen the scope of interpreting and discussing the research findings.

During the second qualitative phase of this study 27 semi-structured interviews were conducted for 9 principals, 9 deputy principals and 9 heads of departments who had participated in the first phase respectively. The three categories of teachers actively teach students in their schools and therefore contribute to leaning achievement. Besides, they perform additional responsibilities as appraisers under the TPAD framework (TSC, 2016).

In phase one, the principals, deputy principals and heads of department participated in their capacity as teachers.

In the second phase of this study, principals, deputy principals, and heads of departments participated as appraisers of TPAD in schools. They were selected on condition that they had participated in phase one which is a prerequisite condition for the explanatory sequential mixed methods research design (Creswell, 2012). The selection was purposively done such that two male and one female participants were interviewed from each of the nine sub-counties. Interviews were conducted to a total of 9 female and 18 male principals, deputy principals and heads of departments respectively.

Qualitative data analysis involved six steps through which data was obtained, organized, analyzed, presented and triangulated respectively. Interview schedules were serialized and data transcribed in them was typed in preparation for analysis. Typed data was then edited where necessary in order to depict its overall meaning and credibility (Orodho, 2017). Consequently, the data was coded into three major categories namely expected, unexpected and unusual data respectively. Coded data was analyzed further into seven themes emanating from the quantitative findings obtained in phase one and presented in narrative form according to study objectives. Finally, qualitative data was triangulated and interpreted to show the connections between emerging themes (Creswell, 2013) (See Appendix XIII for detailed analysis).

4.4.1 Teacher qualification and students' learning achievement

The first research objective was to establish the relationship between teacher qualification and student learning achievement in public secondary schools in Kisii County. Qualitative data was obtained from both principals, deputy principals and heads of departments using semi-structured interview schedules. Data was recorded in interview schedules organized in six sections. The second section consisted of one question that sought information on

whether interviewees believed that their academic and professional qualifications determine student learning achievement. Interviewees agreed that teacher qualifications did not determine student learning achievement. Instead, they leveled blame on students for lack of determination. For instance, one head of department stated that:

> We are trained to teach effectively but many times we encounter challenges in our schools. Our certificates do not matter when it comes to teaching. In fact, students taught by some of us with higher degrees do not perform any better than those taught by teachers with diploma certificates. The problem is with students who are not determined. (HOD4)

Furthermore, one principal responded that:

> I have witnessed cases where teachers with diploma certificates are producing many good grades than those with Masters Degrees. The issue of student learning achievement cannot be associated to teacher qualifications, maybe in very few cases. Some of our students fail because they are lack discipline and their parents don't care while others are never motivated at all perhaps because of the high levels of unemployment in society. Our society if full of people who did not do well in school but are successful leaders and this demotivates some students. In my view low achievement cannot be solely blamed on teachers. (P3)

On the same question, a deputy principal was of the opinion that qualifications had little effect on learning achievement by specifically stating that:

> Students who are disciplined are likely to perform better in examinations even with limited assistance from teachers. In some cases even peers can help disciplined students to excel in examinations. Student achievement in examinations to a greater extent on the students themselves and not teacher qualifications. (DP1)

The responses from principals, deputy principals and heads of departments were in agreement that teacher qualifications do not significantly influence student learning achievement which was consistent with the quantitative findings of this study. Both quantitative and qualitative findings support the assertion by Hattie (2009) that student learning achievement depends on student-related factors up to a magnitude of 50% and 30% for factors attributable to teachers.

4.4.2 Professional development and students' learning achievement

The second research objective was to determine the influence of professional development on student learning achievement. There were two pertinent questions in the third section of the interview that provided information on opinions of interviewees as to whether seminars, workshops and other short courses taken by teachers help them improve their student learning achievement scores and information on how the teachers felt about the way performance appraisal helped them to identify areas in which they needed professional development.

Interviewees were indecisive on whether the workshops, seminars and short courses they completed helped them to improve student learning achievement. Specifically, one principal stated that:

> We facilitate teachers to various seminars and workshops in order to motivate them and reward those who are hardworking but it is not possible to measure the impact of attending such training on student learning achievement. (P 2)

Furthermore, several heads of departments that course development courses competed by teachers did not necessarily lead to improvement in student learning achievement. They argued that performance of students depends on the students themselves especially when they are innately motivated. Specifically, a female Head of Department stated that:

> Learning achievement to a large extent depends on the students themselves. Short courses can help in teaching certain classes but I am not certain they help improve learning achievement scores. Teachers attend short courses to enhance their chances of being promoted. (HOD1)

Similarly, one deputy principal responded that:

> Our students read only when they are closely supervised. We need to be with them most of the time for them to produce good results. But sometimes, there is little motivation for us to do that. With or without attending workshops I think the most important thing is for teachers to be motivated. That way, student learning achievement scores will be improved. (DP6)

In the same light, one principal answered that:

> Schools spend a lot money sponsoring teachers to academic workshops and seminars. Some of the seminars boost the competences of teachers but most of them are a waste of time and money. You cannot expect students to perform well because teachers have completed a course. All our math teachers are fully trained but the performance of students at KCSE has never gone above C- (minus) on average for a long time. (P9)

The responses from interviewees seems to suggest that professional development courses could not be appropriate and that some teachers who do not need them could be pursuing them for promotional reasons other than development. Some teachers could also be pursuing the same for lack of appropriate development courses (OECD, 2009). Similarly, interviewees seem to suggest that performance appraisal does yield valuable results to them which invokes the valence construct of Vrooms' theory. As a result, most interviewees tended to associate student learning achievement to factors related to the students themselves and teacher motivation.

Interviewees were also asked to express their views on how the performance appraisal practice had helped them especially in identifying areas in which they required professional development. The information provided shows that interviewees appeared uncertain on the competences they are expected to possess. However, they agreed that available opportunities for development were limited and irrelevant to the specific needs of individual teachers. For instance, one principal responded that:

> After classroom observations, the appraiser usually shares his findings with the teacher where strengths and weaknesses are pointed out. It is upon the teacher to work on the weak areas to improve in subsequent observations. Our schools hardly have sufficient resources to finance teachers who are in need of professional development to pursue such training. Appraisal focuses on routine practices and not necessarily on competences. (P7)

Similar responses were given by deputy principals one of whom stated precisely that:

> Every teacher is expected to perform to achieve his or her performance targets as agreed with the appraiser and both must agree on areas where the teacher performed

> poorly and what ought to be done about it in future. The teacher is expected to perform better in future appraisals by avoiding repeat of the same mistakes. (DP 4)

Furthermore, heads of departments were of the opinion that professional development decisions made by teachers did not arise from performance appraisal. Specifically, one head of department responded that:

> Teachers attend workshops here and there but I don't think they are related with performance appraisal. Appraisals are formal requirements for teachers imposed by TSC to manage teachers. For example, teachers undertaking further studies especially in universities are not pursuing them because performance appraisal helped them to make such decisions. (HOD2)

Majority of the interviewees were of the opinion that development decisions taken by teachers did not necessarily arise from performance appraisal but were motivated by the urge for promotion since professional development courses completed enhanced the teachers' chances of promotion. However, the quantitative findings established that professional development courses completed had a greater influence on student achievement than performance of teachers measured under the TPAD framework. Accordingly, Yoon, Duncan, Lee, Scarloss and Shapley (2007) were of the view that professional development impact directly on teachers but indirectly on students.

4.4.3 Teacher experience and students' learning achievement

The third objective of this study was to establish the relationship between teacher experience and student learning achievement. Section four of the interview guide sought information from both principals and teachers on their career progression since they joined the teaching service. Interviewees provided varied responses to this question. However, they misconstrued teacher experience to be synonymous with career growth, promotions, job grades and additional responsibilities assigned to them. Specifically, one head of department responded that:

> I have been teaching for 14 years now but my salary has not significantly changed.

> In the last six years, I have been applying for promotions in vain until I gave up. There's no need to apply for elusive promotions. I am contemplating pursuing further studies to get a job elsewhere perhaps in university. (HOD8)

Similar sentiments were given by most deputy principals. One female deputy principal particularly responded that:

> Imagine after my last promotion 12 years ago, I have never seen any other promotion on my way. In fact, I don't want a promotion that will transfer to another station because that will make my life cumbersome. (DP4)

The issue of delayed promotions seemed to be an issue among most interviewees. One male principal was skeptical of getting a promotion by stating that:

> I have applied for promotions on several occasions and although i attend interviews, no promotion has been forthcoming. Going forward, I don't expect any more promotion. Quite a number of my colleagues have stepped down as principals back to class. It is less stressful to be classroom teacher than to head a school. (P3)

The responses from most interviewees depict lack of defined career growth paths for teachers. Performance appraisal systems in USA and Australia target teachers at different levels of experience (AITSL, 2011; Charlotte & Mc-Greal, 2000). However, experience is not considered as an aspect of appraisal under TPAD since all teachers are appraisal on the same instrument without recognition of the different levels of teacher experience and competences acquired in the process. Research studies show that experienced teachers significantly influence student learning achievement (Akiri, 2013).

Equally, in the fourth section of the interview, interviewees were asked whether experience impacted on student learning achievement. The results were mixed but most interviewees were almost unanimous that teacher motivation was low. It was also reported that teachers had resorted to 'hustling' (engaging in several economic activities) in and out of school some of which affected their teaching. Specifically, one principal responded that:

> The teaching and learning environment is complex in that many things are going on around the teachers and students. We tend to support each other in school but

> the issue of motivation depends on individual teachers and students. Human beings are interesting because teachers and students may be in class doing what is expected of them yet student learning achievement scores constantly remain low. I think the general attitude of society towards education has affected teachers and students as well (P1)

On the same question, another principal stated that:

> Professional accountability for teachers is slowly disappearing with introduction of more and more controls aimed at teachers. Teaching is becoming more and more controlled such that we are no longer free to make certain professional decisions. Sometimes as teachers we face situations when we cannot teach effectively in class. As professionals we organize make-up lessons but with tight controls of learning schedules it is not possible. In the long-run it's the learners who lose. (P6)

In the same question, heads of department shared a similar view that generally teachers felt that the urge to get involved in other economic activities besides teaching. More experienced teachers were likely to be involved in side hustles to earn additional income a female head of department precisely stated that:

> I think as teachers we can at last work like other office workers. We report to school at 8.am and leave at 5p.m. and get paid for that time. Previously we sacrificed by staring our work early in the morning through late in the evening and even during school holidays. At least the impact is clear for everyone to see. I doubt that student learning achievement scores will soon get back to where they used to be. (HOD7)

The sentiments expressed by interviewees suggests that while they acknowledge the significance of experience in improving student learning achievement, other circumstances beyond their control impacted negatively on their motivation. Experience is not synonymous to the number of years spent in teaching but includes competences acquired by the teacher through professional development course completed (Gathumbi, Njoroge & Hintze, 2013). The responses made by interviewees also suggests that experience in terms of competences could be declining because of the attitude of teachers towards TPAD and this was observed by Carroll and Foster (2010) who states that the overall level of experience in the teaching force is on the decline.

Additionally, some interviewees were of the opinion that experience contributes to higher

student learning achievement although others felt otherwise. Specifically, one deputy principal responded that:

> More experienced teachers can produce better results than novice teachers especially if they handle senior students in school. Some topics require certain teaching skills which are acquired with experience in teaching (DP8).

Similar sentiments were aired by a number of heads of department. Specifically, one male head of department reiterated that:

> It is true that experienced teachers can actually produce better student learning outcomes but such capabilities are not recognized by TSC. Teacher experience does not come along with any benefits because promotional opportunities are scanty and many experienced teachers do not even attempt to seek for promotions because of previous frustrations. Quite a number of the teachers are busy hustling. Newly employed teachers get tempted to emulate experienced teachers not because of their professionalism in teaching but because they can balance between teaching and hustling. (HOD7)

The voice of principals was also captured by the response made by one female principal who categorically stated that:

> The problem with experienced teachers is that they have many personal engagements and as a result they are not available to students who need them most of the time. Newly employed teachers are available to students most of the time and they not only produce good grades but also reduce the performance gap between the students they teach and those taught by experienced teachers. (P2)

The answers given by principals, deputy principals and heads of departments on teacher experience clearly shows that there is lack of a policy framework to link teacher qualifications, professional development, experience, performance and student learning outcomes. The quantitative findings of this study shows that there is a linear relationship between these variables.

4.4.4 Appraisal ratings and students' learning achievement

The fourth objective of this study was to determine the relationship between appraisal ratings and student learning achievement. In the fifth section of the interview principals,

deputy principals and heads of departments were asked whether their appraisal ratings were related with student learning achievement. They also gave suggestions on what can be done to improve their appraisal ratings and student learning achievement scores. Responses from interviewees on whether their appraisal ratings were related with student learning achievement were mixed.

Some interviewees felt that student learning achievement scores were indicators of teacher performance while others were of a contrary opinion. For instance, one female deputy principal stated that:

> The performance of teacher is usually measured in terms of how his or her students perform in examinations. We strive to make sure that there is some positive improvement of examination results for our students at the end of each term. However, some of us compromise standards by awarding marks to students that they do not deserve in order to be rated favourably. (DP5)

Most heads of departments were of the opinion that it was difficult to accurately measure the overall performance for an individual teacher given the variety of activities they perform. They seemed to agree that performance appraisal ratings were an estimate of their performance. Specifically, one male head of department responded that:

> Quite a number of times I carry home student exercises to mark because I cannot accomplish the work in school. I am not paid overtime like employees in other organizations. You put a lot of effort which is not appreciated. When appraisal is done I may not be rated highly. If you stick to the normal working hours, students may not perform as good as they do. For students to perform the teacher must work for long hours with inadequate compensation. (HOD1)

However, some principals felt that hard working teachers would be rated highly and that will be reflected in the student learning achievement. For instance, one male principal argued that:

> Teachers who put more effort will often be rated highly during performance appraisal and their students will certainly do well in examinations. Schools spend a lot of money to organize expensive recreational trips for teachers outside the county or even abroad in order to motivate them. (P3)

When asked to suggest measures that can be taken to improve teacher performance and student learning achievement, interviewees were of the opinion that there was need for relevant professional development programmes and adequate opportunities for teachers who need them. Furthermore, most of the interviewees felt that the professional status of teachers who consistently achieved high performance should be elevated in clearly-defined structures in order to motivate both new and experienced teachers. Specifically, the third principal noted that:

> As things stand, teachers who display certain competences and those whose performance are rated highly qualify for promotions. However, promotional opportunities are not sufficient as many deserving teachers are left out. Performing teachers who are not promoted end up being demotivated. However, if the status of such teachers received professional recognition other than promotions, the teachers are likely to sustain their high performance levels in class. (P3)

The argument advanced by this principal echoes findings from phase one of this study that teacher performance did not significantly influence student learning achievement because the TPAD framework did not yield outcomes that were valued by high performing teachers in line with the 'valence' construct of Vrooms' expectancy theory. The teachers' attitude to TPAD seems to be similar to the finding in TALIS 1 study that teachers viewed their appraisal as mere fulfillment of administrative requirements (OECD, 2009).

Another implication of the sentiments from interviewees on this question is that there seems to be a gap on the professional growth trajectory of teachers. Levels of professional growth for teachers are not clearly defined in terms of qualifications, development, experience, performance and student learning outcomes. The schemes of Service for teachers (TSC, 2005) attempts to explain duties and responsibilities as well as the specifications of teachers in different cadres of the grading structure. However, there are many qualified teachers who cannot be elevated through promotions because of limited opportunities. Such teachers are most likely to be demotivated as is evident in findings from phase one of this study. One male head of department suggests theta:

> Teachers should be recognized like other professionals. Perhaps we need a professional association like accountants so that the association can organize for continuous professional development programmes for us. At the moment, TSC seems not to be doing well in this area. Teachers need a system that recognize their professional competency. This way the attitudes of the society towards us will improve. If teachers are respected as professionals, it will be their professional duty to ensure that they perform to required expectations. (HOD6)

4.4.5 Student survey ratings and students' learning achievement

Additional responses from interviewees on whether students should be involved in appraising teachers were mixed. Some respondents especially principals welcomed the move stating that students are important stakeholders whose voice should be heard. In this respect, the one female principal responded that:

> Students in secondary schools are sharp and as a result, they are now represented in the school management board through elected leaders. I don't think there is a problem involving some of them in appraising their teachers in class as long as they are properly inducted. (P1)

Most interviewees agreed with these sentiments although some deputy principals and heads of department and were of a contrary opinion. Even after further probing, they were categorical that under no circumstances should students be allowed to appraise them because it would amount to humiliation. Specifically, one male head of department stated that:

> I can't imagine a situation where my students are appraising me. I would have no problem if I were appraised by colleagues with whom we teach the subject because they understand the technicalities associated with teaching. Allowing students who know very little about teaching to appraise teachers will be mockery of teaching as a profession. (HOD8)

The sentiments by most of the interviewees were that students should be allowed to appraise their teachers. Indeed findings from the first phase of this study showed that students through a survey, were able to produce performance ratings of their teachers that were not significantly different from those generated through the TPAD framework. Literature also shows that student surveys used in a study dubbed Measures for Effective

Teaching (MET) produced reliable results (Bill and Melinda Gates Foundation, 2012).

Section six of the interview sought to establish information from interviewees who were asked to state their views on whether performance appraisal led to improvement of student learning achievement scores. Likewise, they were asked to suggest other factors they thought contributed to student learning achievement besides performance appraisal. Interview transcripts showed mixed reactions on the two issues.

Some interviewees were of the view that performance appraisal was a waste of time because it did not improve student learning achievement scores. For instance, one female head of department particularly observed that:

> We went to school at a time when teachers were poorly paid and we excelled in our studies. In the past, teachers were devoted and enjoyed their work. There was nothing like performance appraisal as is the case today. In my view, performance appraisal will lead to low student achievement as long as teaching ceases to be a noble profession. I doubt that performance appraisal parse will fix the issue of student achievement. (HOD5)

However, most of the interviewees were of the contrary opinion that performance appraisal could be useful if their suggestions were considered before implementing the programme. They however expressed little optimism that their suggestions will be of any consequence since they were never consulted when appraisal policies were developed. Specifically, one male principal stated that:

> Performance appraisal for teachers is not bad but the way it is implemented raises suspicion among teachers. Teachers should be actively involved in the policy making process especially because it affects them directly. Now teachers do not understand the significance of performance appraisal. Some teachers view performance appraisal as a tool that principals use to push them to work. (P9)

However, one principal was so passionate and expressed skepticism that performance appraisal can improve student achievement in schools. He categorically stated that:

> Our working environment as teachers is becoming worse each day. The community does not regard us as important professionals. Parents with scanty knowledge on

> teaching threaten to sack a teacher if they feel that the teacher is not performing. In fact, I am contemplating resigning as soon as I get something better to do. (P1)

Interviewees suggested many factors that they felt contributed to student learning achievement besides performance appraisal. Factors that were suggested frequently included: many controls in teaching, learner motivation, school factors such as quality of management, availability of learning resources, and motivation of teachers. Most of the respondents were of the opinion that there were too many restrictions on their professional freedom which impinged on the time spent on slow learners. Specifically, one head of department responded that:

> We handle students of different abilities and needs. The restriction on when students should be taught leaves us with no option but to handle all students as if they have same needs and interests. With these controls, I foresee many children dropping out of school even if education is made free. (HOD8)

It also emerged from the interviews that students were also held responsible for their learning achievement scores. Interviewees felt that teachers found their work easy when they teach motivated students. One male deputy principals stated that:

> Our students are actually confused due to the rot in society. On a daily basis they witness school failures become leaders and affluent in society. Today, there are so many short-cuts in life which do not encourage our students to wait on. Several students are in gambling just like some of us and even parents are not spared either. Everyone is looking for a quick way out for a good life. To our students, patience does not pay as is evident in those who excel through university but end up jobless for years. Obviously, there is something wrong with our society and the entire education system. (DP5)

Interviewees seemed to apportion blame to each other. While principals attributed blame to teachers who are resistant to change, some deputy principals and heads of department blamed the school managers of ineptitude especially in the management of school resources. Some deputy principals and heads of departments felt that their principals did not support teacher development activities because of the financial implications.

4.5 Quantitative and Qualitative Triangulation of Research Findings

The purpose of this study was to determine dependability of student learning outcomes on performance appraisal for teachers in public secondary schools in Kisii County. The triangulation process involved merging and connecting findings of the first quantitative phase, findings of the second qualitative phase and findings from both phases 1 and 2 of this study respectively. The process of triangulation provided vivid explanations of the complex nature of relationships between study variables (Yeasmin & Rahman, 2012).

4.5.1 Quantitative findings (Merging and Connecting)

Specifically, the combined effect of teacher qualifications, professional development, teacher experience, and teacher performance showed a weak but positive relationship with student learning achievement with a Pearson's R=.475. However, the effect of performance appraisal as conceived and determined by the multiple regression model constructed explained 22.6% of student learning achievement in the study locale.

This was a significant finding given that results of the linear regression model constructed to establish the predictive power of teacher performance under TPAD framework on student learning achievement produced Pearson's R=.085 and explained only .7% of student learning achievement. The multiple regression model was constructed by merging together performance variables shown in literature as influencing student learning achievement. Certainly, the quantitative research findings confirms that there were significant linear relationships between the variables as shown in Figure 4.1.

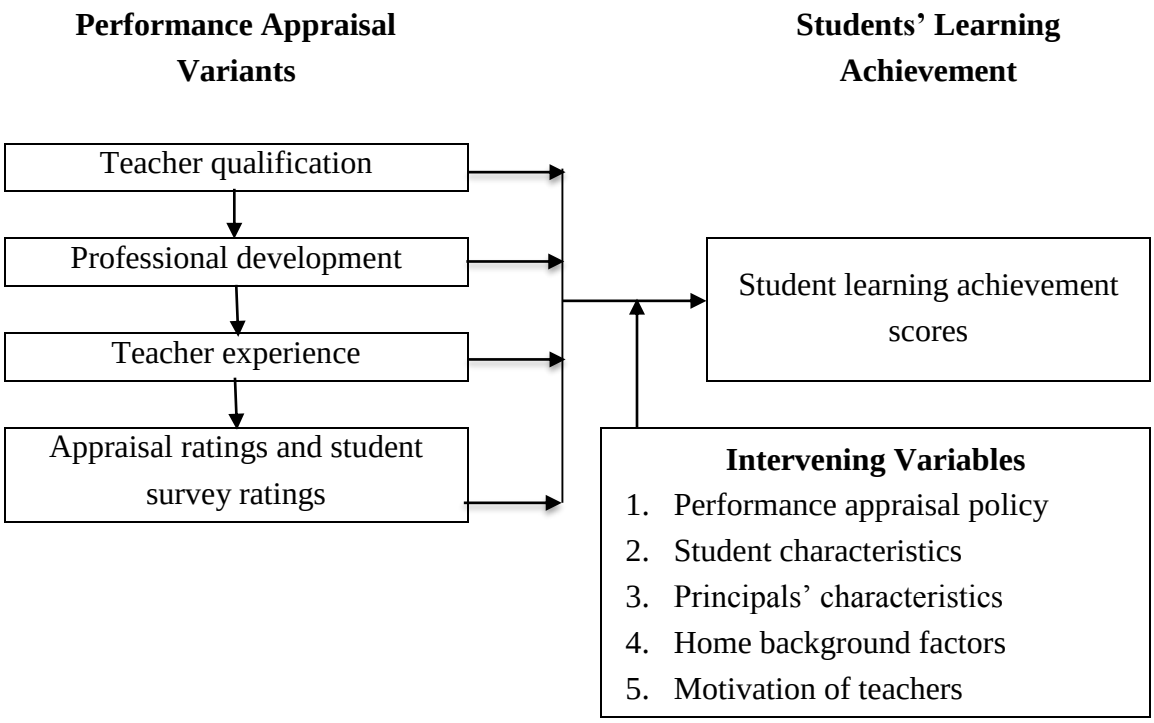

Figure 4.1: Relationships between performance appraisal and learning achievement
Source: Field data (Quantitative and Qualitative Findings)

Figure 4.1 depicts that appraisal ratings and student survey ratings can explain learning achievement to a greater extent if the performance appraisal system considers variants used to construct the multiple regression model in this study. The contribution of 22.6% is nearly close to 30% that was established by Hattie (2009). Quantitative findings shows that intervening variables combined influence student learning achievement to a greater extent hence the need for the qualitative study in the second phase.

4.5.2 Qualitative findings (Merging and Connecting)

The findings of the second qualitative phase of this study were analyzed under 8 themes namely: teacher qualifications and learning achievement scores, professional development, teacher experience, appraisal and student survey ratings, internal school contextual factors, external school contextual factors, and teacher characteristics (see appendix XIII). Interviewees were categorical that teacher qualification did not influence student learning achievement scores and provided practical examples to back-up their views.

Likewise, qualitative data was quite elaborate on professional development. Interviewees were of the opinion that performance appraisal did not influence teachers' professional development decisions citing cases of colleagues pursuing post graduate studies in various universities. Data gathered also showed that interviewees were of the view that professional development was the responsibility of individual teachers who could decide to develop themselves in whichever area they wished. Furthermore, interviewed principals, deputy principals and heads of departments were of the opinion that professional development programmes and opportunities were inadequate and irrelevant to the individual needs of teachers. Moreover, they refuted the assumption that workshops, seminars and short trainings that teachers complete contribute to improvement of student learning achievement scores.

The concept of career growth was vague in the minds of interviewees. Data analyzed depict professional fatigue within the participants as a result of their indifference to promotions, declining status of teachers, low motivation, inappropriate professional development programmes and increasing controls on teaching. However, interviewees were affirmative on the fact that teacher performance depended on competences gained through experience but were categorical that performance appraisal did not influence student learning achievement. Interviewees also pointed out that performance appraisal encouraged un-professional practices among teachers because of its emphasis on ratings. Similarly, the time spent by teachers on students was observed as declining and that schools did not have adequate resources to motivate teachers.

Furthermore, data analyzed shows that participants viewed performance appraisal ratings as estimates of teacher performance. The participants were of the view that performance appraisal ratings depended on effort of an individual teacher. Data analyzed further shows that if teachers exerted more effort in executing their responsibilities (sometimes beyond the official working time) performance ratings and student learning achievement scores

would be high.

However, with challenges already identified by interviewees such as increasing controls in teaching and lack of professional recognition, the influence of performance appraisal ratings on student learning achievement would be minimal. Although interviewees were unanimous that performance appraisal would be useful to teachers if they are involved at every stage in the process, student involvement in appraising teachers was strongly rejected especially by teachers themselves. Nonetheless, principals were cautionary that students should be involved in performance appraisal only if properly inducted.

Student learning achievement scores were attributed to factors such as determination, discipline and motivation of students as well as teacher motivation. Moreover, interviewees felt that negative attitude of teaching as a profession in society affected both teacher and student motivation. Finally, the participants were affirmative that the performance of a teacher was depicted by student learning achievement.

4.5.3 Quantitative and qualitative triangulation of findings

Inferential statistics analyzed in the quantitative phase of this study using percentages, Pearson's correlation coefficient method, χ^2 and linear regression analysis showed that teacher qualification was not significantly related with or could it significantly predict student learning achievement scores. This quantitative finding was consistent with the qualitative finding obtained in phase two of this study in which principals and teachers who were interviewed affirmed the fact that teacher qualifications did not contribute to student learning achievement scores. However, χ^2 tests shows that teacher qualification was significantly associated with student learning achievement scores. This finding could be attributed to impact of training of math and science teachers in respective subject areas.

Similarly, inferential statistics obtained during the quantitative phase using Pearson's correlation coefficient method, χ^2 tests and linear regression analysis on professional development and student learning achievement scores show that the two variables were not significantly related or associated. Moreover, professional development did not significantly predict student learning achievement scores. The qualitative results on this was in affirmative with quantitative findings in the sense that principals and teachers interviewed in the qualitative phase refuted that professional development in the form of workshops, seminars and short trainings which teachers attended contributed to improvement in student learning achievement scores. Explanations by interviewed principals and teachers were that teachers did not have adequate and relevant professional development programmes. Likewise, the decisions made by teachers to pursue development programmes did not emanate from performance appraisal.

Furthermore, inferential statistics obtained from the first quantitative phase on teacher experience and student learning achievement scores show that the two variables were not significantly related or associated. Linear regression analysis also depicts that career growth did not significantly predict student learning achievement scores. Qualitative results on the same variables reveals that interviewees were of the view that there was no defined professional growth path for teachers. Moreover, the participants were indifferent with promotions because they were too difficult to come by yet, promotions seemed to be the only avenues of career growth. As a result, the respondents reported that teachers were demotivated.

Results of the quantitative phase of this study also shows that the combined effect of teacher qualification, professional development and experience predicted student learning achievement scores to a larger extent. This finding is supported by qualitative results from interviewed principals, deputy principals and heads of departments that if professional development programmes were strengthened and increased and opportunities to access

them enhanced teacher apathy will decrease. Motivated teachers will perform better and contribute towards improvement of student learning achievement scores.

Additionally, inferential statistics obtained in the first phase of the study shows that appraisal ratings and student survey ratings did not significantly predict student learning achievement as was the case with other three variants of performance appraisal. However, neither appraisal ratings nor student survey ratings singly yielded a significant prediction of student learning achievement scores. Student surveys ratings provided a complementary role to appraisal ratings thus together they presented a better measure of teacher performance. Although interviewed teachers detested the idea of student involvement in performance appraisal for teachers, the results from the qualitative phase of this study shows that student surveys can augment teacher performance under the TPAD framework.

A multiple regression model constructed to measure the extent to which performance appraisal predicted student learning achievement scores shows that collectively all the five performance appraisal variants notably teacher qualifications, professional development, teacher experience, appraisal ratings and student survey ratings did not significantly predict student learning achievement scores. Similarly, results of linear regression analyses of each of the five performance appraisal variants shows that individually, none of them significantly predicted student learning achievement scores. However, the contribution of all the variants to student learning achievement was 22 times more than the contribution from appraisal ratings only. These findings were expected given the fact that there were intervening variables that could influence student learning achievement.

Qualitative research findings show that interviewees were categorical that performance appraisal did not influence student learning achievement. Some of the reasons given by the interviewees were that performance appraisal for teachers focused on routine practices and that too much emphasis on ratings made some teachers to indulge in unprofessional

behaviours in order to secure favourable appraisal ratings. Furthermore, interviewees expressed fear that contact time with their students was declining due to controls imposed on them leading to low motivation. However, participants expressed optimism that performance appraisal could be more beneficial to teachers if appropriate measures were put in place to strengthen it.

4.6 Discussions of Triangulated Research Findings

Hattie (2009; 2003) argue that 30% of variance in student learning achievement is attributed to what teachers know, do and care about. As a result, this study considered four teacher-related variables that are associated with performance appraisal and measured their contributions to student learning achievement in public secondary schools in Kisii County. Consequently, the conceptual framework shows the performance appraisal variants for teachers such as qualifications, professional development, teacher experience and teacher performance (Broad & Evans, 2006; Goe, 2007; Kulshrestha & Pandey, 2013; Pianta & Hamre, 2009; Westera, 2001). The quantitative findings of this study confirmed that there were significant linear relationships between these variables.

In the first quantitative phase, the influence of performance appraisal variants on student learning achievement was measured using inferential statistics namely Pearson's' correlation coefficient method, χ^2 tests, and, simple and multiple linear regression analysis. The second phase also yielded information that was analyzed in seven themes emanating from the quantitative findings. Results arising from both quantitative and qualitative phases were triangulated according to five research objectives.

4.6.1 Teacher qualification and students' learning achievement scores

The first objective of this study was to determine the relationship between teacher qualification and students' learning achievement scores. Although both quantitative and

qualitative findings were in agreement that teacher qualification was not significantly related with student learning achievement scores nor could the former significantly predict the later, χ^2 statistics generated in the quantitative phase of the study gave a contrary result that teacher qualification was significantly associated with students' learning achievement scores.

These findings were mixed echoing results of previous research that involved the two variables. For instance, the finding that teacher qualification was significantly associated with student learning achievement scores was consistent with the findings of studies by Adeyemi (2010); Darling-Hammond and Young (2002); Goe (2007); Goldhaber and Brewer (1994); Njeru and Orodho (2003); Wayne and Young (2003); and, Yala and Wanjohi (2011). These studies considered factors such as quality of training in different colleges, coursework and amount of teacher exposure to subject content during training especially in mathematics.

However, this study also found out that 92.5% of teachers had a minimum of bachelor's degree compared to only 7.5% who had lower qualifications (Table 4.1). Despite many teachers holding degree certificates student learning achievement was into influenced in a significant way. Furthermore, the finding that teacher qualification was not significantly related with student learning achievement scores concurs with findings of previous studies conducted by Buddin and Zamarro (2009); Kimani, Kara & Njagi, 2013); Rivkin, Hanushek & Kain et al (2005), and Zuzovsky (2005). In these studies, academic degrees did not significantly determine student learning achievement. This was an expected outcome given that the complexity of student learning achievement cannot permit a strong effect from a single variable such as teacher qualification. The results suggest that the contribution of teacher qualification to student learning achievement is minimal because the latter variable is a product of complex relationships between many factors (Hattie, 2003).

4.6.2 Professional development and students' learning achievement scores

The second objective of this study was to establish influence of professional development on student learning achievement scores in public secondary schools in Kisii County. Both quantitative and qualitative findings were affirmative that there was no significant relationship or association between the two variables. Moreover, professional development did not significantly predict student learning achievement scores. The principals, deputy principals and heads of department interviewed in the qualitative phase refuted that professional development in the form of workshops, seminars and short trainings attended contributed to improvement in student learning achievement scores.

These findings contradicted previous research findings by Hill, Ball, Blunk, Goffney, and Rowan (2007) and Yoon, Duncan, Lee, Scarloss, and Shapley (2007), that professional development in specific teacher competencies significantly influence student learning achievement. However, the findings of this study that professional development did not significantly influence student learning achievement could be attributed to the scope and locale of the study. Nevertheless, it contributes to the existing literature given that there is paucity of research-based literature on the relationships between the two variables.

4.6.3 Teacher experience and students' learning achievement scores

The third research objective was to establish the relationship between teacher experience and student learning achievement. In the first phase of this study, it was established that there was no significant relationship or association between teacher experience and student learning achievement. Similarly, teacher experience did not significantly predict student learning achievement and the qualitative findings were affirmative. This finding was consistent with that of a previous study by Kimani, Kara and Njagi (2013) that teacher experience was not significantly related with student achievement at KCSE examinations in Nyandarua County.

However, the finding contradicts previous research studies by Akiri (2013), Carroll and Foster (2010); Loeb and Beteille (2008); Goe (2007); Rice (2003); Rockoff et al (2008); and, Yala and Wanjohi (2011). The finding suggests that professional development as currently executed does not influence student learning achievement in public secondary school.

4.6.4 Appraisal ratings and students' learning achievement scores

The fourth objective of this study was to establish the relationship between appraisal ratings on student learning achievement. Findings of both quantitative and qualitative phases of this study were in affirmative that teacher appraisal ratings did not have a significant relationship with student learning achievement. Appraisal ratings did not significantly predict student learning achievement.

This finding contradicts previous research studies which established that teacher performance significantly contributed to student learning achievement (Clotfelter, Ladd & Vigdor, 2007; Darling-Hammond, 2007; Gordon, Kane & Staiger, 2006; Kane, Kerr & Pianta, 2014; Rivkin, Hanushek & Kain, 2005; Rockoff, Jacob, Kane & Staiger, 2008; and, Sanders & Rivers, 1996). However, findings from these studies were of the view that the contribution of teacher performance to student learning achievement tended to decline beyond the first five years in teaching.

Literature informs us further that student ratings provides an excellent source of evidence for both formative and summative decisions, and consequently recommendation for use of multiple sources (Arreola, 2000 in Berk, 2005). The findings of this study contribute to existing literature due to its uniqueness in terms of design, scope and locale of the study.

4.6.5 Student survey ratings and learning achievement

The fifth objective of this study was to find out the relationship between student survey

ratings and student learning achievement. Both the quantitative and qualitative findings show that student survey ratings were not significantly related or associated with student learning achievement. Moreover, student survey ratings did not predict student learning achievement in a significant way. This finding was supported by principals, deputy principals and heads of departments in the qualitative phase who attributed it to factors such as appraisal focusing too much on routine practices instead of teacher competency; emphasis on appraisal ratings; teacher involvement in professional malpractices; too much controls on teachers; low teacher motivation, and, reduction of contact time with students.

The findings of this study were similar to those of the study by Kimani, Kara and Njagi (2013) since both studies agree that teacher qualification and experience did not significantly predict learning achievement. However, the studies vary in terms of the independent variables. For instance, the study by Kimani et al (2013) considered teacher qualifications, teacher experience, teaching workload, classroom assignments, continuous assessment tests (CATs), individualized attention, early syllabus completion and setting of performance targets as independent variables while student academic achievement at KCSE examinations was a dependent variable. In contrast, this study considered teacher qualifications, professional development, experience, and teacher performance as independent variables while student learning achievement was considered as the dependent variable.

The findings of this study shows that student learning achievement depends on teachers to a smaller extent compared to student characteristics, internal and external contextual factors. The findings of this study are not unique but they provide useful insights on TPAD policy. To enhance learning achievement in secondary schools especially in Kisii County, there is need to re-engineer TPAD within a broader performance management framework for schools.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of this study was to assess the contribution of performance appraisal on student learning achievement in public secondary schools in Kisii County. This chapter presents a summary of the study, conclusions and recommendations.

5.2 Summary of the Study and Major Findings

This section presents summary under two sub-headings: Summary of the study and summary of major findings respectively.

5.2.1 Summary of the study

This section focuses on the first three chapters of the study. The first chapter examined historical, theoretical and contextual background factors related to the independent, dependent and intervening variables of this study. The independent variable (performance appraisal) was conceptualized as consisting of four variants namely teacher qualification, professional development, teacher experience, and, teacher performance. Student learning outcomes was a dependent variable which was conceptualized in terms of student learning achievement scores obtained at the end of each term within the performance appraisal cycle of one year. The background of this study shows that performance appraisal is practiced in many countries with evidence of three appraisal approaches namely: professional development model, accountability model and a hybrid of the two models. Study sought to achieve four research objectives guided by the professional development model of performance appraisal and two theories: Goal-setting and Expectancy theories by Locke and Vroom respectively.

Chapter two examines research-based literature on the extent to which performance appraisal contributes to student learning achievement. There is sufficient evidence on the contributions of teacher qualification and experience to student achievement although the information is inconsistent. However, there is a dearth of literature on the contribution of professional development and teacher performance to student learning achievement. Despite educational reforms targeting performance appraisal for teachers, learning achievement especially in secondary schools are low. As a result, teachers are put under immense pressure to account for student learning outcomes.

Chapter three explains the methodology of this study. Explanatory sequential mixed methods research design was employed due to the complex nature of relationships between the study variables. The population was 50,379 comprising of 3,759 teachers (principals, deputy principals, heads of departments, and classroom teachers) and 46,620 students. Principals, deputy principals and heads of departments participated in phase one as teachers due to their teaching roles but in phase two, they participated in the capacity as appraisers under the TPAD framework. In the first quantitative phase, simple random sampling technique was used to select a sample of 758 comprising of two samples of 362 teachers and 396 students respectively. The sample size was determined using Slovenes formula. An average of 13 students comprising of 30% of an average class size appraised one teacher. As a result, student survey ratings were obtained for 30 teachers selected from the 9 sub-counties proportionately. Purposive sampling technique was used in the second phase in which 27 interviews were conducted involving principals, deputy principals and heads of departments selected from each of the 9 sub-counties. Three research instruments were used whose validity and reliability were ascertained before and after piloting.

5.2.2 Summary of major findings of this study

The major findings of this study are presented in chapter four based on five research

objectives. The first objective was to determine the relationship between teacher qualification and student learning achievement. Both quantitative and qualitative findings show that teacher qualification was significantly associated with student learning achievement but it could not significantly predict student learning achievement. The second object was to establish the relationship between professional development and student learning achievement. Both quantitative and qualitative findings were in agreement were that professional development was not significantly related with nor was it associated with student earning achievement. Similarly, the former variable did not significantly predict the latter.

The third objective was to establish relationship between teacher experience and student learning achievement. Both quantitative and qualitative research findings show that there was no significant relationship between the two variables. Similarly, teacher experience was not significantly related neither could it predict student learning achievement. The fourth objective was to determine the relationship between appraisal ratings and student learning achievement. The fifth objective also sought to establish the relationship between student survey ratings and student learning achievement. Both quantitative findings show that appraisal ratings were not significantly related or associated with student learning achievement. Similarly, student survey ratings did not significantly predict student learning achievement. Student survey ratings were complementary to appraisal ratings obtained through the TPAD framework.

Both the quantitative and qualitative findings underscored the significance of intervening variables such as student characteristics, internal and external contextual factors. The findings shows that student learning achievement depends on TPAD to a small extent but the multiple regression model constructed to assess the dependability of learning outcomes performance appraisal variants considered in this study produced impressive results. The regression model explained 22.6% of the variation in student learning achievement.

5.3 Conclusions

This study led to four main conclusions. The first one is based on the finding that teacher qualification was significantly associated with student learning achievement which implies that different subjects require different levels of teacher qualifications This finding led to the conclusion that performance appraisal for teachers under the TPAD is likely to contribute more to student learning achievement if embraced teacher qualifications.

The second conclusion is based on the finding that there were significant linear relationships between performance appraisal variants of teacher qualification, professional development, experience and performance. This finding led to the conclusion that performance appraisal for teachers may significantly influence student learning achievement if it embraces a framework that connects teacher qualifications, development, experience, performance and student learning achievement.

The third conclusion is based on the finding that there was no significant relationship and or association between teacher experience and student learning achievement. Teacher experience depicts the level of a teachers' professional growth in terms of competences acquired over a given period of professional practice. As a result, teachers with more experience should demonstrate a higher influence on student learning achievement and vice-versa. Thus, it was concluded that the impact of teacher experience on student achievement may have been weak due to lack of connection between teacher qualification, professional development, teacher experience, performance and student learning achievement variables within the TPAD framework.

The fourth conclusion was based on the findings that appraisal ratings and student survey ratings were not significantly related with student leaning achievement. However, given that that both appraisal ratings and student survey ratings were obtained on different teacher performance variables, the results were complementary. Use of both approaches in

performance appraisal for teachers is likely to yield more reliable appraisal ratings.

The combined influence of performance appraisal variants considered in this study on student learning achievement was 21 times greater than the influence of appraisal ratings obtained through the TPAD framework. This finding led to the conclusion that the contribution of performance appraisal based on the TPAD framework to learning achievement is minimal due limitations associated with its design, process of implementation, and internal and external school contextual factors.

5.4 Recommendations for Policy and Further Research

The findings of this study have implications on both policy and further research in performance appraisal for teachers.

5.4.1 Policy recommendations

The findings of this study points to the following policy areas:

a) In order to enhance student learning achievement in Kisii County, TSC should ensure that the TPAD framework embraces and connects teacher qualifications, development, experience, appraisal ratings, student survey ratings, and, student learning achievement test scores.

b) Teachers Service Commission (TSC) together with other education stakeholders such as the Ministry of Education, Science and Technology, KNUT, KUPPET, KICD, KSSHA and KESI, should establish a mechanism for designing and spearheading development of a formal curriculum for professional growth and development of teachers in Kisii County.

c) Teachers Service Commission (TSC) together with other education stakeholders such as the Ministry of Education, Science and Technology, KNUT, KICD,

KSSHA, KPSHA, KESI, and School Management Boards (SMBs) should spearhead the process of incorporating teacher appraisals within the broader school performance management system.

5.4.2 Recommendation for further research

In view of these findings further research is recommended to develop a performance management model for schools in which performance appraisal for teachers shall be integrated.

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APPENDICES

Appendix I

Teacher Performance Appraisal Questionnaire (TPAQ)

The purpose of this study is to assess the influence of performance appraisal for teachers on student learning outcomes in public secondary schools in Kisii County. The study will generate information useful to the Ministry of Education Science and Technology, Teachers Service Commission (TSC), teacher unions, school managers and teachers. The information you provide will be treated as highly confidential and used for purposes of this study only. Kindly provide all information required in this questionnaire.

Part A: Demographic Information

Please provide relevant information by ticking (√) appropriate boxes for all the questions appearing below.

1. What is your gender? ☐ *Male* ☐ *Female*

2. What is your age bracket?
   ☐ *Under 20 years* ☐ *36-40 years*
   ☐ *21-25 years* ☐ *41-45 years*
   ☐ *26 - 30 years* ☐ *46-50 years*
   ☐ *31-35 years* ☐ *51+ years*

3. In which sub-county is your school located?
   ☐ *Kisii Central* ☐ *Nyamache*
   ☐ *Marani* ☐ *Sameta*
   ☐ *Kenyenya* ☐ *Masaba South*
   ☐ *Gucha* ☐ *Kisii South*
   ☐ *Gucha South*

4. Which is your major teaching subject? Please tick **ONE** only
   ☐ *Mathematics* ☐ *Geography*
   ☐ *English* ☐ *History*
   ☐ *Kiswahili* ☐ *CRE*
   ☐ *Biology* ☐ *Agriculture*
   ☐ *Physics* ☐ *Business Studies*
   ☐ *Chemistry*

5. Please indicate one of the classes and stream you taught your major subject in 2015.

☐ *Form 2 Stream……..* ☐ *Form 3 Stream……..* ☐ *Form 4 Stream……..*

2. State whether in your school you carry out any of the responsibilities listed here.

☐ *Principal……..* ☐ *D/Principal……..* ☐ *Others……..*

Part B: Teacher Traits

7. Which is your highest level of academic and professional qualification?

☐	*Diploma in Education*	☐	*Master of Arts*
☐	*Bachelor of Education*	☐	*Master of Science*
☐	*Bachelor of Arts & PGDE*	☐	*Ph.D.*
☐	*Master of Education*	☐	*Other (Specify)……*

8. In the table below, tick whether you had completed or not completed any professional training and development course in each of the stated areas prior to the previous performance appraisal cycle.

Professional Development Programme Completed	Yes	No
a) *Effective planning and preparation of lessons*	☐	☐
b) *Effective classroom management and control*	☐	☐
c) *Effective teaching/instructional strategy*	☐	☐
d) *Training in sports, guidance and counseling, examinations, subject panels etc.*	☐	☐
e) *Other (Specify)……*		

9 How many years have you been teaching?

☐	*Less than 3 years*	☐	*13 - 17 years*
☐	*4 - 6 years*	☐	*18- 30 years*
☐	*7 - 12 years*		

Part C: Appraisal Ratings on TPAD Competency Areas

10. What marks were you given in the previous performance appraisal on the following competency areas of the TPAD framework?

S/no	Teacher competency area	Marks	Maximum
1.	Professional Knowledge and application	……	25
2.	Time management	……	10
3.	Professional development	……	15
4.	Learner protection, safety, discipline and teacher conduct	……	20
5.	Collaboration with parents/guardians and stakeholders	……	10
	Total	……	80

Part D: Student Learning Outcomes

11. For the class you identified in this questionnaire please tick the appropriate box that shows actual average performance of your students in 2015 end-of-term examinations in your major teaching subject.

Term	Subject Percentage (%) Mean Scores				
	1-29	30-44	45-59	60-74	75-100
1	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐

Thanks for your cooperation.

Appendix II

Student Appraisal of Teachers Questionnaire (SATQ)

The purpose of this study is to assess the influence of performance appraisal for teachers on student learning outcomes in public secondary schools in Kisii County. I congratulate you for being chosen to participate in this important study. Carefully provide all information required in this questionnaire about your experiences with your subject teacher. The information you provide will be highly confidential and used for the purposes of this study only.

Part A: Demographic Information

1) What is your gender? ☐ Male ☐ Female
2) Which is your class? ☐ Form 2 ☐ Form 4 ☐ Form 3
3) State the subject……..

Part B: Learning experiences

4) For each of the statements that follow tick the box that best represents your level of agreement with it.

KEY:

5. All the time; **4**. Most of the time; **3**. Sometimes; **2**. Don't know; **1.** Never

Statement	Response				
	5	**4**	**3**	**2**	**1**
a. My subject teacher cares for me and other students in class	☐	☐	☐	☐	☐
b. Student behaviour in our class pleases me and it makes our teacher happy	☐	☐	☐	☐	☐
c. My teacher knows when I don't understand and explains until all of us understand	☐	☐	☐	☐	☐
d. My teacher allows me to explain my answers and corrects us when we make mistakes	☐	☐	☐	☐	☐
e. My teacher is interesting and I enjoy being in this class	☐	☐	☐	☐	☐
f. My teacher respects ideas and suggestions and allows us to share our thoughts in class	☐	☐	☐	☐	☐
g. My teacher gives comments on my work and of other students that helps us to improve	☐	☐	☐	☐	☐

Thanks for your co-operation

Appendix III

Semi-Structured Interview Schedule (SSIS)

Opening of Interview

Thank you for agreeing to be interviewed for this study about dependability of student learning outcomes on performance appraisal for teachers. This study seeks to establish the extent to which student learning outcomes depend on performance appraisal for teachers in your school. This information will help in policy formulation and improvement especially in areas of performance appraisal, teacher development and career growth. This interview should only take about 15 minutes. I'll write down your answers and you will not be directly quoted in any report of this study. Are you still happy to proceed with the interview?

Section A: Demographic Information

1 Let's start with some information that will help me describe the sample:

   a) How old are you? _____ years

   b) **Note** if the respondent is male or female. male_____ female _____

   c) When were you posted to this school? _____ year ____ month ___ date

Section B: Teacher qualifications and student learning outcomes

2 In your own view, do you think teacher qualifications contribute to student learning achievement?

Section C: Professional development and student learning achievement scores

3 In your own opinion, do you think seminars, workshops and other short courses taken by teachers help them improve their student learning achievement scores?

4 To what extent does performance appraisal help teachers identify areas in which they require professional development?

Section D: Teacher experience and student learning achievement scores

5 Please explain your career growth progression status since you joined the teaching service.

6 Explain how your experience in teaching affect the learning achievement of your students?

7 Do you think experienced teachers perform differently from teachers who have been in teaching for a short period? Probe further

Section E: Appraisal ratings and student surveys

8 In your opinion, do you think appraisal ratings for teachers under the TPAD framework are related with student learning achievement in secondary schools? *Probe further.*

9 Should students be involved in providing feedback of how their teachers perform in class? *Probe more.*

10

11 Please give your comments on what you feel can be done to make teachers improve their performance in teaching and student learning achievement in secondary schools?

Section F: Performance appraisal and student learning achievement scores

12 In your view, do you think performance appraisal has enhanced career growth for teachers?

13 Do you think performance appraisal can improve student learning achievement scores? *Probe further*.

14 Other than performance appraisal what other factors do you think contribute to student learning achievement scores?

Thank you for your time and co-operation.

Appendix IV

Research Study Timetable

Session	Activities	Specific completion dates	Total duration (Months)
1	Provisional Registration	25th Sept. 2009	
	Development of Concept Paper	23rd Dec. 2012	
	Assignment of Supervisors	22nd Nov. 2012	
	Preparation of Proposal	10th May 2013	
	Defense of Proposal at Department	12th March 2015	**53**
2	Submission of proposal to Graduate School for processing	4th January 2016	**1**
	Approval and Substantive Registration	21st Feb 2016	**1**
3	Preparation and testing of Instruments, Piloting/ field testing	29th Feb 2016	**1**
	Obtain relevant research permits	13th April 2016	**1**
4	Field work/ data collection	1st February 2017	**9**
	Data analysis	30th September 2017	**8**
5	Notice of thesis submission	1st July, 2017	
6	Submission of Thesis	2nd October, 2017	**2**
7	Oral Defense	1st November, 2018	**12**
8	Submission of final thesis	11th March, 2019	**5**

Appendix V

Research Budget

Session	Activities	Total Amount (K. shs)
1	Provisional registration	10,000
	Fees payment	673,000
	Development of concept paper	15,000
	Assignment of supervisors	
	Preparation of proposal	50,000
	Defense of proposal at department	20,000
2	Submission of proposal to the School of Education	50,000
	Substantive registration by Graduate School	
3	Preparation and testing of instruments	
	Obtain relevant research permits	10,000
	Piloting/ field testing	40,000
4	Field work/ data collection	150,000
	Data analysis	50,000
5	Thesis Submission	50,000
6	Oral presentation/ defense	25,000
7	Submission of corrected thesis	20,000
8	Submission of final thesis	50,000
		K.shs=1,213,000

Appendix VI

Letter of Introduction

REPUBLIC OF KENYA

MINISTRY OF EDUCATION

Telegram: "EDUCATION"
Telephone: 058 – 30695
When replying please quote
E-mail: cdekisii@gmail.com

COUNTY DIRECTOR OF EDUCATION
KISII COUNTY
P.O. BOX 4499 - 40200
KISII.

Ref: CDE/KSI/RESECH/13

DATE: 13th May, 2016.

STATE DEPARTMENT OF BASIC EDUCATION

Mr. Gilbert Morara Nyakundi
P.O. Box 3931 – 40200
KISII

RE: RESEARCH AUTHORIZATION.

Following your research Authorization vide your letter ***Ref. NACOSTI/ P/16/49981/10125,*** to carry out research in Kisii County, this letter refers.

I am pleased to inform you that you can carry out your research in the County on ***"Dependability of Student Learning Outcomes on Performance Appraisal for Teachers in Public Secondary Schools in Kisii County."*** I am pleased to inform you that you have been authorized to undertake research in Kisii County for a period ending ***3rd May, 2017.***

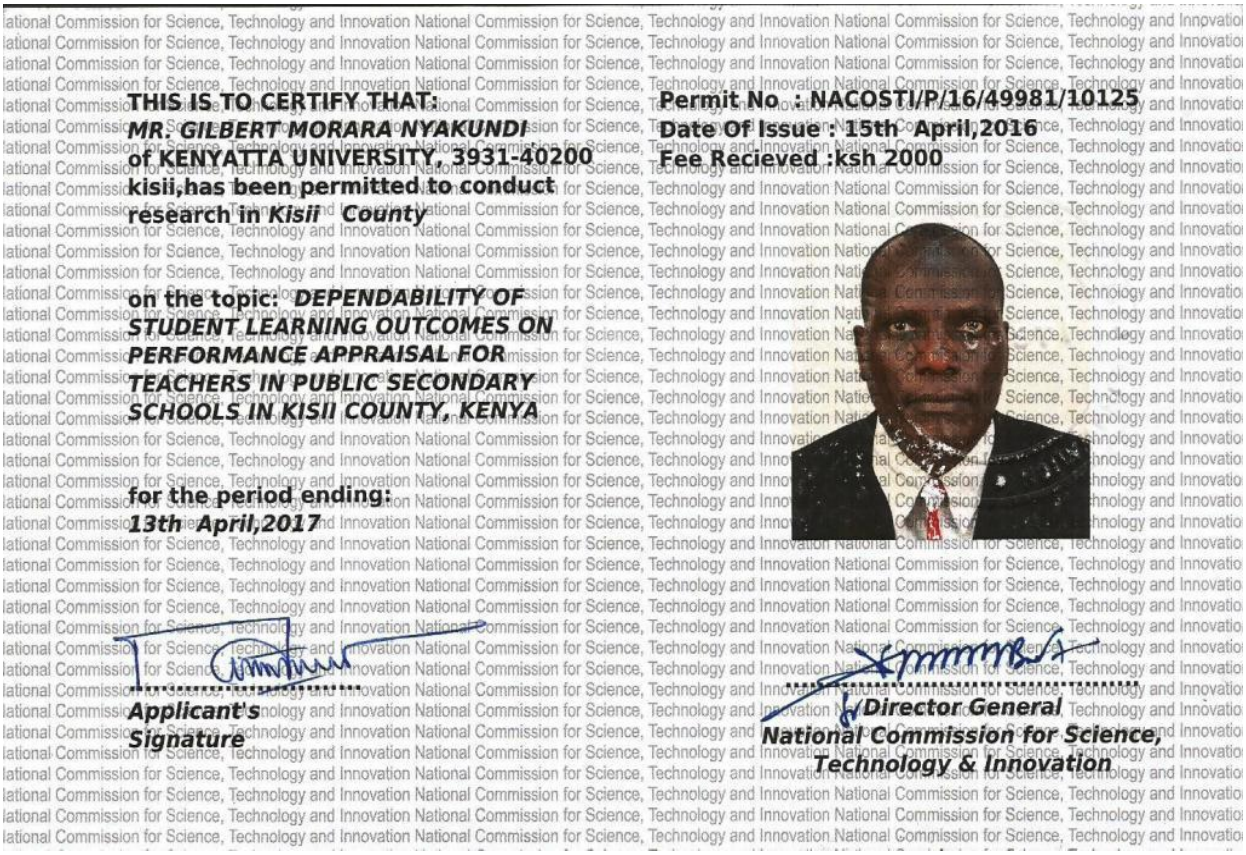
Wish you a successful research.

COUNTY DIRECTOR OF EDUCATION
KISII COUNTY
18 JUL 2016
P.O. Box 4499 - 40200, KISII.

RICHARD CHEPKAWAI
COUNTY DIRECTOR OF EDUCATION
KISII COUNTY

Appendix VII

Research Permit



Appendix VIII

Stages of Career Development for Teachers in Australia

Stage **Characteristics**

Graduate Teachers

1. Have a recognized teacher education qualification
2. Possess knowledge and skills to plan for and manage learning programs for students
3. Demonstrate knowledge and understanding of the implications for learning of students' physical, cultural, social, linguistic and intellectual characteristics
4. Understand principles of inclusion and strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.
5. Have an understanding of their subject/s, curriculum content and teaching strategies Know students and how they learn
6. Are able to design lessons that meet the requirements of curriculum, assessment and reporting
7. Demonstrate the capacity to interpret student assessment data to evaluate student learning and modify teaching practice
8. Know how to select and apply timely and appropriate types of feedback to improve students' learning
9. Demonstrate knowledge of practical strategies to create rapport with students and manage student behaviour
10. Know how to support students' wellbeing and safety, working within school and system curriculum and legislative requirements
11. Understand the importance of working ethically, collaborating with colleagues, external professional and community representatives, and contributing to the life of the school
12. Understand strategies for working effectively, sensitively and confidentially with parents/carers and recognize their role in their children's education.

Proficient Teachers

1. Demonstrate achievement of the seven standards at this level plan and implement effective teaching and learning
2. Create effective teaching and learning experiences for their students

Create and maintain supportive and safe learning environments

3. Know the unique backgrounds of their students and adjust their teaching to meet their individual needs and diverse cultural, social and linguistic characteristics
4. Develop safe, positive and productive learning environments where all students are encouraged to participate
5. Design and implement engaging teaching programs that meet curriculum, assessment and reporting requirements
6. Use feedback and assessment to analyze and support their students' knowledge and understanding
7. Use a range of sources, including student results, to evaluate their teaching and to adjust their programs to better meet student needs.
8. Are active participants in their profession and with advice from colleagues identify, plan and evaluate their own professional learning needs.
9. Are team members and work collaboratively with colleagues; seek out and are responsive to advice about educational issues affecting their teaching practice.
10. Communicate effectively with their students, colleagues, parents/carers and community members.
11. Behave professionally and ethically in all forums

Highly Accomplished Teachers

1. Aare recognized as highly effective, skilled classroom practitioners and routinely work independently and collaboratively to improve their own practice and the practice of colleagues
2. Are knowledgeable and active members of the school
3. Contribute to their colleagues' learning and may also take on roles that guide, advice or lead others
4. Regularly initiate and engage in discussions about effective teaching to improve the educational outcomes for their students
5. Maximize learning opportunities for their students by understanding their backgrounds and individual characteristics and the impact of those factors on their learning.
6. Provide colleagues, including pre-service teachers, with support and strategies to create positive and productive learning environments
7. Have in-depth knowledge of subjects and curriculum content within their sphere of responsibility
8. Model sound teaching practices in their teaching areas

9. Work with colleagues to plan, evaluate and modify teaching programs to improve student learning
10. Keep abreast of the latest developments in their specialist content area or across a range of content areas for generalist teachers
11. Are skilled in analyzing student assessment data and use it to improve teaching and learning
12. Are active in establishing an environment which maximizes professional learning and practice opportunities for colleagues
13. Monitor their own professional learning needs and align them to the learning needs of students
14. Behave ethically at all times
15. Interpersonal and presentation skills are highly developed
16. Communicate effectively and respectfully with students, colleagues, parents/carers and community members.

Lead Teachers

1. Are recognized and respected by colleagues, parents/carers and the community as exemplary teachers
2. Have demonstrated consistent and innovative teaching practice over time
3. Initiate and lead activities that focus on improving educational opportunities for all students inside and outside the school
4. Establish inclusive learning environments that meet the needs of students from different linguistic, cultural, religious and socio-economic backgrounds
5. Seek to improve their own practice and to share their experience with colleagues
6. Are skilled in mentoring teachers and pre-service teachers, using activities that develop knowledge, practice and professional engagement in others
7. Promote creative, innovative thinking among colleagues
8. Apply skills and in-depth knowledge and understanding to deliver effective lessons and learning opportunities and share this information with colleagues and pre-service teachers
9. Describe the relationship between highly effective teaching and learning in ways that inspire colleagues to improve their own professional practice
10. Lead processes to improve student performance by evaluating and revising programs, analyzing student assessment data and taking account of feedback from parents/carers

11. Synthesize current research on effective teaching and learning.
12. Represent the school and the teaching profession in the community.
13. Are professional, ethical and respected individuals inside and outside the school

Source: Australian Institute for Teaching and School Leadership (AITSL, 2011)

Appendix IX

Population of Teachers in Kisii County per Subject and Gender

	Gender of Teachers					
Subject	*Male*	*%*	*Female*	*%*	**Total**	*%*
Mathematics	220	64	156	36	376	10
English	215	64	123	36	338	9
Kiswahili	212	63	126	37	338	9
Biology	236	70	102	30	338	9
Chemistry	236	70	102	30	338	9
Physics	209	80	54	20	263	7
History	232	69	106	31	338	9
Geography	243	65	133	35	376	10
C.R.E	255	68	121	32	376	10
Agriculture	239	71	98	29	338	9
Business Studies	222	66	116	34	338	9
Total	**2,538**	**67**	**1,221**	**33**	**3,759**	**100**

Source: County Education Office, Kisii (July, 2016)

Appendix X

Teacher population distribution and samples per sub-county and samples

Location	**Population of teachers**						**Sample**			
Sub-County	*M*	*%*	*F*	*%*	*Total*	**%**	*M*	*F*	**Total Sample**	%
Kisii Central	554	64	311	36	865	23	56	28	84	23
Marani	171	65	92	35	263	7	17	8	25	7
Kenyenya	534	71	218	29	752	20	48	24	72	20
Gucha	137	73	51	27	188	5	12	6	18	5
Nyamache	229	61	147	39	376	10	24	12	36	10
Gucha South	301	73	112	27	413	11	27	13	49	11
Sameta	158	70	68	30	226	6	15	7	22	6
Masaba South	229	61	147	39	376	10	24	12	36	10
Kisii South	208	69	93	31	301	8	19	10	2	8
Total	**2,538**	**67**	**1,221**	**33**	**3,759**	**100**	**242**	**120**	**362**	**100**

Source: County Education Office, Kisii (January 2016); **M**=Male; **F**=Female

Note: Teacher population N= 338 **sample (n)** =30

Appendix XI

Items in Teacher Performance Appraisal Questionnaire (TPAQ)

	Item	Nature of data
1.	Gender	Categorical
2.	Age	Ordinal
3.	Sub-County	Categorical
4.	Major teaching subject	Categorical
5.	Class and form taught for three terms (2016)	Ordinal
6.	Teacher qualifications	Ordinal
7.	Professional development activities completed	Categorical
8.	Teacher experience (Professional growth)	Ordinal
9.	Appraisal ratings	Ordinal
10.	Student survey ratings	Ordinal
11.	Student achievement test scores	Ordinal

Source: Field Data

Appendix XII

Thematic Analysis of Qualitative Research Findings

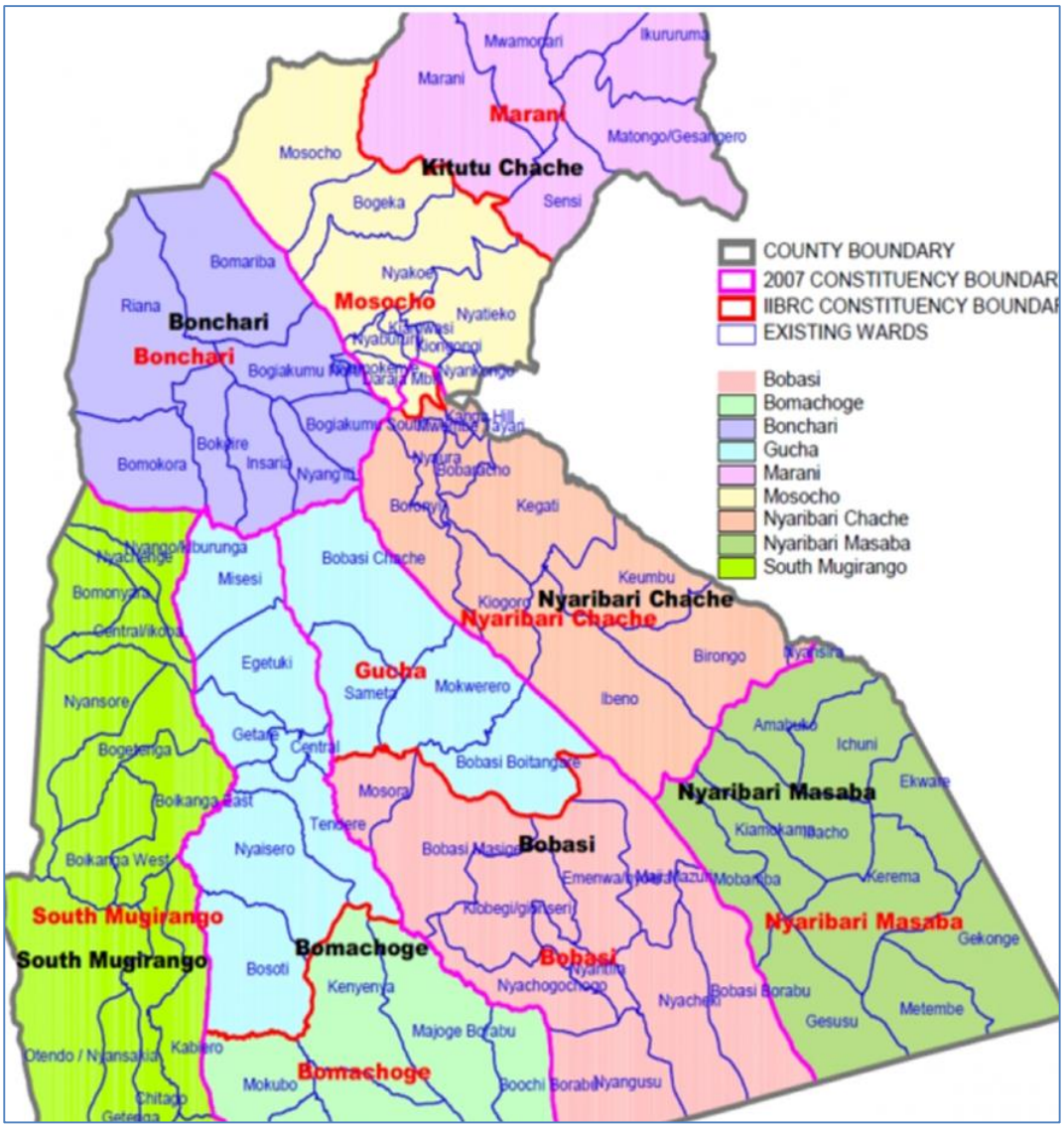
Emerging Themes	Qualitative Findings	Nature of Findings
1. Teacher qualification and learning achievement scores	- In practice, teacher qualifications did not predict student learning achievement scores	- Expected
2. Professional development	- Workshops, and seminars did not directly influence learning achievement scores	- Unexpected
	- Professional development programmes and opportunities are inadequate and irrelevant to the individual needs of teachers	- Unexpected
	- It is the responsibility of teachers to partake professional development	- Expected
	- Professional development decisions did not emanate from performance appraisal	- Unexpected
3. Teacher Experience	- Career growth is a vague concept to teachers	- Expected
4. Teacher performance (Appraisal ratings and student feedback ratings)	- Teacher performance depends on competences gained through experience	- Expected
	- Performance appraisal did not influence student learning outcomes	- Unexpected
	- Appraisal of teachers focuses on routine practices and not on competences	- Unusual
	- Performance appraisal encourages un-professional practices among teachers	- Unusual
	- Appraisal ratings are an estimate of teacher performance	- Expected
	- Appraisal ratings depends on individual effort of the teacher	- Expected
	- Performance of a teacher is depicted in student learning achievement	- Expected
	- Availability of relevant professional development programmes will improve	

	teacher performance	- Expected
	- Adequate opportunities for professional development will improve teacher performance	- Expected
	- Professional recognition will improve teacher performance	- Expected
	- Performance appraisal will be useful to teachers if they are involved at every stage in the process	- Expected
	- Students can be used to appraise teachers as long as they are properly inducted	- Expected
	- Students should never be used to appraise teachers (Attitude issue)	- Unusual
5. Internal school contextual factors	- Schools have inadequate resources for professional development of teachers	- Expected
	- Time spent by teachers in assisting learners has declined	- Unusual
6. External school contextual factors	- Professional freedom is under threat due to controls imposed on teachers	- Unexpected
	- Professional recognition for competence is inadequate	- Unexpected
7. Student learning achievement scores	- Student learning achievement depends on determination, discipline and motivation of students	- Expected
	- Student learning achievement is influenced by teacher motivation	- Expected
8. Teacher characteristics	- Teacher motivation is low	- Unexpected
	- Teachers are indifferent to promotions	- Unusual
	- Experienced teachers tend to be more demotivated than newly employed teachers	- Unusual
	- Professional fatigue is implied especially due to low motivation, indifference to promotions, lack of appropriate development programmes, decline status of teaching in society, increasing controls in teaching etc. (ALL interviewees)	- Unexpected

Source: Interview Data

Appendix XIII

Administrative Units in Kisii County



Source: Kisii County Website