

**INFLUENCE OF TEACHING STRATEGIES ON STUDENTS'
PERFORMANCE IN ACADEMIC ACHIEVEMENT AND CO-
CURRICULAR ACTIVITIES IN PUBLIC SECONDARY
SCHOOLS IN NANDI COUNTY, KENYA**

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**A Research Thesis Submitted in Partial fulfilment of the Requirements for
the Degree of Doctor of Philosophy in the Department of Educational
Management, Policy and Curriculum Studies, School of Education,
Kenyatta University**

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DECLARATION

This doctoral thesis is my original work and has not been presented for any award in any other university for consideration of any certification. The thesis has been complemented by referenced works and duly acknowledged. Where text, chart, graphics, pictures or tables have been borrowed from other works including the internet sources, these are specifically accredited through referencing in accordance to anti-plagiarism regulations.


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DEDICATION

I dedicate this work to my father, James Murey, who taught me the virtue of endurance in the face of adversity. I also dedicate to my husband Christopher and children, Bramwel, Kevin, Brian, Collins and Douglas for being there for me during the study period.

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TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES	ix
LIST OF FIGURES	xiii
ABBREVIATIONS AND ACRONYMS.....	xiv
ABSTRACT.....	xv
CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY	1
1.1 Introduction.....	1
1.2 Background to the Study.....	1
1.3 Statement of the Problem.....	11
1.4 Purpose of the Study	11
1.5 Objectives of the Study	13
1.6 Hypotheses	14
1.7 Assumptions of the Study.....	15
1.8 Limitations of the Study.....	15
1.9 Delimitations of the Study	15
1.10 Significance of the Study	15
1.11 Theoretical Framework.....	18
1.12 Conceptual Framework.....	20
1.13 Operational Definition of Key Terms	24

CHAPTER TWO: REVIEW OF RELATED LITERATURE	26
2.1 Introduction.....	26
2.2 The Concept of Teaching Strategy and Students Performance	26
2.3 Student Centered Instruction Strategy and Students’ Performance	31
2.4 Teacher Centered Instruction Strategy and Students’ Performance	37
2.5 Assessment Strategy and Students’ Performance	41
2.6 Resource-based Instruction Strategy and Students Performance.....	46
2.7 Government Policy, Teaching Strategies and Students’ Performance	52
2.8 Summary and Gap identification	56
CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY	60
3.1 Introduction.....	60
3.2 Research Design and Locale	60
3.3 Study Population.....	65
3.4 Sampling Techniques and Sample Size	67
3.4.1 Sampling Techniques.....	67
3.4.2 Sample Size Determination.....	71
3.5 Research Instruments	73
3.5.1 Interview Schedule for County Director of Education	75
3.5.2 Questionnaire for Principals.....	75
3.5.3 Questionnaires for Teachers	75
3.5.4 Questionnaires for Students’	76
3.5.5 Observation Schedule	76
3.5.6 Piloting	77
3.5.7 Validity of the Research Instruments	78
3.5.8 Reliability of the Research Instruments	79

3.6	Data Collection	80
	3.6.1 Logistical and Ethical Considerations.....	81
	3.6.2 Research Protocol and Itinerary	81
	3.6.3 Actual Data Collection.....	83
3.7	Data Analysis	84
	3.7.1 Data Measurement	86
	3.7.2 Hypothesis Testing.....	86
CHAPTER FOUR: FINDINGS, INTERPRETATION AND DISCUSSIONS		94
4.1	Introduction.....	94
4.2	General and Demographic Information	96
4.3	Tests Assumptions	102
4.4	Analysis of the Influence of Student Centered Instruction Strategy on Students’ Performance in Academic Achievement and Co-Curricular Activities.....	114
4.5	Analysis of the Influence of Teacher Centered Instruction Strategy on Students’ Performance in Academic Achievement and Co-Curricular Activities..	131
4.6	Analysis of the Influence of Assessment Strategy on Students’ Performance in Academic Achievement and Co-Curricular Activities	146
4.7	Analysis of the Influence of Resource-based Instruction Strategy on Students Performance in Academic and Co-Curricular Activities	161
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....		201
5.1	Introduction.....	201
5.2	Summary	201
5.3	Conclusions.....	207
5.4	Contribution to Knowledge.....	210
5.5	Recommendations.....	211

REFERENCES.....	216
APPENDICES	
APPENDIX I: LETTER OF TRANSMITTAL	237
APPENDIX II: PRINCIPAL’S QUESTIONNAIRE	238
APPENDIX III:COUNTY DIRECTOR OF EDUCATION INTERVIEW SCHEDULE...244	
APPENDIX IV: TEACHER QUESTIONNAIRE.....	246
APPENDIX V: STUDENT QUESTIONNAIRE	253
APPENDIX VI:OBSERVATION SCHEDULE	258
APPENDIX VII: MAP OF KENYA SHOWING NANDI COUNTY.....	259
APPENDIX VIII: RESEARCH PERMIT.....	260

LIST OF TABLES

Table 3.1: Candidature KCSE Performance in English and Mathematics in Sample selected Public Secondary Schools in Nandi County in 2012	64
Table 3.2: The Comparison of the KCSE mean scores for the three Nandi County Sub Counties from 2008 to 2012.....	65
Table 3.3: Comparison between Purposive and Probability Sampling Techniques	69
Table 3.4: Sample Size of the Population studied.	73
Table 3.5: Reliability Statistic for Research Instruments.....	80
Table 3.6: Summary of Research Objectives and Hypothesis and Method of Analysis.....	93
Table 4.1: Response Rate.....	96
Table 4.2: School Categories Distribution of Respondents	98
Table 4.3: Gender of the Respondents	98
Table 4.4: Age Category of the Principals, Teachers and Students in years	99
Table 4.5: Number of Years spent in Pre-service Training by Principals and Teachers.....	100
Table 4.6: Headship experience of the Principals.....	100
Table 4.7: Teaching Subjects for Teachers.....	101
Table 4.8: Reliability Statistics for Students' Performance.....	102
Table 4.9: Normality Test of Students' Performance	103
Table 4.10: Test of Multicollinearity Statistic on Predictor Variables	104
Table 4.11: Test of Autocorrelation for the Independent Variables	105
Table 4.12: Sample Adequacy Test	106
Table 4.13: Reliability Statistic for the Independent Variables	107

Table 4.14: Analysis of Students’ Performance in Academic Achievement and Co-Curricular Activities	107
Table 4.15: Student Rating on the Extent to which Students’ Behavioural Problems disrupts Learning.....	115
Table: 4.16: Principals rating on the Influence of Student Centered Instruction Strategy on Students’ Performance	117
Table 4.17: Teachers rating on the Influence of Student Centered Instruction Strategy on Students’ Performance.....	119
Table 4.18: Students rating on the Influence of Student Centered Instruction Strategy on Students’ Performance	121
Table 4.19: Correlation Analysis on the Influence of Student Centered Instruction Strategy on Students’ Performance.....	127
Table 4.20: Regression Analysis Results on the Influence of Student Centered Instruction Strategy on Students’ Performance.....	129
Table 4.21: The Extent to which Teacher Centered Instruction Strategy influences Students’ Performance.....	132
Table 4.22: Principals’ rating on the Influence of Teacher Centered Instruction Strategy on Students’ Performance	134
Table 4.23: Teachers’ rating on the Influence of Teacher Centered Instruction Strategy on Students’ Performance	136
Table 4.24: Students’ rating on the Influence of Teacher Centered Instruction Strategy on Students’ Performance	138
Table 4.25: Correlation Analysis on the Influence of Teacher Centered Instruction Strategy on Students’ Performance.....	143

Table 4.26: Regression Analysis Results on the Influence of Teacher Centered Instruction Strategy on Students' Performance.....	144
Table 4.27: The extent to which Learners frequently undertake Assessments.....	147
Table 4.28: Principals rating on the Influence of Assessment Strategy on Students' Performance.....	148
Table 4.29: Teachers rating on the Influence of Assessment Strategy on Students' Performance	151
Table 4.30: Students rating on the Influence of Assessment Strategy on Students Performance	153
Table 4.31: Correlation Analysis on the Influence of Assessment Strategy of Students Performance	158
Table 4.32: Regression Analysis Results on the Influence of Assessment Strategy on Students Performance.....	159
Table 4.33: Teachers Rating on the Adequacy of Teaching and Learning Resources to Students learning.....	162
Table 4.34: Principals rating on the Influence of Resource-based Instruction strategy on Students' Performance.....	163
Table 4.35: Teachers rating on the Influence of Resource-based Instruction Strategy on Students' Performance	166
Table 4.36: Students rating on the Influence of Resource-based Instruction Strategy on Students' Performance	168
Table 4.37: Correlation Analysis on the Influence of Resource-based Instruction Strategy and Students' Performance	174
Table 4.38: Regression Analysis Results on Resource-based Instruction Strategy and Students' Performance	176

Table 4.39: The Effect of Combined Correlation analysis between Teaching Strategies and Students' Performance.....	179
Table 4.40: The Multiple Regression Model on the Influence of Teaching Strategies on Students' Performance	181
Table 4.41: Principals rating on the Influence of Government Policy on Teaching Strategies and Students' Performance	185
Table 4.42: The Multiple Regression Analysis on the Influence of Teaching Strategies on Students' Performance	190
Table 4.43: Regression Coefficient Model on the Influence of Teaching Strategies on Government Policy.....	191
Table 4.44: Regression Coefficient Model Analysis on the Mediating Influence of Government Policy on the Relationship between Teaching Strategies and Students' Performance.....	194
Table 4.45: Regression Analysis Results on Teaching Strategies, Government Policy and Students' Performance	195

LIST OF FIGURES

Figure 1.1: Conceptual Framework for the Study.....	26
Figure 3.1: Mediation Model using Path Diagrams.....	92
Figure 4.1: 3-D Common Bar Graph showing the Extent of which Student Engagement in Co-Curricular Activities.....	109
Figure 4.2: Principals Rating on Types of Co-Curricular Activities.....	111
Figure 4.3: Influence of Government Policy on Students' Performance.....	184
Figure 4.4: Path Analysis of the mediating Influence on the Relationship between Teaching Strategies and Students' Performance	197
Figure 4.5: Path diagram showing the mediating Influence of Government Policy on the Relationship between Teaching strategies and Students' Performance.....	197
Figure 5.1: Teaching Strategies Model.....	210

ABBREVIATIONS AND ACRONYMS

APP	Africa Progress Panel
BOM	Board of Management
CDE	County Director of Education
EFA	Education for All
EU	European Union
ICT	Information and Communication Technology
PIRLS	Progress in International Reading Literacy Study
KCSE	Kenya Certificate of Secondary Examination
KNEC	Kenya National Examination Council
OECD	Organisation for Economic Co-operation and Development
PASEC	Program for Analysis of Education
PISA	Programme for International Student Assessments
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Education Quality
SDGs	Sustainable Development Goals
SMASSE	Strengthening of Mathematics and Science in Secondary Education
TIMSS	Trends in International Mathematics and Science Study
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNICEF	United Nations International Children Education Fund
UK	United Kingdom
US	United States
USA	United States of America

ABSTRACT

The current teaching practices in public secondary schools are not inculcating the critical skills and competences to the students to prepare them for the world of work and sustainable future. This raises great concern to school administrators, teachers, students, parents and policy makers. The purpose of this study was to investigate the influence of teaching strategies on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. Four specific objectives of the study sought to investigate the influence of the independent variables (student centered instruction strategy, teacher centered instruction strategy, assessment strategy and resource-based instruction strategy) on students' performance. The study tested six hypotheses and employed mixed methods research design. The theory of instruction guided the study. To determine the sample size, a stratified random sampling technique and simple random sampling was used to select the public secondary schools to participate in the study. Purposive sampling was used in selecting the County Director of Education, principals, teachers and the students. The sample of the study was 30 public secondary schools with 481 respondents consisting of 30 principals', 85 teachers', 365 Form Three Students' and 1 County Director of Education. The study used questionnaires, interview and observation schedule as instruments to collect quantitative and qualitative data and were pre-tested for validity and reliability. Cronbach Coefficient Alpha value was 0.826 indicating high reliability of the instruments used during the study. The descriptive data was analysed using descriptive statistics, correlation and regression analysis and presented using tables and figures. Qualitative data collected was analysed thematically. The findings of the study showed that teachers encounter challenges in implementing quality instructional strategies to realize optimal improvement of students' performance. The F value was significant at 0.05 confidence level and resulted in rejection of null hypothesis. The correlation and regression analysis revealed that there was significant and positive relationship between the teaching strategies and students' performance. The multiple regression analysis revealed that student centered instruction strategy was significant, followed by assessment strategy, resource-based instruction strategy and teacher centered instruction strategy. Regression analysis results showed that in a situation of scarce resources, resource-based instruction would be appropriate. The findings revealed that government policy had mediating influence on the relationship between teaching strategies and students' performance. The findings further show that the Gagne theory of instruction was relevant as it emphasizes arrangement of conditions of learning to attain instructional goals. The conclusion of the study showed that it is not only the teacher who influences the students' performance, but also school management, students, resources and government policy. The conclusion further indicates that poor students' performance results from student indiscipline, use of theoretical teaching, assessments not being administered frequently and inadequate teaching and learning resources, which hinders provision of quality education. The recommendation is that teachers should be retooled to improve their teaching pedagogies. Further research need to be undertaken to replicate the study in tertiary training institutions in Kenya and investigate the extent to which students' self-concept, and discipline development influences their performance in public secondary schools in Kenya.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter encompasses the background of the study, the statement of the problem, purpose and objectives of the study, research questions and significance of the study, limitation and delimitation of the study. In addition, the chapter covers research assumptions, theoretical framework, conceptual framework and definitions of key terms.

1.2 Background to the Study

Education is one of the most promising paths for individuals to realize better and more productive lives (Republic of Kenya, 2011). The teaching strategies are key as they influence effectiveness of student learning process and their performance (Wong and Wong, 2011). There concern is whether teaching instruction used in secondary schools is promoting quality learning and whether students were achieving at the required level of performance and prepared adequately to attain quality skills, attitudes and knowledge to develop as holistic individuals. In addition, the Taskforce on realigning Education to the Constitution of Kenya 2010 documented that the current education has failed to address holistic development of learners (Republic of Kenya, 2012).

The twenty first century has witnessed the agitation for improvement of students' performance through provision of quality education. Developed nations including the United States of America (USA) have laid emphasis on narrowing achievement gaps between the highest and the lowest performing students. Their education policies have focused on the

achievement of minimum competencies in basic skills including mathematics, reading and science. The 2011 Trends in Mathematics and Science Study (TIMSS) showed that United States continued to benchmark its 4th and 8th grade students with other international countries including; Singapore, Hongkong, Chinese Taipei and Japan (Mullis, Martin, Foy and Arora, 2012). Accordingly, Uwezo East Africa (2012) noted that in 1999 only 58% of developed and 28% of developing countries participated in national, regional or international learning assessments.

United Nations Educational Scientific Cultural and Organisation (UNESCO) (2017) documented the SDGs 2016-2030, and its overarching goal No. 4 that requires nations to provide equitable and inclusive quality education and promote life-long learning opportunities for all by 2030. The SDGs also requires that every human being acquire twenty first century skills, knowledge, attitudes and values to deal with world challenges and realize sustainable future.

According to OECD (2012) lifelong skills development will effectively address inequality, access to quality education, acquisition of essential skills for social development, labour market integration and youth unemployment challenge. World Bank (2017) has documented existence of learning crisis in the low and middle-income countries. The findings revealed that schools put a lot of emphasis on schooling without focusing on students learning. The Africa-America Institute (2015) echoes the findings that while there are many students gaining access to education in secondary schools are not gaining basic skills. In addition, Africa faces severe shortage of highly skilled African talent. The skills that will confront today's world challenges will depend on the improvement of students' performance with the teacher being part of the process or the pathway to learning.

Similarly, Global Monitoring Report (2016), shows that Sub Saharan Africa investment in education has not fully translated to development of functional skills and knowledge that could transform economies of which they live in general and individuals in particular. The report of Africa Progress Panel (2012) established that African children transiting to secondary schools from primary school lack basic literacy and numeracy skills, implying that children experiences deficits in basic learning competencies.

Research evidence shows that teaching rigor presents better and effective way of addressing improvement in students' performance in secondary schools. Rosenshine (2012) and Marzano and Toth (2014) have argued that effective instruction can be realised by implementing; research based principles of effective instruction and necessary instructional strategies.

Rosenshine (2012) identified ten research-based principles of effective instruction that teachers should put into practice to improve students' performance of students. The principles states that a teacher should; begin a lesson with a short review of previous learning; present new material in small steps, provide student an opportunity to practise at each step; ask relevant questions and check the responses for all students; provide models; guide students practice; check for students understanding; obtain high success rate; provide scaffolds for difficult tasks; require and monitor independent practise; and engage students in weekly and monthly review.

Similarly, Marzano and Toth (2014) documented thirteen essential instructional strategies to achieve teaching rigor. The strategies include; identifying critical content, previewing new

content, organizing students to interact with content, helping students process the content, helping students to elaborate on the content, helping students to demonstrate knowledge, manage responses with tiered questioning techniques, reviewing content, helping students practice skills, strategies, and process, helping students examine similarities and differences, helping students examine their reasoning and revise knowledge; and helping students engage in cognitively complex tasks.

Some research scholars and studies (Onweh and Akpan, 2014; World Bank, 2008; Amos, Folasayo, and Oluwatoyin, 2015; Africa Progress Panel, 2012; Kwek, 2011), have questioned the teaching practices and approaches used by teachers in secondary schools. Amos et al (2015) questioned the teaching approaches used by teachers in facilitating teaching and learning and noted that teachers have difficulty in using instructional strategies in teaching in the classroom in secondary schools.

Kwek (2011) argues that teaching approaches and methods in schools was wanting, given that most teachers apply teaching methodology that considers students as passive learners and listeners. Accordingly, teachers resort to coaching students for high stakes testing. The end result is that it limits students' abilities for creativity, innovation, critical thinking and problem solving. Thomas and Green (2015) explains that the use of instructional strategies by teachers affect preparation of students in schools to acquire necessary knowledge, attitude and skills for future success.

The traditional teaching has dominated the teaching world for centuries, where the teacher is at the centre of teaching and learning process while learners remained as passive objects of the learning process (Schiller, 2009). Teacher centered instruction still dominates teaching in

the 21st century in secondary schools and use of lecture is still the dominant teaching method. This has received criticism as being theoretical making learners to be receivers and not creators of knowledge (Republic of Kenya, 2012).

World Bank report (2008) suggested that the existing teaching methodology used by teachers concentrated mainly teacher-centered learning. Despite huge investments in provision of education in public secondary schools, education stakeholders are greatly concerned with the declining students' performance in secondary schools (Ministry of Education, 2012). The concern is on how to hold teachers accountable for declining educational achievements and to have motivated, engaged and excited students who are committed to their learning success (Ministry of Education, 2013).

Despite research in education, the secondary school teachers are still facing the challenges of adequately preparing students to acquire the necessary skills, knowledge and attitudes. Kenya educators have been challenged to respond more to growing personal, social, economic and technological challenges (Republic of Kenya, 2012). Uwezo East Africa (2016) explained on the assessment of students and learning in primary education from 2010 to present. The assessment findings indicated that students were not learning, students performance have not been improving and recommended that education reforms be undertaken to improved students' performance.

Furthermore, revelation by Ministry of Education that teaching strategies used by most teachers no longer yield desired learning achievement and attestation that learners may be ill prepared to cope with twenty first century challenges. In addition, available teachers are using teacher centered teaching strategies in classroom instruction, which are theoretical in

nature while majority of teachers in Kenya are not aware of a single teaching strategy (Republic of Kenya, 2012) .

The low morale of teaching staff, inadequate teaching and learning resources and poor enforcement of education standards and guidelines shows the reason that necessitated need to focus on learners teaching. This has affected the performance of students in Kenya Certificate of Secondary Education. Despite, the fact that the focus in secondary school education in Kenya is pegged on performance in national examinations, performance in co-curricular activities has been ignored. Among, the Counties in the North Rift region of Kenya documented reports indicates that Nandi County, has high illiteracy rates (67.1% for males and 76% for female), high student dropouts with a wastage rate of 1.74%. Moreover, many students approximately 20,000 of school going age were not attending school and there is low transition rates to secondary school estimated at 44.6% (Republic of Kenya, 2012/2013).

The purpose of education is to develop an individual personality in a holistic way and for better adaptability. A study to establish the benefits of co-curricular activities revealed that it can complement enriching the core curriculum, contributing to building student character in a positive way (Ghazanfar; 2015). Students' participation in co-curricular activities improves their academic performance, unleashes potentials in talent development and impart practical skills to learners contributing to holistic development (Lazaro and Anney, 2016; Bashir, 2012).

Madalli (2014) opines that many students are deprived from participation in co-curricular activities yet the objectives of co-curricular activities are to; prepare students for practical life, raise standards of the whole education system, teach the learners to be responsible and

use of time properly; develop the sense of co-existence among children; provide learners an opportunity to be self reliant, self discipline, tolerant and sympathetic.

Wong (2007) in the study of effective teaching found out that there was significant students' achievement where teaching was effective, while less effective teachers lowers students' performance. Barry (2010) supports the need for quality and effective teachers and noted that the skills they possess include; have deep understanding of the subject matter, planning, learning theory and student's differences, classroom instructional strategies, knowing individual students and assessment of student understanding and proficiency with learning outcomes.

Walker (2008) noted twelve characteristics of effective teachers as; positive, set high expectations, creative in teaching the class, treat, grade the students fairly, display a personal and approachable touch with students, cultivate a sense of belonging in the classroom, compassionately deal with students problems, have a sense of humor and have respect for students, forgiving and admits mistakes.

Wei, Darling-Hammond, Andree, Richardson and Orphanos (2009) corroborated that for students to realize high achievement; teachers must possess deep content knowledge and higher order teaching skills, professional learning and realizing improvement of academic achievement in schools. Coe, Aloisi, Higgins and Major (2014) stressed that the two factors with strongest research evidence that contribute to teaching effectiveness and increases improvement in students' performance are; teachers' pedagogical content knowledge and quality instruction, including effective classroom management, classroom climate, professional behaviours and teacher beliefs.

In addition, the Basic Education Act No. 14 of 2013 (The Laws of Kenya, 2013), clearly states basic education offered in secondary schools should be guided by values and principles including; encouraging independent critical thinking; cultivating discipline, skills and capacities for reconstruction and development. In addition, education should impart relevant knowledge, attitudes, values and skills to learners. Education should also promote innovation, creativity and use of technology and entrepreneurial culture.

The Sessional Paper No. 14 of 2012 on Reforming Education and Training in Kenya outline the role of government in ensuring the essential skills are imparted to the learners; and entails; imparting thinking, literacy, numeracy and inquiry skills; communication, observation and investigative skills; application, transferable, social and ethical skills; entrepreneurial skills and talent development (Republic of Kenya, 2012).

The Secondary education curriculum in Kenya offers diversified curriculum and some of the examinable subjects include; English, Kiswahili and Foreign languages, Mathematics, Physics, Biology and Chemistry, Geography, History and Government, Christian Religious Education, Agriculture, Business Studies, Art and Design, Woodwork, Electricity, Home Science, Clothing and Textiles, Physical Education and life skills. The subjects that are non-examinable include physical education and life skills (KNEC, 2013/2015).

At the end of four years, students sit for national examination, Kenya Certificate of Secondary Education (KCSE) and the results obtained in their subjects are graded in five (5) scales; A, B, C, D, and E. Grade A with 12 points is the highest while grade E with 1 point is the lowest. Normally, students sit for a maximum of eight and a minimum of seven subjects

in KCSE or more. After completion, KNEC issues a certificate showing level of success in academic achievement (KNEC, 2013).

The students are considered to have performed well in their KNEC examination and gain entry to the university, when he/she attains the minimum required grade of C+. However, entry requirements to university vary for the candidates who want to get government scholarship through Kenya Universities and Colleges Central Placement Service admission criteria. The KCSE performance by candidates in 2015 shows that, only 31.52 percent of the candidates scored grade C+ and above leaving 68.48 percent scoring grade C and below (KNEC, 2016).

The evidence from Nandi County shows that the number of candidates who sat for KCSE examination increased from 6,923 in 2010 to 8,585 in 2012. In the County, students who had attained grade As in KCSE examinations remained paltry low from 2008 to 2012 (KNEC, 2013; Ministry of Education Science and Technology, 2014). Nationally, students' performance in English and Mathematics, for a four year period from 2010 to 2012 was below 40%, (Republic of Kenya, 2011; KNEC, 2012; Ministry of Education, 2007). KNEC report shows that the performance of students in national examination was not impressive in some Nandi County public secondary schools (KNEC, 2012). The Ministry of Education report (2007) shows that most form four students graduating from high school recorded poor performance.

The Task Force on the Realignment of Education Sector to Constitution of Kenya 2010, identified key issues affecting public education in secondary schools in Kenya; that there is too much reliance on examinations; focus on passing examinations by students; 50% of the

learners are taught physical education; only 2% of public secondary schools have access to necessary ICT infrastructure; there is acute shortage of textbooks (textbook ratio-5:1); use of theoretical teaching; that teaching skills acquired perpetuate over-dependence on memorization; the impact of teacher training impede teacher preparation; and instructional practices and the culture of teaching are hard to change. This was an evidence of the failure of teaching to inculcate a repertoire of skills and competences required by learners and teachers (Republic of Kenya, 2012).

Lasry, Charles and Whittaker (2014) noted that, student centered pedagogies when used in student centered classrooms yield high student performance. It emphasises on student interests, needs and abilities. Griffith and Hye-Yeon (2010), found out that teachers who apply student centered teaching reported success in using student-centered classrooms. Through student centered teaching, teachers are evaluated on their teaching effectiveness and students on the performance on the written tests.

Adeogun and Olisaemeka (2011), argues that teachers have the responsibility to ensure they cultivate interpersonal relationship amongst students, set high expectation and productivity and provide maximising learning opportunities that will lead to improved students' performance. Education should assist in developing an all-rounded individual personality who is able to develop physically, mentally, socially and morally (KNEC, 2013; Republic of Kenya, 2012).

Wanyama and Quay (2014) contend that physical education in secondary schools in Kenya being non-examinable subject, teachers and schools have not given the prominence it deserves. Co-curricular activities have multiplier effect on individual growth; promote talent

development and tourism, consumption of locally produced goods, media and education (European Union, 2012). Obonyo (2013) explained that Kenya has supported and nurtured sports activities including games. However, the sports organizations have limited financial resources and experiences management challenges. Failure to address holistic development of learners will hinder achievement of goal number 4 on high quality education as provided for in the Sustainable Development Goals (2015-2030) hence impeding progress (UNESCO, 2016).

The background information for the study underscored the interest to undertake research on the influence of teaching strategies on students' performance. Various studies cited revealed that teacher influences students' performance in public secondary schools. This was shown in the background that the manner in which teachers deliver instruction during the lesson to better the learners' performance, remains an essential investigative area. The key focus on teaching strategies was necessary as a way of ensuring students in secondary education acquire necessary knowledge, skills and attitudes for their development as holistic individuals, preparing for further study, place of work and sustainable future.

1.3 Statement of the Problem

The education skills and knowledge acquired by students depend on the interaction between teacher's knowledge of the subject matter and pedagogical ability that in turn guarantee better students' performance. Despite the role of teachers in teaching of students, reports show failure of teaching to inculcate a range of skills and competences that develops learners holistically. The key education stakeholders are concerned with declining students' performance and what goes on into teaching. The concern therefore has been to upscale the performance of high performing students and improve the performance of low performing

students and whether teaching strategies has connection with students' performance. Few teachers perform very well in their subjects in some public secondary schools and considered effective while majority of teachers perform poorly, despite having the same qualification as the effective teacher.

Public secondary schools in Kenya and particularly in Nandi County have qualified teachers with teaching qualification (Degree and Diploma). The teachers are trained in pedagogy and the content and knowledge learned is applied in teaching and can promote deeper students learning. However, research evidence shows that there is learning crisis in secondary schools and that teachers lack the skills to be effective in their teaching and that teacher education is weak.

Teachers spent more time in the classroom focusing on theoretical teaching resulting in minimal learning. Additionally, there are shortages of resource inputs and student enrolments are estimated at 2.3 million students in Kenya. The current 8-4-4 education system emphasizes schooling at the expense of students' learning contributing to low students' performance (Republic of Kenya, 2017). This limits learners' opportunity for progression, prosperity and development as holistic individual.

World Bank (2017) released shocking findings indicating that, about three quarters of students in third grade could not read or understand a sentence stated in English and Kiswahili in Kenya. This is a warning that students learn little every year resulting in the learning deficits that are magnified over the years and the consequence is low human capital. Available reports show that though co-curricular activities are part of the school curriculum, students are not fully engaged to participate and there are shortages of resources. Most

outstanding athletes from Nandi County develop athlete prowess professionally after leaving school.

Weak teacher education (Kafu (2011), poor preparation of students to acquire relevant and multidimensional skills during school years, failure to effectively tap on students' talents and engage students in meaningful learning greatly impact on the students' adulthood life when seeking employment. The skills acquired will not match the range of skills needed in the labour market. This study focused on; the influence of teaching strategies on students' performance in public secondary schools in Nandi County.

1.4 Purpose of the Study

The purpose of the study was to investigate the influence of teaching strategies on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

1.5 Objectives of the Study

The main objectives of the study were;

1. To establish the influence of student centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County
2. To assess the influence of teacher centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County

3. To investigate the influence of assessment strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County
4. To explore the influence of resource-based instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County

1.6 Hypotheses

The following are the hypotheses that guided the study;

H₀₁: There is no relationship between student centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₂: There is no relationship between teacher centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₃: There is no relationship between assessment strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₄: There is no relationship between resource-based instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₅: There is no relationship between teaching strategies and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₆: The relationship between the teaching strategies and students' performance in academic

achievement and co-curricular activities is not dependent on government policy in public secondary schools in Nandi County.

1.7 Assumptions of the Study

The following were the research assumptions; that teaching strategies are multi dimensional and the study sample was representative of the population under study and adequate for analysis and interpretation. It was assume that piloting would enhance the validity and reliability of the research instruments and that the respondents would be 100%. It was further assume that the data collected would be adequate for analysis. In addition, all the respondents would respond to the instruments positively, cooperate with the researcher and give honest responses during the study.

1.8 Limitations of the Study

During the commencement of this study, some of the schools had already started their end of term examinations and hence were not willing to be interrupted with data collection during research.

The study had a limitation in trying to assess the indicator of co-curricular activities in comparison with academic achievement. The usage of training field shows the students frequency of participation in co-curricular activities, acquisition of training equipment, and establishing whether trainers of co-curricular activities are trained. The limitations of the study therefore did not influenced the study outcomes since all issues were addressed as they were encountered.

1.9 Delimitations of the Study

The public secondary schools cooperated and the researcher was able to carry out the study at the beginning of term two, which was well within the planned time schedule. The researcher

carried out the study in public secondary schools in Nandi County. Kenya has two school categories: public and private. The study delimited itself to secondary schools in the public category; national, county and district schools that benefit from government funding (The Laws of Kenya, 2013).

Public secondary schools in Nandi County were chosen because the pupils who graduated from primary schools after Kenya Certificate of Secondary Education perform well yet the outcomes from KCSE from the region has shown mixed results. The reports indicate co curricular activities are not given the attention it deserves to motivate students to engage in. The study targeted public secondary schools Principals, teachers, students, and the County Director of Education for Nandi County as respondents for the study.

Nandi County is located in the North Rift and has five Sub-Counties namely; Nandi North, Nandi South, Nandi Central, Nandi East and Tinderet. The research study was carried out in three sub-counties namely: Nandi North, Nandi East and Nandi Central and accounted for two-thirds of the whole of Nandi County. The two thirds were used because they exhibited the same characteristics as the other two counties. The review of literature was from literature sources available in Kenya and other countries, including the electronic sources.

The variables of the study included; student centered instruction strategy; teacher centered instruction strategy; assessment strategy; resource-based instruction strategy and students' performance. The choice of these variables was due to consideration that teachers are very significant in guiding students towards the desired direction during their learning. The researcher also used national examination (KCSE performance for five year period from 2008-2012 as reference on students' performance) and; observed the availability of class

register for monitoring students' attendance, national examination and progress records for monitoring students' academic performance. The co-curricular activities were measured by establishing the extent of availability of co-curricular facilities and equipment, usage of co-curricular training facilities and adequacy of co-curricular activities trainers.

1.10 Significance of the Study

Secondary education is a preparatory level for development of human capital. The Kenya Basic Education Act No. 14 of 2013 lay emphasis on the importance of providing compulsory and quality education to all learners to meet physical, mental, intellectual and social developmental needs. Education is also a basic human right (The Laws of Kenya, 2013).

Secondly, the results of the study may contribute to research knowledge and would be a source of information to policy makers and researchers in the field education. Producing qualified and equipped learners with necessary skills, knowledge and attitudes remains critical in addressing national and global challenges of unemployment and vulnerabilities. The results in essence, may contribute to the need for teaching students necessary skills of using massive information the world offers and assist them to provide solutions to global challenges for sustainable future and sustainable societies. This study emphasises on the need for improved teaching pedagogies to deliver quality teaching and learning which is necessary in improving students' performance.

Thirdly, this study may be relevant and important to Ministry of Education and the public secondary schools management boards as a basis for mounting professional development courses to improve teacher's teaching pedagogies. By improving their pedagogies, teachers

would enhance accountability to students' performance in public secondary schools in Nandi County and other parts of the country.

Fourthly, teachers may use the results of the findings to critically reflect on their teaching pedagogy, identify areas of weakness and may seek further improvement of their teaching skills through in service training. This may help teachers to effectively plan for classroom instruction and assessments, and strive to close students' achievement gap in public secondary schools in Nandi County.

Finally, through this study, suggestions made on possible strategies that schools could implement to excel by carrying out continuous interventions relating to students' performance in collaboration with relevant education stakeholders. The study may inform on the need for re-thinking on the current teaching approaches used by teachers to enable students acquire twenty first century learning skills. This means that teaching instruction remains a critical area of study to be investigated.

1.11 Theoretical Framework

The study adopted Gagne's theory of instruction, as relevant to the area of study. Robert Gagne (1965), a psychologist theorist, put forward the theory of instruction also known as instructional design theory. The theory of instruction describes the deliberate arrangement of conditions of learning for attainment of specific performance goals or outcomes (Driscoll, 2000). Gagne's theory of instruction stipulates that there are several and different types of learning and each requires different types of instruction. Gagne identified five learning categories that include; verbal information, intellectual skills, cognitive strategies, motor skills and attitudes. He later added enterprise as the sixth domain of learning and posited that

in each category or type of learning, different internal and external conditions are necessary or required (Cannedy, 2009; TIP: Thories, 2008).

Gagne exemplifies intellectual skills by noting that learning tasks can be hierarchically arranged according to complexity that is involved; stimulus recognition, response generation, procedure following, use of terminology, discrimination, concept formation, rule application and problem solving. The hierarchy assists in identifying prerequisites for facilitating learning at each level; and learning offers basis for sequencing instruction (TIP: Thories, 2008).

Driscoll (2000) explained that instructional theory offers guidance on the way to facilitate people to learn and develop. Cullata (2015), Lawrick and Novak (2009), Driscoll (2000) and (Cannedy, 2009), outline Gagne, nine instructional events with correspondingly nine cognitive processes. These include; gain attention, inform the learners of objectives, stimulate recall of prior learning, present content, provide “learning guidance”, elicit performance (practice), provide feedback, assess performance and enhance retention and transfer to the job.

The nine corresponding internal mental processes include; stimuli activates receptors, creates level of expectation of learning, retrieval and activation of short term memory, selective perception of content, semantic encoding for storage long-term memory, responds to questions to enhance encoding and verification, reinforcement and assessment to correct performance, retrieval and reinforcement of content as final evaluation and retrieval and generalization of learned skills to new situation (Cullata, 2015; Lawrick and Novak, 2009).

Gagne theory is applicable to teaching in public secondary schools. Teachers are able to choose the teaching approaches, taking into consideration the learning contexts, selecting appropriate materials and activities for students to achieve desired learning outcomes. Teachers should be able to design the instruction to include the instruction methods based on the learners' needs.

1.12 Conceptual Framework

According to Kombo and Tromp (2011), conceptual framework shows the possible connections or relationships between variables and the research questions. In addition, Mugenda (2008) explained that conceptual framework is the concise description of phenomena under study, which, is accompanied by either visual depiction, or graphic presentation of the major variables under study. Figure 1.1, is a conceptual framework showing the relationship between teachers' strategies and student's performance.

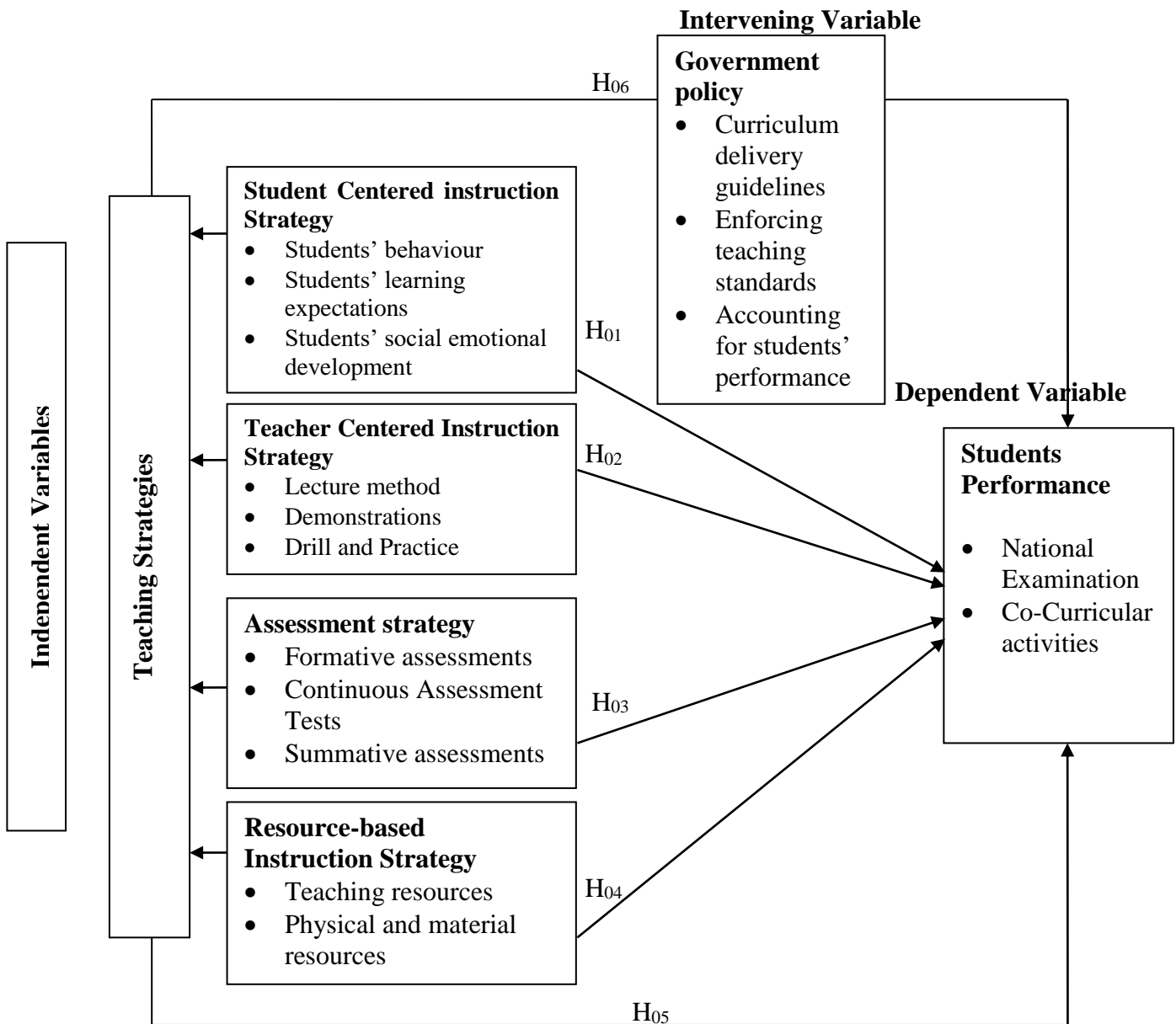


Figure 1.1: Conceptual Framework for the Study

Figure 1.1 shows how different independent and dependent variables interact to contribute to students' performance. As conceptualised in the study there are variety of teaching strategies, which influences performance of students in public secondary schools. The outcome is

acquisition of intellectual skills and knowledge, psychomotor skills and affective skills. This is realised through emphasis of academic achievement and co-curricular activities.

The students' performance is considered as the dependent variable, which is explained through the interplay of the independent variables such as; student centered instruction strategy, teacher centered instruction strategy, assessment strategy, and resource-based instruction strategy. These independent variables directly influence the dependent variable and interact with the intervening variables. The conceptual framework shows that the students' performance depends on the teaching strategies.

The choice of instructional design is dependent on teacher's decision based on students learning contexts. Literature has shown that student centered instruction encourages learners to reflect on what they do and have autonomy in learning and that effective classroom management can be achieved. Programmes for self regulating behaviour of the students can be undertaken (Garrett, 2008) and formed hypothesis 1. Scott (2015) highlighted teacher centered instruction strategy as highly ineffective for teaching necessary competences and skills in the twenty first century and formed hypothesis 2.

Assessment as learning has been highlighted in literature review as part of instruction that is valuable to students learning (Spiller, 2009). There is more emphasis in review of literature showing that improving students' assessment assists in augmenting effectiveness of teaching and learning and formed hypothesis 3. Through literature review, Campbell, Flageolle, Griffith and Wojcik (2014) have argued that resource based learning is an instruction that opens up teaching to the use of blended and flexible learning. The learners use multiple resources with a range of choice options. Educators roles are well defined where teachers act

as coaches or facilitators while media personnel must be technologically skilled to be able to select appropriate resources for learning and this formed hypothesis 4. The joined influence of variables 1 to 4 when combined become the teaching strategies influencing students' performance and formed hypothesis 5.

Government policy was conceptualized as the intervening variable that mediates between the independent variable and dependent variable. The government policy encompasses Basic Education Act, 2013, an education law, that guide all the development in education at all levels. It provides for the role of Board of Management (BOM) and Principals. Stephens, Warren and Harner (2015) indicate some of the aspects of government policy as implementation of expected education policy guidelines and aligning to the education standards to enhance accountability for students' performance by teachers. The intervening variable was considered paramount in understanding the interaction of these factors that affect students' performance that always need to be taken into consideration during teaching and learning process and formed hypothesis 6.

1.13 Operational Definition of Key Terms

Academic Achievement is the level of attainment by the student measured in terms of a pre-determined criteria or a set standard.

Assessment strategy refers to collection and use of information for decision making on students performance representing performance in relation to stated outcome from affective, cognitive and psychomotor domains.

Basic Education refers to education aimed at meeting the basic learning needs of students and provides the basis for further learning. According to Basic Education Act 2013, this consists of; early childhood development and education, primary and secondary education.

Co-curricular activities are activities offered to students beyond the classroom instruction within the school formal curriculum or beyond the classroom. In the thesis report, co-curricular and extra-curriculum activities are used inter-changeably.

Classroom management refers to maintenance of appropriate behaviour expected of students for optimum and effective teaching and learning to take place in the classroom.

Conducive learning environment refers to context and physical setting that promotes teaching and learning to takes place.

Disruptive behaviour refers to unfavourable student behaviour that disturbs smooth undertaking of teaching and learning activities.

H₀ refers to null hypothesis, which a researcher wishes to disprove

H₁ refers to alternative hypothesis, which the researcher wishes to prove

Information and Communication Technology is a tool and method used to gather, store, process and disseminate information to the learners. It is also used as a tool to facilitate teaching and learning.

Influence- is anything that exerts or brings change.

Instructional materials are tools and materials needed for effective teaching and learning to take place in school.

Intervening variable refers to a variable that explains the relation or causal link between other variables. Also referred to as mediating variables or intermediary variable that lies in-between independent causal factors and the dependent variable or outcome.

Performance refers to accomplishment in both academic achievement and co-curricular activities. The indicators are academic achievement and co-curricular activities.

Resource-based Instruction is also known as resource-based learning and refers to teaching and learning in which students develop knowledge, skills and understanding by means of a broad variety of human, print and non print resources based on their learning preferences and abilities.

Strategy a long term plan showing the school purpose, strategic priorities, vision, mission, objectives, relationship between the internal and external environment, linkages with the stakeholders including human and financial resource deployments.

Student Centered Instruction Strategy in the context of the study encompass teachers' classroom based practices such as encouraging active involvement and autonomy in student's learning, teachers facilitating learning and teaching, participatory classroom environment, managing of student behaviours, working with learners in setting clear learning expectations and enhancing their social and emotional learning.

Students' Performance encompasses students' performance in academic achievement and co-curricular activities.

Teacher Centered Instruction is where the teacher exerts control over teaching and learning and students remain as listeners and receivers of knowledge and information.

Teacher Strategy implies the plan adopted by teachers to improve instructional practises both within and outside the classroom to realise improved students' performance.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

In this chapter, literature related to teaching strategies and student performance is reviewed according to the objectives of the study. The following subsections are included; the concept of teaching strategy and students' performance, student centered instruction strategy and students' performance; teacher centered instruction strategy and students' performance; assessment strategy and students' performance; resource-based instruction strategy and students' performance; and government policy, teaching strategies and students' performance and the summary of the literature review and gap identification.

2.2 The Concept of Teaching Strategy and Students Performance

Nickols (2016) explained that the term strategy is a military word that originated from Greek word, "*Stratego*" and has been applied and adapted in business. He noted that a strategy is about achieving a purpose, putting in place strategies for realising them, having ways of deploying resources and ensuring availability of resources as a means of executing the strategy.

The research studies that have concentrated on the use of strategies in education to improve students' performance include a study by Oluseyi (2014), whose purpose was to examine students, peers and teacher's strategies as a measure of effective classroom assessment and the value of triangulation. Amos, Folasayo, and Oluwatoyin (2015) investigated the instructional strategies for promoting effective teaching in Nigeria Secondary schools.

The importance of students learning and the outcome of their performance continue to be of global concern. Partnership for 21st Century Skills (2008) has emphasized the importance of improved teaching by incorporating the 21st century skills that include; critical thinking skills, problem solving, language proficiency, communication and collaborative skills, cognitive skills, adaptability skills and ability to make judgement (Partnership for 21st Century, 2008). Teaching is successful where there is teacher to student interaction, including availability of material inputs and motivation (Amos et al, 2015). McTighe and Wiggins (2012) argues that teachers are like coaches to students, who ensure that what is taught is assume to have been learned and understood.

Students' performance can be measured using results from examinations, participation in co-curricular activities and observing behaviour performance. Sievertsen, Gino and Piovesan (2015) posited that students' performance is measured using the grades obtained after students have sat for examinations. Co-curricular activities serve the same goals and functions like the core-curriculum and contribute to students' performance. Lunenburg (2010) alluded that co-curricular activities expose learners to many learning opportunities and thereby enhancing their performance.

Ghazanfar (2015) and Kelepolo (2011) explains that co-curricular activities benefits the students by; broadening their learning experiences; enriching their emotional intellectual domains; developing social and aesthetic development; developing confidence essential for academic success; reducing the delinquent behaviour such as drug and substance abuse and school dropouts. In addition, co-curricular activities contribute to development of leadership skills, self-esteem, muscle development and physical health.

Co-curricular activities, non-class activities and extracurricular activities are used interchangeably to refer to all the experiences that include athletics, music, drama, students council, debate, students publications, contests and a variety of social events (Annu and Sunita, 2015). Example of co-curricular activities include the following; physical activities, social activities, literary activities, artistic activities, cultural activities, academic activities focusing on debates, symposiums, art clubs, excursions, seminars and literary clubs and other activities not limited to educational tours and excursions, leisure and citizen training activities (Madalli, 2014).

The study by OECD (2009) looked at the factors affecting students' performance in several or single subjects. The results of the findings show that student performance in secondary schools remains a critical area of interest to education stakeholders. Teachers remain key in fostering learning expectations and success in secondary schools among the students (OECD, 2011; Ko, Sammons and Bakkum, 2013). Ko et al (2013) noted in their value added studies on school and teacher effects on students' outcomes that, school contributes about 5-15 percent while teachers contribute to 20-40 percent of the variation in student performance in a given academic year.

The Kenya education and statistic report shows that, about 99 percent of the teachers in secondary schools are trained; some have university degrees while others have diploma in secondary education. Teachers Service Commission Act, 2012 states that a person who is qualified as a teacher should be registered and has attained accreditation (The Laws of Kenya, 2012). The government policy documents show that for a person to teach in a secondary school, he/she should have attained a minimum qualification of a grade C+.

Presently, teachers are encouraged to pursue higher education to improve their training qualifications (Republic of Kenya, 2011).

Akinsolu (2010) showed that students' output in secondary schools was poor. Akinsolu findings questioned the contribution of teachers and their competences in influencing students' performance in school. Uwezo East Africa (2012), report shows that teachers in East Africa are poorly trained, few and under motivated. Kenya, being part of East Africa means that teachers lack necessary competences to prepare students in primary schools and consequently secondary schools, to acquire the necessary knowledge, skills and competences.

Yara and Otieno (2010) pointed out that secondary school teacher in Kenya experiences teaching challenges arising from the training process and which impact negatively on their competences in curriculum delivery. This contributed in candidates' poor performance in public examinations and persistent shortage of teachers occasioned by the teachers leaving the service (Kafu, 2011).

The Kenya Economic Survey shows the gross enrolment rates increased from 45.3 percent in 2009 to 47.8 percent in 2010. The total secondary school enrolment increased from 1.51 million in 2009 to 1.7 million in 2010. The student-teacher ratio in public secondary schools stood at 32:1 in 2010. Out of 356,015 candidates who sat for KCSE in 2010, 97,134 candidates attained C plus (C+) (Republic of Kenya, 2011). This represented 27 percent of total candidature for 2010 (Republic of Kenya, 2012). The results from KCSE examinations are not in tandem with increasing number of students transiting from primary schools (KNEC, 2013).

Over the years (2011 and 2012), the performance of students in KCSE in terms of quality grade (A) has consistently become poor. The overall grade summary for 2012 shows 1,975 (0.45%) of the candidates scored grade As an improvement of (2.27 %) from 1930 As in 2011 (KNEC, 2013). This represents one-third of the total students' candidature who sat for KCSE in 2012. The Kenya government emphasizes the achievement of quality grades to develop quality human capital that will ensure the achievement of Vision 2030 aspirations (Republic of Kenya, 2011).

Physical education is an integral part of education process, however the time allocated to the lessons for physical activities is minimal; and in most cases, teachers use the lesson to teach other subjects such as English, Kiswahili or Mathematics. From the available statistics, most of the institutions do not have budget for modern physical education facilities (Republic of Kenya, 2012). It is expected that the activities offered under physical education will sharpen student intellect, problem solving, improve students social interaction and academic achievement.

The twenty first century researchers have emphasised the rethinking of the pedagogies in teaching to address global challenges in the world. Scott (2015) emphasise that the pedagogies should address the global challenges of the twenty first century and engage learners meaningfully through inquiry-based learning. This learning approach would promote deep learning skills such as; collaborative, informal and personalised learning strategies. UNESCO (2012) explained that when variety of teaching techniques are employed, teachers are able to guide students to learn, get chances of growing and increasing their capacities as learners while addressing diverse needs of the students.

The current study finds the above literature relating to teaching strategy and students' performance as essential and lays the foundation of the study by providing insights on teaching strategy and students' performance. From the review of the literature, the following teaching strategies influences students' performance; teacher and student centered instruction strategy, assessment strategy and resource-based instruction strategy.

2.3 Student Centered Instruction Strategy and Students' Performance

The study considered the use of student centered instruction in terms of effective classroom management with indicators being students' behaviour, setting students' learning expectations and social emotional development. Student centered instruction is a method of teaching where students are at the center of learning while a teacher remain as facilitator. The instructional process engages students in active learning and more attention is given to students meta cognitive strategies. Student centered instructional strategies are preferred as it improves students knowledge construction, conceptual understanding, and attitudes towards learning (Kober, 2015).

The quality of instructional strategies influence students learning and contributes to about 15 to 20 times improvement in students' performance (Wong and Wong, 2011). Walters, Smith, Leinwand, Surr, Stein and Bailey (2014) have reiterated the shift in teaching instruction from teacher centered teaching to student centered instruction. They argued that student centered instruction promote students understanding, deep learning, problem solving, critical thinking and communication. They noted that the instruction consists of complementary approaches to teaching and learning from multiple theories, disciplines and trends in education.

Teachers can use student centered instruction to guide and regulate students' behaviour in the classroom. Tiwari and Panwar (2014) in their study opined that; teachers encounter students with behavioural problems in their real classrooms in secondary school causing the classroom problems. Colombi and Osher (2015) further explain that students discipline affect classroom and performance of students through truancy, defiance, disruption, cheating, bullying, harassment, substance abuse and violence.

Al-Amarat (2011) observed that student behavior and academic problems result in disciplinary problems for the students, minimal learning and low student achievement. In addition, Bear (2010) contend that the challenges of indiscipline in schools arise out of failure by schools to focus on school safety and preventing any occurrences of school misbehaviour. Freire and Amado (2009) argues that the existing link between disciplinary problems and school ethos arises from complex inter-personal relationships in schools, which translates into attitudes, behaviours, values and practices that distinguish a school from other schools.

The students' ability to behave well influences their growth and positive development in school. Effective student centered teaching promotes effective classroom management which impart in students a sense of responsibility, self-control and realization of optimal learning. From the students' point of view, effective classroom management accounts for 32 percent of teacher effectiveness (Stoop, 2011; Owoyemi and Adesoji, 2012).

Student centered instruction in the classroom is imperative in controlling behavior and realizing students' performance. Wilkinson and Meiers (2007) argued that there is no single solution to managing students' behaviour in the classrooms. However, schools with programmes on behaviour management are able to create an environment to undertake

different classroom tasks. Wright (2012) recommended screening of students with social problems and providing intervention measures to address the identified academic and behavioural problems.

In addition, teachers with the help of their schools and student involvement can establish rules and regulation to guide student behavior in and out of the classroom. Stanley (2014) suggested that school rules and regulations prescribe the standard of behaviour expected for students and teachers. Similarly, Kratochwill, DeRoos, and Blair (2015) documented that effectiveness of classroom management system is realized by adhering to three principles; emphasis on student expectation for behaviour and learning, emphasis on promoting active learning and student involvement and identification of important student's behaviours.

In student centered teaching, teachers actively involve students in setting learning expectations including learning objectives. Walters et al (2014) carried out in-depth case study using qualitative research to look at student centered mathematics teaching. They noted that using student centered instruction in teaching mathematics, transforms mathematics classrooms into lively and engaging learning environments where students take control of their own learning while making meaningful connections to the world in which they live.

The effectiveness of student centered teaching and the need for learning expectations for improving students' performance has been documented. Anthony and Walshaw (2009) outline ten principles of effective teaching of mathematics that entails; ethic of care, arranging for learning, building on students' learning, mathematical communication and language, assessment for learning, practical tasks, making connections, tools and representations; and teacher knowledge and learning.

Wong (2007), analysed and ranked in order, of the 28 factors meant to establish those that impacted on student learning, classroom management was key. Garrett (2008) carried out a case study to establish the classroom management practices and beliefs of three teachers reported to implement student centered instruction and examine the relationship between instructional and management approaches. The teachers concluded that classroom management approaches were essential in implementing a planned lesson. This entails creating learning environment and using techniques that brings students' behaviour under control.

Sanchez (2010) explained that it is essential to have clear classroom rules and expectations that promote engaging, safe, enriching and affirming environment that promotes inclusive and participatory learning. Such an environment allows students to interact, collaborate, negotiate and communicate with their peers. In addition, teachers are able to use pedagogies that optimally promotes student learning. According to Stephens et al (2015) where teachers collaboratively work with students to solve mathematical problems, students' performance improved.

School Improvement Network (2014) emphasises the importance of learning expectations by stating five components in the learning environment that enables students to succeed; setting a vision and high expectations, establishing clear procedures, offering support and cultivating relationships, providing relevant engaging instruction and defining appropriate interventions and strategies. A friendly learning environment should is characterised dimensions of effectiveness such as; inclusiveness, healthiness, protectiveness and safety (Ministry of Education, Science and Technology, 2015).

Renaud, Tannenbaum, and Stantial (2007) discusses that the main challenges of managing class sizes and gave suggestions for maintaining discipline. The suggestions include; planning variety of learning activities with different learning styles and interests; establishing class routines; managing time well; creating a seating chart; assigning responsibility to students; teaching students to listen to others in a group work. The challenge of correcting large amount of work can be addressed by encouraging students work in groups.

Cook-Harvey (2014) carried a study to establish the impact of student practices in the classrooms and schools and emphasise involving students in developing learning expectations in the classroom. The classroom environment has to be safe, productive and students ready to gain knowledge; and there should be explicit communication between teachers and students. In addition, students should have the freedom to initiate the establishment of clubs, based on their interests and manage them with assistance from teachers. Similarly, Lawhorn (2008) noted the benefits of extracurricular activities as contributing to the improvement of academic performance, increased employment opportunities, skills development and social development.

Silver and Perini (2010) argued that teachers who use variety of teaching techniques have well behaved and motivated students, enabling high students' performance. Accordingly, the high impact strategies of student engagement are four human drives with 8Cs of engagement stated as; mastery style which emphasises competition and challenge; understanding style, which emphasises curiosity and controversy; interpersonal style, which emphasises cooperation and connections, and; self-expressive style that emphasises choice and creativity.

The students socio-emotional development on learning is important aspect of student centered teaching in the classroom management. Uhlig (2016) posited that the modern classrooms are increasingly becoming multicultural and multilingual. It is the responsibility of the school and teachers to support students social emotional learning through programmes that are; sequenced, active, focused and explicit. Durlak, Weisburg, Dymnicki, Taylor and Schellinger (2011) discussed the findings of meta-analyses of 213 school based universal SEL programs involving 270,034 kindergarden and high school students. The findings were compared to controls, and the results revealed that social emotional learning participants demonstrated improved social and emotional skills, academic performance, behaviour and attitude.

Similarly, CASEL 2013 reports evidence from research (Durlak et al, 2011) which, demonstrated that successful social and emotional learning improves student's attitudes towards school, positive classroom behaviour, academic achievement and reduction of aggression, conduct problems, mental health problems and substance abuse. Social emotional learning can augment student's connection to school, academic achievement and positive behaviour.

Similarly, Seal, Naumann, Scott and Royce-Davis (2010), posited that students are not adequately equipped with social and emotional competence to take advantage of academic knowledge. They proposed a social emotional development model that emphasises four ways of increasing social emotional learning as; increasing self-awareness, having consideration for others, connecting to others and influencing change among people. Ee and Cheng (2013) argued that teachers' role is to enhance learners' social and emotional development through

pedagogical delivery to improve students' attitudes, increase attendance rates, morale, reduce students' violence, substance abuse and cases of indiscipline.

This current study finds the above literature review relating to student-centered instruction strategy provides evidence that to realise effective instruction, there has to be effective classroom management. Classroom management influences students' performance through improvement of student behaviour, setting learning expectations and social emotional learning. The literature was obtained from review of research studies and literature, case studies, quantitative and qualitative research, and experimental and mixed method research. In other studies, there was comparative analysis of student centered and teacher centered instruction.

2.4 Teacher Centered Instruction Strategy and Students' Performance

Students at times encounter difficulties in knowledge and skill acquisition on given subjects, resulting to learning challenges. However, well-design instruction may assist overcome learning difficulties, by activating ways of undertaking teaching and replacing previous knowledge with new information (Kober, 2015).The study considered teacher centered instruction in terms of delivery of teaching to students using, lectures, demonstration and drill and practice.

Instruction endeavours to assist students to learn and achieve high performance. Marzano and Toth (2014) reports on research literature synthesis of teacher centered instruction. The review indicated that in teacher centered instruction, teacher dominates teaching and seem to focus on own learning than the student does. Additionally, the report show that classroom observation findings from Learning Science Research that; 58 percent of lessons observed

concentrated on helping students interact with the content; 36 percent on helping students practice and deepen new knowledge; and less than 6 percent of the lessons observed were dedicated to the highest level of cognitive complex tasks. This means that learners acquire more when the lesson uses practical learning activities.

Garrett (2008) explained that teacher centered instruction involves teacher-exerting control through identification of well-designed routines, rules and regulations to be followed and punishments. The lecture method is used and classroom design involves desks arranged and design to face the teacher as the focal point. This ensures students are passive receivers of knowledge who must comply with rigid rules in the classroom. The findings is echoed by the Center for Public Education (2013), that noted from the findings of a large-scale study on English classes, that teaching instruction used by teachers among grade 8th and 9th, was lecture method which promoted memorization of facts.

Jabbour (2013) discusses issues that restraints teachers from embracing student-centered teaching in Lebanese classroom. Teacher-centered teaching, especially lecture as method of instruction dominates. The teacher is respected as holder of information and learners as receiver of information and are not provided opportunity to develop own knowledge. Teacher centered teaching limits inclusion and interaction.

Researchers have discussed the importance of teacher centered instruction to students learning. Navaz (2013) and Sessoms (2008) studied the use of lecture methods in teaching and noted that use of lectures influenced classroom students' interaction and comprehension. Scott (2015) argues that though still strongly used a teaching strategy, lecture model is highly

ineffective for teaching skills and competences in the twenty first century and hence need for a transformed pedagogy.

Ngaroga (2011) explains the appropriateness of lecture method as one of the teacher centered instruction. Lecture method is used in teaching to stir enthusiasm on a specified subject to the learners, inform learners of the expected outcomes, synthesize learning, reinforce written work and deliver information within a shorter time. In addition, the use of lecture method in teaching may be inappropriate when the material to be learned is complex coupled with low intelligence, educational experience and concentration of the learner.

Panthi and Belbase (2017) discuss the teaching and learning issues in Nepal context. Apart from social justice, gender, economic, language, and technological issues; pedagogical issues where among key issues affecting teaching and learning of mathematics. Langer (2007) presented a five-year study report on the characteristics of the education practice among the students in Middle and High School. The findings revealed that more time for independent reading, small group instruction, and high levels of engagement in higher-level literacy tasks, use of scaffolding to link instruction to real reading, and strong links between school and home are needed to enhance increased reading at the classroom level.

Similarly, the study considered the demonstration method as part of teacher centered teaching. Farooq (2013) and Ngaroga (2011) explained that demonstration method is one of the traditional classroom strategy that is aimed at achieving cognitive and psychomotor objectives. The teacher remains the central person who gives several demonstrations of a complete operation and uses explanations that must be applied correctly. The students initiate the performance of the learned skill. The method is appropriate in nearly all subjects

including; physical education, science, art and craft, home science, agriculture, mathematics and computer classes.

Drill and practice as part of teacher centered instruction involves systematic repetition of examples, concepts and practice problems. Leone, Wilson and Mulcahy (2010) discusses on use of drill and practice in teaching mathematics. They noted that though drill and practice is use as part of explicit instruction, it does not engage the students fully. Emphasis should be that of reviewing the previous learned knowledge, reteaching and reinforcing the new knowledge, concept or skill; and teaching of numeracy and mathematical concepts based the grade.

Lehtinen, Hannula-Sormunen, McMullen, and Gruber (2017) explained the importance of deliberate practice in development of high-level performance that improves ones level of competence. Accordingly, practice lays emphasis on thinking, problem solving and reflection and in mathematics; learning requires practice that enhances solving of simpler arithmetic. In addition, drill-and-practice enables learners to automatize basic skills leading to inert routine skills. They recommended moving away from drill and practice to deliberate practice that enable learners undertake complex tasks.

Silverman and Mercier (2015) discussed the implications of teaching physical literacy and documented that the choice of instructional design on students learning depends on the decision by the teacher. Motor skill training enables an individual to enjoy lifelong physical activity and depends on the time, type of practice to be undertaken, organizational and content strategies and student skill level. Appropriate practice is imperative in motor skill training while negative achievement may result from inappropriate practice.

The literature provided insights into contribution of teacher centered instruction in improving students' performance. The review of research literature indicated that lecture method is not a popular method of instruction. However, it is clear that it is still an applicable instructional method in a number of, academic subjects and in co-curricular activities. The research evidence further shows that lecture method can be supported by other methods as demonstration and drill and practice. Lecture method therefore is effective when targeted skills is being practised such as language proficiency and explanation of process and procedure in performing a practical lesson.

2.5 Assessment Strategy and Students' Performance

The study investigated the extent in which assessment strategies influences students' performance. Assessment is a vital component for gauging the learners' progress. Assessment is undertaken as part of teaching to assess the extent to which learning has taken place and whether learning objectives have been achieved. The study considered formative, continuous and summative assessments as aspects of the study. According to education research report in Kenya, there has been a major concern on the assessment of student learning in secondary schools (Republic of Kenya, 2012).

Regier (2012) looked at types of assessments and suggested how teachers can use to improve learners' performance. Examples of assessments include; peer assessment, problem solving and formative assessment. Formative assessment entail teachers using assessment strategies that enable them determine students understanding and mastery of a set learning goal. In addition, formative assessments assist the learner to improve on subject mastery and are

linked to practical experience. Formative assessments are administered through project work, continuous assessment and end of term examinations.

The available reports in Kenya shows that, curriculum implementation and assessment have been tilted towards the memorization of knowledge and facts; and what learners have acquired over a period is assessed within one sitting (Republic of Kenya, 2015). Currently, student's assessment is limited to summative evaluation referred to as assessment of learning, while majority of teachers do not take the use of formative assessment seriously and hardly uses them. However, assessment provides evidence by which policymakers, the public administrators, educators and parents at national and local levels, can gauge how well students are progressing in view of the expected achievement level in performance (Republic of Kenya, 2017).

UNESCO (2004) noted that barriers to successful students' assessment happen outside and within the school that necessitate continuous assessment of the students. It is imperative to understand what each student already know, can do, what each student needs to know and do. According to teachers, assessments in students learning guides decision making on what and how to teach; assist in differentiating instruction for diverse students in class; and using assessment strategies that takes into consideration prior knowledge and experiences of students and students preferred learning styles.

Research evidence points to the use of formative and summative practices to improve students' performance. Gholami and Morady (2013) carried out a study that investigated the effect of weekly quizzes on Iranian high school students' performance on final achievement tests. They noted that achievement tests arouse practice and review, and provide opportunities

for feedback. Jabbarifar (2009) undertook research literature synthesis and noted that assessment is an ongoing process involving developing, administering and analyzing the questions, providing feedback on the effectiveness of instruction and giving a measure on the learner's progress in learning.

According to report from Ministry of Education (Republic of Kenya, 2015), the concern of educators is that, most learners who have transited through the education system, especially in Kenya Certificate of Secondary Education are not graded using results from formative assessment to determine the learners' future success or failure. This further shows that a record of the learners' abilities cannot be made.

Rieg (2007) carried out a quantitative study investigating the perceptions of Junior High School teachers, and students at risk of school failure. He discusses on the effectiveness and level of use of various classroom assessments and assessment-related strategies. The findings showed statistically significant differences existed between assessments and strategies teachers and students perceived to be effective and what is being used in the classrooms.

Kelepolo (2011) undertook a research study to establish the relationship between participation in extracurricular activities and the study results revealed that students who participated in extracurricular activities scored highly in attendance, grade point average compared to students who did not participate in extracurricular activities. Similarly, Leung, Ng, and Chan (2011) explained that students participation in co-curricular activities could enhanced students learning effectiveness and have positive effect on students' academic performance.

In addition, Ajoke, Aspalila, Aspalila, and Hasan (2015) investigated the impact of co-curricular activities on enhancing speaking of fluent English by secondary school students. They argued that students learning English as the second language in Nigeria, lack access to interrelate with native English speakers. The findings revealed that co-curricular activities enabled students to participate actively in debating, press updates, social gathering, and games and learn English as a Second Language in the process and resulted in improved academic performance.

William (2011) contend that assessment is central to effective instruction and serves to show whether particular sequence of instructional activities have resulted in the intended learning outcomes. Accordingly, instruction used has to be adaptive to the learners needs and effective to the majority of the students. Similarly, Garrison and Ehringhaus (2013) discusses that formative assessment provides information about the learning process, enables the identification of strengths and weaknesses of students and planning of subsequent lessons and remedial action. Similarly, UNESCO-IBE (2014) reiterated the importance of continuous assessment tests, as diagnostic and undertaken to provide learners opportunities to connect learning to their real world context.

Ojeka, Ajara and Ataseriba (2015), Ndalichako (2015) and Mikre (2010) discusses on the role of teachers' in assessment of their students' achievement. They noted that assessment is an indispensable part of curriculum practice that shapes learning process and affect quality of learning. In addition, Cid (2014) noted that assessment and learning are interrelated, that assessment helps teachers in changing their teaching strategies and students to improve on their learning, control their behaviour, determine what and how to learn.

Naiku (2015) discussed the importance of summative assessment in measuring student's achievement at the end of the pre determined instructional period. Summative assessment entails evaluating student's learning, academic achievement and skill acquisition. He further explained that summative assessments serve two key roles; serves as a guide to improving teaching methods; and helps teachers in curriculum planning, improvement and change.

Research has shown that students possess multiple intelligence that require learning strategies that take note of students differences to foster effective learning to take place. Lunenburg and Lunenburg (2014) have emphasized the importance of improving students' assessments to augment effective teaching and learning and to improve students' performance. The article by Flanagan, Mascolo, and Hardy (2009) on the advantages of using standardized testing, show that any form of testing used in a school should provide information about the student or groups of students. Assessments method should facilitate the achievement of the teaching and learning objectives (Republic of Kenya, 2012).

Dwyer and William (2015) documented the strategies for assessing students learning to include; making learning expectations clear, using various techniques to engage students, providing feedback, indicating areas of students learning that needs improvement, promoting students understanding of concepts and encouraging students to act as instructional and learning resources.

As part of the education reforms, assessment has been reformed into competency-based assessment. The proposed Basic Education Curriculum Framework of 2017 envisages adoption of formative assessment practices that promotes diagnostic assessment approaches. The competency-based assessment will be guided by the principles of validity, reliability,

fairness, flexibility and access. It is further visualize that learning will be improved through new assessment technique by collecting evidence and making judgement hence enhancing students' performance (Republic of Kenya, 2017).

In summary, it is clear from the review of literature that assessment in any given form, remains important to students learning and integral part of curriculum and instruction. The review of literature confirms that teaching influences students' performance in academic achievement and co-curricular activities. Accordingly, the literature highlighted the need for teachers to apply multiple intelligence in addressing students learning needs.

2.6 Resource-based Instruction Strategy and Students Performance

Resource-based learning is critical if teachers have to improve students' learning based on their needs. Resource-based instruction entails wide range of means by which students are able to learn independently from those that are mediated by teachers. UNESCO (2004) documented that teachers often lack teaching materials needed for preparing and delivery of quality lessons. The resource-based instruction strategy considered teaching resources, physical and material resources and technology resources as sub variables of the study.

Resource-based instruction is also known as resource-based learning. Campbell et al (2014) explains resource-based learning as a teaching instruction involving use of multiple resources available in print, non-print form including the key educators that include the teachers and media personnel. Resource based-learning has gained momentum in students' learning due to the emergence of flexible and blended learning. The instruction method provides options of choosing resources that include; the internet, books, newspapers, games, guest speakers,

museums, music and video charts. The multitude of resources is aim at enabling students to gain access to information, create knowledge, and increase the understanding of the skill.

Benjamin and Orodho (2014) in a research study investigated the relationship between availability of teaching and learning resources and effective classroom management and content delivery in secondary schools. The results revealed a significant ($r=0.711<.001$) at $\alpha=0.5$ and positive correlation between teaching and learning resources and level of content delivery and classroom management.

Poor deployment of teachers, attendance and chronic shortage of teachers in important subject areas hampers effectiveness of instruction (DFID, 2010). Kenya continues to experience teacher shortages in public secondary schools impeding teaching effectiveness. Although contract teachers are often recruited, the national budget has been constraint as huge resources for development are diverted for this course (Republic of Kenya, 2011).

Lazaro and Anney (2016) carried out study employing quantitative and qualitative techniques on the role of co-curricular activities in developing students' talents in secondary schools. The findings revealed that inadequate facilities including teaching resources, lack of adequate supervision and formal training for teachers contributed to limited students participation in co-curricular activities. In addition, Omae, Onderi and Omwebi (2017) in quantitative and qualitative study established that shortage of co-curricular activities facilities and inadequate supervision of teacher resources affected provision of quality education.

Renaud et al (2007) explains that in many developing countries, there are limited resources such as textbooks that hinder students' performance. The resources at the disposal of the

teacher are the chalk, few textbooks, pen, pencil and the chalkboard. Andambi and Kariuki (2013) examine the type of learning resources used, selection criteria and its relevance in teaching social education and ethics, and concluded that teachers should select relevant learning resources and effectively use to provide effective teaching.

Timilehin and Ogbomida (2012) investigated the relationship between human and material resources on academic performance of private and public secondary school students. The results showed that human and material resources are not significantly related to students academic performance. In addition, Ekpo and Igiri (2015) investigated the impact of instructional materials on teaching and learning Biology by senior secondary II school students, in five comparable secondary schools. The findings revealed that Biology students taught with instructional materials during the lesson by highly qualified Biology teachers result in positive achievement and that teaching aids promotes communication and effective learning, better retention and learning that is more permanent.

Olayinka (2016) undertook a study targeting 180 junior secondary school students to explain the contribution of instructional materials to academic achievement. The teachers examined those students taught with the instructional materials in social studies lesson and those who did not. The results revealed that students taught with instructional materials in social studies achieved better results.

OECD (2009) has shown through its programme on education; Programme for International Student Assessment (PISA) that learning resources are significant to student learning. It documented that shortage of resources hinders students' performance and contribute to inequality in students' attainment (OECD, 2009/2011). Similarly, Koroye (2016) study

findings revealed that school infrastructural facilities, instructional materials and school equipment, influences students' academic performance.

Baker (2012) examine the use of monetary resources in schools and districts and discussed that money resources clearly have greater ability to provide higher quality, broader, and deeper educational opportunities to students. In Kenya, in majority of public secondary schools, there is shortage of material and physical resources and yet it is critical for students learning (Republic of Kenya, 2012). Similarly, Yara and Otieno (2010) argue that inadequate teaching and learning resources is among the contributory factors to poor students' performance in Kenya.

Availability of learning resources can motivate teachers to increase their support and commitment to students' learning. World Bank (2008) investigated provision of physical and material resources in secondary schools in Sub Saharan African countries, including Kenya. The findings revealed that 40% of students with textbooks in mathematics, English and Kiswahili were in urban areas while 5% of students without books were located in rural areas. Providing learning resources to students, such as textbooks improves reading and comprehension, access to information, access to books in several subjects, and carrying out of research. Timilehin (2010) in the education study found that physical resources contribute to improvement of students' achievement in affective and psychomotor domains of learning.

Evidence from research further shows the use of technology resources in resource-based instruction promote student learning in secondary schools. Kong, Miao and Lee (2009) argued that teachers require technology resources to work with colleagues in a technologically supported instructional environment. The technology infrastructure aids in

enabling teachers and students to use computers and internet for learning. Kwek (2011) explained the impact of digital technologies on students' learning. It means that teachers will have to conform to new learning styles and engage students to learning and classroom instruction that works. The strategies that will enable the use of technology resources is listed as; collaborative problem solving, investigative learning, sharing, evaluating, collaborating with peers and engaging students in divergent thinking that encourages varied and multiple ways of solving problems.

In the globalised, technology driven world, teachers are also encouraged to use computer-mediated instruction to improve students' performance. Dede (2007) and Sessoms (2008) explained that Information and Communication Technologies (ICT) has immense advantages that should be used to transform education. The use of projection systems and internet connectivity enables teachers to facilitate teaching and learning as well. The ICT benefits include; use of interactive boards enhances effectiveness of traditional teaching approaches; creates richer learning environments and assists in acquisition of mathematics and science skills, presentation of the content, engagement of the learners, modelling skills, solving complex problems and assessing students' progress.

In an investigation on the appropriateness of new technologies on teaching and learning, in schools, it was established that some of the relevant ICT devices have not been fully embraced in Sub Saharan Africa. Mobile ICT such as e-readers, netbooks and Tablet PCs have served to show that where ICT are embraced, interactive, inquiry based and collaborative learning augment student learning beyond traditional static learning. The findings showed that school wide policies, institutional and technical challenges remain key

barriers to using mobile ICTs in teaching and learning in Africa (Habler, Hennessy, Lord, Cross, Jackson and Simpson, 2011).

Conversely, teachers need to be prepared to use ICT to increase learning opportunities to the students. According to European Commission, learning environment has changed and so is teaching. The roles and expectations for teachers have changed as they teach in multicultural classroom environment. Teachers have to strive to acquire essential competences to help students to gain necessary thinking, creativity, decision-making, collaborative skills, ICT skills and learning skills (European Union, 2013).

The significant change and education reform in secondary education in Kenya is the integration of ICT into education. According to the Sessional Paper No.1 of 2005 on Education, Training and Research, although, Kenya's has prioritised the integrating of ICT into education, teaching competences in ICT are required to meet the new teaching challenge (Republic of Kenya, 2005). Similarly, although secondary schools have embraced ICT use, the emphasis has mainly been administrative.

The review of literature provided insights that were vital for the study as it provided information on the importance of resource-based instruction to student learning. The research evidence from variety of research studies relating to resource based learning was key to understanding resource-based instruction. The findings revealed that inadequate resources and challenges of identifying valid resources for student learning, hinders the use of resource-based instruction.

2.7 Government Policy, Teaching Strategies and Students' Performance

In this study government policy is considered as the intervening variable mediating the relationship between teaching strategies and students' performance in academic achievement and co-curricular activities. The aspects of the study include implementation of curriculum delivery guidelines, enforcement of education standards and increasing accountability for students' performance.

Government policies are developed to address emerging issues in the education sector and to provide a framework for implementing priority areas in education and training. The available education report shows that the key education challenges are attributed to weak governance, weak management and lack of accountability in the implementation of educational programmes in the education sector overall (Republic of Kenya, 2012).

Available study reports have shown that government policy has a strong influence on education and consequently students' performance. Kenya has a long history of development of education policies to guide education development at all education levels, promote quality education, and enhance access and equity since independence in 1963. The Ominde Educational Commission of 1964 recommended government to reform the education system and developed the purposes of education. At the time, one of the recommendations aimed at addressing three vices that were perceived as fundamental national challenges were; ignorance, disease and poverty. Other education commissions and policies have emphasised the provision of quality education relevant to the societal needs (Republic of Kenya, 2012).

Rivers (2008) carried out a study to establish the relationship between parenting styles and academic achievement; introducing motivation, goal orientation and academic self-efficacy as the mediating effects. The data collected was analysed using correlations, hierarchical multiple regression and analysing variables. The results revealed a significant correlation between parenting and sub scales of the motivation. The motivation sub scales mediated parenting style and contributed to a significant amount of incremental variation for explaining academic achievement.

Lewis, Bavarian, Snyder, Acock, Day, Dubois, Ji, Schure, Silverthorn, Vuchinich and Flay (2012) in a study to establish the direct and mediated effects of social emotional and character development program on adolescent substance abuse, establish that positive action reduces substance use among the adolescence youth. The positive action intervention on substance use was mediated by school based social emotional development.

Li, Hallinger and Walker (2015) carried out a study to explore the effects of trust between principal leadership and teacher professional learning in primary schools. Survey was used to confirm the probable mediating effects of trust that was considered as a component of school capacity. The researchers used Baron and Kelly mediation analysis model. The model has four steps that were used during preliminary inquiry. To test the significance of trust, Sobels' test and bootstrapping method was used. The study used the principal leadership practices as multiple predictors, examining teacher professional learning while trust was used as mediating effects.

In a research study, Manisha and Chetan (2016) that looked into the perceived parental pressure and academic achievement and test anxiety in students as the mediating effect. The

findings indicated that parental pressure had negative influence on academic performance of the students. The results revealed that that where parents pressurised their children to do well in academics, students develop anxiety especially in undertaking assignments hampering their level of performance.

Zhang (2008) studied the effects of teacher education level, teaching experience and teaching behaviours on students' science achievement. The issue was whether teaching behaviours and teaching experience contributed to students' improvement in science performance. The results revealed that science teachers with advanced degrees in education or science influenced students' science achievement. However, a significant interaction between teachers having advanced degrees and teaching experience was inversely associated to students' science achievement. The findings also revealed that teacher behaviours were positively related to students' achievement in science achievement, teacher education and experience.

Pike, Smart and Ethington (2011) studied the relationships between students' academic majors, levels of engagement including students learning outcomes within the context of Hollands Person-Environment Theory of Vocational and Educational Behaviour. The study considered engagement as a mediating agent in the relationship between academic majors and students learning. The data was drawn from stratified sampling of Seniors in National Survey on students engagement and learning outcomes. The findings showed that students' academic majors were not indirectly related to learning through levels of engagement.

Tschannen-Moran and Gareis (2015) posited, in their study on principals, trust and cultivating vibrant schools, that principals have to be held accountable for students learning

in their schools. However, they noted that the principal's influences are often indirect. The researchers used four paths as proposed by Leithwood, Patten and Jantzi, for indirect influence to flow. Trust was considered the mediating variable which could be used to inspire teachers to increase teaching efforts and achievement.

Jawadin and Gembes (2016) carried out a study to determine the mediating effects of accountability climate on the relationship between transcendental leadership of school heads and productivity of public elementary schools. The study involved 391 teachers and the results of the correlation and regression analysis revealed the existence of significant relationships between transcendental leadership of school heads, institutional productivity and accountability climate. The findings further revealed the existence of partial mediation on the effect of accountability climate on the relationship between transcendental leadership of school heads, institutional productivity.

Sarfo and Elen (2011) in their study investigated the impact of positive resource interdependence and individual accountability and students' academic performance in cooperative learning. This involved the use of two randomised post-test experimental study. The findings revealed that having full information of content before group discussion contributed to better students' academic performance than when each individual works alone. The scores awarded to individual work are part of the final grade, strengthening individual and group accountability on students learning improving students' academic performance.

The findings from the literature review were valuable in providing insights on the understanding the role of mediating variable on the independent variable and dependent variable of the study.

2.8 Summary and Gap Identification

Studies in the empirical literature have looked at factors influencing students' academic achievement through effective teaching. The research gaps identified shows the challenges of managing modern classroom due to issues in students behaviour management resulting in indiscipline and poor classroom communication of learning goals (Tiwari and Panwar, 2014; Walters et al, 2014; Colombi and Osher, 2015; Al-Amarat, 2011).

The review of literature showed that the choice of effective teaching instruction in the classroom was still a subject of research despite many years of being investigated (Panthi and Belbase, 2017). Student centered teaching is the most preferred instructional technique while teacher centered instruction continues to dominate teaching in the classroom in the twenty first century (Marzano and Toth, 2014). Tiwari and Panwar (2014) looked at classroom management variables, concentrated on behaviour of learners as affecting learning. The study did not look at students learning expectations and social emotional learning. Sellers, Roberts, Giovanetto, Friedrich and Hammargren, (2007), Centre for Public Education (2013), Uwezo East Africa (2012) and Stoop (2011) concentrated in students learning styles, teaching methodology for particular subjects and performance of some subjects, specifically mathematics and English and collaborative learning approaches.

Timilehin and Ogbomida (2012) in their study concluded that availability of human and material resources do not influence students' performance in both public and private school. This provided a research gap as to whether teaching resources are needed to enhance teaching and learning of students in secondary schools. The study focused on two variables; human and material resources and students' performance. This is evidence that the study variables

were looked at in general while the current study has studied the variables including their sub-variables. Amos et al (2015) and Ee and Cheng (2013) study targeted one study sample of teacher respondents while Gholami and Morady (2013) target was one study sample (students). The current study targeted more than one study sample; Principals, teachers, students and County Director of Education.

The review of literature further revealed the research gaps in all study variables. For instance, the review of research methodologies and literature were from diverse research studies including; case studies, meta analysis, comparative analysis, research literature review, there were few correlational studies (Omae et al, 2017; Lazaro and Anney, 2016; Ekpo and Igiri, 2015; Walters et al, 2014; Cid, 2014; Benjamin and Orodho, 2014; CASEL, 2013; Cook-Harvey, 2011; Sanchez, 2010; Jabbarifar, 2009; Garrett, 2008). The literature review has revealed of students' performance in academic achievement and co-curricular activities can be improved by applying effective teaching strategies. Lunenburg (2010) relied on secondary data through literature review while discussing extracurricular activities and relating to goals of education in America

The review of literature has further shown the need for accountability towards students' performance, which has become a concern to policy makers, philanthropic groups, individuals and other stakeholders. Considerable research literature relating to resource-based instruction has been published. However, teacher's position or role has not be given a lot of prominence. The challenges of resource shortages, their relevance, and lack of attention by public secondary schools remain a gap in the literature review.

Baker (2012), OECD (2009), and Kong et al (2009) looked at the teacher supply versus the number of schools, how shortages of resources affect students performance; and effect of resources on quality education and technology resources and how it can be used to support instructional environment. The studies indicated the importance of the resource-based instruction strategy in teaching, the role of the teacher in evaluating and using available resources for teaching and learning through innovation and using technology to improve curriculum delivery and ultimately students' performance is an area of focus.

In addition, the study established the literature review on the influence of mediation variable on the relationship between the independent variable and the dependent variable. Li et al (2015) used survey design to carry out a study to explore the effects of trust between principal leadership and teacher professional learning in primary schools. Manisha (2006) used perceptual studies and Jawadin and Mindanao (2016) study was non-experimental. The current study has used mixed methods research design.

The study showed partial mediation on the relationship between transcendental leadership of school heads and the productivity of public elementary schools. The literature review revealed the importance of holding teachers accountable for students' performance. None of the studies reviewed had used government policy as the mediating effect. The study focused on four teaching strategies that are important in improving learning in secondary schools and students' performance in academic achievement and co-curricular activities

In summary, the chapter discussed the review of current literature relating to the variables that were under study. Through the literature review, the variables were organised into; student centered instruction strategy, teacher centered instruction strategy, assessment

strategy and resource-based instruction strategy. This study looked at the best possible combinations of the teaching variables that can be used by a teacher to improve instruction within and outside the classroom and performance of learners.

The key aspects or indicators for each variable were discussed and how they influenced students' performance. The concept of teaching strategy and students' performance in academic achievement and co-curricular activities was explained. The effect of government policy was considered as the intervening variable mediating the relationship between teaching strategies and students' performance. The review of related literature was vital in providing linkage of other related studies to the current study.

The study therefore, tried to reduce the current existing gaps by providing practical and workable solutions that education planners and managers could use to create competitive and sustainable global education. However, there were inadequate information on how teaching strategies influence students' performance. That is why the study was undertaken to investigate the influence of teaching strategies on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

In this chapter, the methodological details appropriate for the study are discussed. Also highlighted is the research design employed, locale and the description of population. In addition, the research instruments and the procedure used in data collection and data analysis are presented.

3.2 Research Design and Locale

This section discusses the research design and locale for the study. The study used mixed survey research design employing both quantitative and qualitative approaches. The study was carried out in public secondary schools within Nandi County.

3.2.1 Research Design

The study used mixed survey research design employing both quantitative and qualitative approaches. Research design gives specific direction for structuring the research, addressing the central research questions and generating answers to research problems (Creswell, 2013; Kombo and Tromp, 2011). In addition, research design guides the gathering of the information to answer the research questions or hypotheses under study (Kothari, 2009). This mixed method research study aim was to address the influence of teaching strategies on students' performance in public secondary schools in Nandi County.

Mixed research design is known by several names; Cameron (2011) referred the mixed research design as third methodological movement, a growing methodology of choice, with its own philosophical, theoretical, methodological, practical and analytical constructs and foundations. According to Doyle, Brady and Byrne (2009) and Terell (2011) argued that

mixed method research is a research design guided by philosophical underpinning of pragmatism paradigm. This is where variety of research approaches are used to answer research question where a singular method may not suffice. Mixed method research offers an opportunity to carry investigations pertinent to education sector with diverse educational issues and complex challenges.

The key proponents of mixed method research are (Fielding, 2014; Creswell, 2013; Badiee, Wang and Creswell, 2012; Small, 2011; Sirin and Fine, 2008; Tashakkori and Teddlie, 2003). Creswell (2013) explain that research approaches are both plans and the procedures for research covering all the steps from broad assumptions to detailed methods of data collection, analysis and interpretation.

Additionally, Creswell (2013) identifies the characteristics of mixed method research design as; covers all steps in design process; combines quantitative and qualitative approaches neutralises the weaknesses of each of the methods; provides a full understanding of research problem than either approach alone; there is collection of qualitative and quantitative data; research approaches are integrated; and data is quantitative and qualitative.

Creswell (2014) further argues that the qualitative and quantitative methods should be studied not as rigid, distinct categories, dichotomous or polar opposites, but rather indicate differing ends on a continuum. In addition, the qualitative and quantitative paradigm assumptions in view of; ontological, epistemological, axiological, rhetorical and methodological assumptions shows; the qualitative researcher views the world as subjective, multiple and unbiased. The process of quantitative research is deductive, objective, singular, and the researcher is independent of what is being researched. This view is supported by Simon (2011), who

posited that quantitative researcher assumes reality to be objective, singular, separated from the researcher and studies can be replicated and generalised while qualitative researcher, assumes reality to be subjective and multiple involving participants in the study.

Fielding (2014), contend that social science research in the contemporary times has evolved overtime. The historical evolution point out that the quantitative approaches dominated the forms of research in the social sciences from the late 19th century up until the middle of 20th century while, qualitative research increased in the latter half of the 20th century, and also the development of mixed methods research (Creswell, 2013; Fielding, 2014).

Researchers who have emphasized the used of mixed methods research design in education include; (Ponce and Pagan-Maldonado, 2015; Lisle, 2011; Borrego, Douglas and Amelink, 2009). Ponce et al (2015) documented that in a mixed research study the quantitative and qualitative methods are combine and use as components of a research design. Similarly, Lisle (2011) argued that mixed methods is when both qualitative and quantitative research approaches are used including; research questions, sampling strategies, data collection and data analysis and conclusion. Borrego et al (2009) argues that quantitative methods employ the use of hypotheses or theory in a study. The qualitative study involves collection and analysis of textual data such as surveys, focus groups analysis, interviews and observation.

The evidence from research literature shows that the use of mixed methods research is rapidly expanding both in social and human sciences. According to Creswell (2014), the rationale for use of mixed methods in research is that; the quantitative or qualitative research is insufficient to fully understand the research problem or answer the research question; there is need for different and multiple perspectives and to confirm quantitative measures with

qualitative measures; and when there is need to incorporate a qualitative component into an otherwise quantitative study.

The secondary data were obtained from the statistical records and abstracts, university libraries, texts and e-books and other electronic records and school authenticated records (Cooper and Schindler, 2006; Mugenda, 2008). Although secondary data assists in understanding the area intended for research, it does not answer all the research questions hence need for primary data. Collecting primary data helps in obtaining first hand information on variables of interest.

The study variables were the independent and dependent variables. The independent variables included student centered instruction strategy, teacher centered instruction strategy, assessment strategy and resource-based instruction strategy. The dependent variable was students' performance with academic achievement and co-curricular activities as indicators. The indicators of academic achievement are national examination, student record for monitoring students' attendance and student progress report. The co-curricular activities were measured by establishing the extent of availability of co-curricular facilities and equipment, usage of co-curricular training facilities and adequacy of co-curricular activities trainers.

3.2.2 Locale of the Study

The study was carried out in public secondary schools within Nandi County (shown in Kenya Counties Map in *Appendix VII*) which comprises of five sub-counties namely; Nandi North, Nandi Central, Nandi South, Nandi East and Tindiret. The five sub-counties consist of eleven administrative units namely; Nandi Central (Kapsabet, Kilibwoni and Kosirai), Nandi South (Kaptumo and Aldai), Nandi North (Kosirai, Kabiyet and Kipkaren), Nandi Hills (Nandi

Hills and Ol’lessos) and Tindiret (Tindiret) (Republic of Kenya, 2013). The study focused on three sub-counties namely; Nandi North, Nandi Central and Nandi East. The other two remaining Counties were used for pilot studies to test research instruments.

The schools were categorised by school type and gender. These included national, county and sub county schools; mixed day secondary schools and boys or girls boarding secondary schools or mixed schools. Based on gender the schools were either categorised as either boys or girls. The locale for the study was chosen in that the area, was unique and that there has been persistent low performance by students in academic achievements and co curricular activities. This aspect cannot be found in other areas.

This is because Nandi County, in KCSE examinations, students have consistently performed poorly in core subjects such as English and Mathematics compared to the neighbouring Counties in the Rift Valley region. Table 3.1 shows the summary of candidates KCSE performance in English and Mathematics in 2012 in the sample public secondary schools in Nandi County.

Table 3.1: Candidature KCSE Performance in English and Mathematics in Sample selected Public Secondary Schools in Nandi County in 2012

County	Mean and Category	Mathematics		English	
		F	%	F	%
Nandi County	1.5-2.4 (D-)	4	14.3		
	2.5-3.4 (D)	9	32.1	1	3.6
	3.5-4.4(D+)	4	14.3	6	21.4
	4.5-5.4 (C-)	3	10.7	7	25.0
	5.5-6.4 (C)	1	3.6	5	17.9
	6.5-7.4 (C+)	5	17.9	3	10.9
	7.5-8.4 (B-)	1	3.6	3	10.9
	8.5-9.4 (B)	0	0	0	0
	9.5-10.4(B+)	1	3.6	3	10.7
Total		28	100	28	100

Legend: 1.5-3.4 (Very Poor), 3.5-4.4 (Poor), 4.5-6.4 (Satisfactory), 6.5-8.4 (Good), 8.5-12 (Very Good)

Table 3.1 shows that in mathematics subject, 25% (seven schools) had their students attaining good performance with quality grades of grade C+ and above in 2012, leaving 21 schools with satisfactory to poor performance of grade C to grade D- representing (75%) of the total sample schools. In English, 32% (nine schools) attained good performance with quality grades of C+ and above leaving 19 schools at grade C and below representing (68%) of the sample schools (Ministry of Education, 2012). The findings show that the majority of sample public secondary schools attained average to poor mean scores and grades.

In addition, Table 3.2 shows the summary of KCSE mean grades and mean scores for Nandi County sub-county selected for the study for the period 2008-2012.

Table 3.2: The Comparison of the KCSE mean scores for the three Nandi County Sub Counties from 2008 to 2012

Nandi County	Nandi Sub County	2008	2009	2010	2011	2012
	Nandi North	4.19 D+	4.31 D+	4.68 C-	4.93 C-	4.86 C-
	Nandi East	5.13 C-	4.95 C-	5.03 C-	5.04 C-	5.87 C
	Nandi Central	5.65 C	5.78 C	5.86 C	6.29 C	7.04 C+
	Overall Mean Score	5.05 C-	5.01 C-	5.33 C-	5.41 C-	5.93 C

Source: Emis, Ministry of Education (2011/2013)

As shown in Table 3.2 Nandi County, recorded students mean scores that have were below C+ from 5.05 in 2008 to 5.93 in 2012. The data shows uneven performance by the candidates in KCSE from 2008 to 2012 in the selected sub counties public secondary schools in Nandi County. This means that teachers should strive to reduce students' achievement gaps in academic achievement and enhanced their participation in co-curricular activities.

3.3 Study Population

Mugenda (2008) defines population as the entire group of cases, individuals, items or articles with common attributes and is of interest to the researcher whereas the target population

refers to all objects or individuals that the researcher is interested in making generalisations. Studying a large population is quite expensive, time consuming and laborious, hence necessitates the need for sampling. The study population comprised the principals, teachers, students and the County Director of Education of Nandi County. A study population is also referred to as research population.

3.3.1 Target Population

The target population for the study comprised of; one County Director of Education, 100 public secondary schools, 100 principals of public secondary schools, 7503 Form Three Secondary School students of 2013, and 848 teachers in the public secondary schools (Ministry of Education, 2012 and 2013). The County Director of Education was included as part of target population mainly due to the role of the County education office being responsible for overseeing the provision of secondary education in Nandi County.

Principals' were involved in the study since they provided school leadership and instructional supervision to ensure effective teaching strategies are applied in teaching of students in public secondary schools in Nandi County. In addition, principals' role as a school manager, motivator, learning resources provider and leader influences student success in both academic achievement and in co-curricular activities (Kirui and Osman, 2012). Teachers implement the secondary school educational programmes and are entrusted with ensuring learners get the best out of teaching to realise improved performance. Students often benefit from the implementation of the education programmes in schools and their holistic view must be used as a guide when planning teaching and learning activities (Republic of Kenya, 2013).

Form Three students were selected because they were considered mature in secondary education system and have been in secondary school for over two years. Teachers had also exposed them to variety of learning experiences and it was believed that this category of students would answer the set of questions in the questionnaires. Form Four students were already busy preparing for national examination while Form Two and Form Ones were in their foundational stages of secondary education. Private secondary schools were not involved because they do not benefit from government funding.

3.4 Sampling Techniques and Sample Size Determination

Sample size is the number of items selected from the universe that constitutes the sample while sampling techniques refers to the procedure the researcher would adopt in selecting items from the sample. The rationale for sampling employed in the study was to; produce results at a faster rate saving time and research costs; get accurate measurements; cover the target population given; that a large population is finite; and enables collecting information on the characteristic of the population (Kothari, 2009).

Sampling design and the sample size were used in the study as they are necessary in establishing the representativeness of the sample for generalizability. Sample size and sampling design are key in making sampling decisions relating to costs (Sekaran, 2010). The study employed stratified random, simple random and purposive sampling.

3.4.1 Sampling Techniques

The Nandi Sub-Counties; namely; Nandi North, Nandi East, and Nandi Central formed the strata for the study. The researcher use stratified sampling technique in selecting the public secondary schools to participate in the study. The sample was chosen using the proportional method. The schools were stratified into national, county and sub county schools, and then

randomly selected for the study. The sample from different strata was kept proportional to the sizes of the sample. The use of proportional sampling is an efficient design especially when cost of selecting the item in each stratum is considered.

A good sampling design should possess the following characteristics; yield a truly representative sample that should not be too large or too small, result in small sampling error, viable budget limits, possible to control any systematic bias, and the results of the sample study, must be applicable to the entire population at reasonable level of confidence (Mugenda, 2008; Kothari, 2009).

The sampling procedures used during the study included; selecting clear sampling unit and identifying the target population for the study; putting together the sampling frame; identifying the elements of the population that formed the sample; identifying the sampling design for elements of the population; working out the costs attached to sampling design and; time required for collecting data (Sekaran, 2010).

Mixed methods sampling were used in selecting the sampling methods during the study. Sampling in research is done because it is sometimes practically difficult to study entire population, especially when it is too large. In sampling a subset of the population is taken as representative of the entire population (Mugenda, 2008). According to Teddlie and Yu (2007), mixed methods sampling involves utilising quantitative addressing a QUAN strand of study and qualitative techniques addressing a QUAL strand of study, applicable in quantitative and qualitative research. A mixed method researcher uses sampling techniques that combines the two orientations to generate complementary databases with regard to the

phenomena under the study to answer research questions posed by mixed methods research designs.

Teddlie et al (2007) posited the following as the sampling strategies used in mixed methods research design; selecting participants and units using probability sampling strategies to increase external validity and purposive sampling strategies to increase transferability and provide data that answers the research questions. Table 3.3 shows the comparison between the probability and purposive sampling techniques employed during the study.

Table 3.3: Comparison between Purposive and Probability Sampling Techniques

Dimension of Contrast	Purposive sampling	Probability sampling
Other Names	Purposeful Sampling, Non Probability sampling, Qualitative sampling	Scientific sampling, Random sampling, Quantitative sampling
Overall purpose of sampling	Designed to generate a sample that will address research questions	Designed to generate a sample that will address research questions
Issue of Generalizability	Sometimes seeks a form of generalizability(transferability)	Seeks a form of generalizability (external validity)
Rationale for selecting cases/units	To address specific purpose related to the research questions. The researcher selects cases that he or she can learn the best from	Representativeness The researcher selects cases that are collectively representative of the population
Sample size	Typically small (usually 30 cases or less)	Large enough to establish the representativeness (usually at least 50 units)
Depth or breadth of information per case/unit	Focus on depth of the information generated by the cases	Focus on breadth of the information generated by the sampling units
When the sample is selected	Before the study begins, during the study or both	Before the study begins
How selection is made	Utilizes expert judgement	Often based on mathematical formulas
Sampling Frame	Informal sampling frame somewhat larger than the sample	Formal sampling frame typically larger than the sample
Form of Data generated	Focus on narrative data Numeric data can also be generated	Focus of numeric data Narrative data can also be generated

Source; (Teddlie and Yu, 2007:p. 84).

Table 3.3 represent continuum with probability sampling on one end, mixed method sampling strategies in the middle and purposive sampling on the other end. As Table 3.3 shows that,

the ability of the researcher to combine the probability and purposive sampling, will determine the answering of the research question (Teddlie et al, 2007).

The reasons for stratification were; to get more precise estimates for certain subdivisions of the population; to obtain representative sample; to provide clear and practical approach to carrying out the study; sometimes a population from which the sample is being drawn require the use of different sampling procedures and; to increase precision of estimates of characteristics of the whole population and; to arrive at more reliable results from the population (Kothari, 2009).

Simple random sampling technique (probability sampling) was used to select schools to participate in the study. Purposive sampling was used to sample Principals based on the public secondary schools already sampled. Purposive sampling was used to select teachers to participate in the study. In every school and class, that was sample, the teacher was automatically selected. Students were also selected based on the public secondary schools randomly sampled.

The County Director of Education was also included in the study to form part of the target population. The CDE was purposively included in the study because of being in charge of supervision of the public secondary schools in the County. The purposive sampling is preferred sampling method because it can be used with both qualitative and quantitative methods and can be employed with probability sampling (Kombo and Tromp, 2011; Kothari, 2009). Purposive sampling method therefore justifies inclusion of the Principals, teachers, students and County Director of Education in participating in the study.

3.4.2 Sample Size Determination

The researcher determined the sample size from the target population. To arrive at the sample size, 30 percent of the total public secondary schools and their principals were selected to participate in the study. In addition, 10 percent for the teachers and 10% for the students were selected. According to Israel (1992), the choice of 30% and 10% sample size is commonly used in research to assist in compensating for non-response and for the persons unable to be reached by the researcher respectively. Israel further added that in dealing with descriptive statistics, any sample size would be sufficient for research study.

There were 161 public secondary schools in Nandi County. The total number of public secondary schools in the three sub counties; Nandi Central, Nandi North and Nandi East was 100. The students' population in each sub-county was extracted from statistical reports from Ministry of Education. According to 2013 statistical data, Nandi Central had 3,216 Form Three students, Nandi North 3,232 and Nandi East 1,055 giving a total of 7,503 in the three Sub-Counties of Nandi County (Ministry of Education, 2013). The students' random sample was computed using random sample formula. According to Mugenda (2008) the sample size can be computed by use of the following formulae;

$$n = Z^2 p(1-p) / d^2$$

Where; n= the desired sample size if the target population is > 10,000

Z= the standard normal deviate at the required confidence level (e.g 1.96 for 95% confidence level)

d= is the confidence interval, which is expressed as a decimal (0.05)

P= is the proportion if the target population is estimated to have had the characteristic being measured (assumes 50% if unknown).

$$\frac{(1.96^2) \times (0.5) \times (1-0.5)}{(0.05^2)}$$

$$(0.05^2)$$

$$\frac{3.8416 \times 0.25}{0.0025} = 384$$

$$0.0025$$

n = (the desired sample size if the target population is > 10,000) was calculated as shown in the following formula;

$$\text{Sample size (n)} = n / [1 + (n/\text{population})]$$

New sample size is;

$$= \frac{384}{1 + (384-1)/7,503}$$

$$1 + (384-1)/7,503$$

$$= 365$$

When the sample size was computed using the sample size formula discussed, the sample size for the students was obtained as 365.

Mugenda (2008) argued that for a large population and where the study sample is homogenous, a small sample may be selected. In addition, Israel (1992) stated three criteria for calculating the appropriate sample size; the level of confidence of the risk, the level of precision and the degree of variability in the attributes to be measured. Israel further explains the strategies for determining the sample size to include; using census where population is small, using published tables, using a sample size of a similar study and using formulas to calculate a sample size. This is supported by Sekaran (2010), who stated the factors that affect the sample size to include; the size of the population, the acceptable level of risk in

predicting the level of precision (confidence level), the extent of the desired precision (confidence interval) and the amount of variability in the population.

Table 3.4 shows the sample size of the target population studied; the county, sub counties, number of public secondary schools, number of Principals, teachers and students.

Table 3.4: Sample Size of the Population studied

County	Sub-County	No. of Public secondary schools	Sample Item	Target Population (N)	Sample Size (n)	Sampling Technique
Nandi	Nandi Central	42	Principals	100	30	Purposive
	Nandi North	40	Teachers	850	85	Purposive
	Nandi East	18	Students	7503	365	Purposive
			County Director of Education	1	1	Purposive
			Public schools	100	30	Random

Table 3.4 shows the number of public secondary schools for each Nandi Sub- County that were studied; Nandi Central Sub-County 42; Nandi North Sub-County 40 and Nandi East Sub-County 18 (Ministry of Education, 2013; Republic of Kenya, 2013). Table 3.4 shows the target population, the sample size and the sampling technique used during the study.

3.5 Research Instruments

Research instruments are important part of research design determining the success of data collection and measuring the variables for the study. The data collection instruments used during the study included interview schedules, questionnaires and observation schedule. The County Director of Education was interviewed, the Principals, teachers and students responded to written questionnaires and direct observation was done as per items in the

observation schedule. The interview schedule had open-ended questions while the questionnaire had few open-ended questions and also had closed-ended questions. Open-ended questions were used to elicit further information, which might not have been captured in the closed-ended questions.

Data collection techniques involved administering of questionnaires to Principals, teachers and students where done except for situations where the school required extra time to respond to questions. Administering of questionnaires allowed the researcher to collect data more efficiently, saving time and costs while the use of interview allowed flexibility in answering of questions. Similarly, undertaking participant observation enabled the researcher to record pertinent activities. Observation data are often reliable and free from respondent bias (Sekaran, 2010). In addition, Zohrabi (2013) pointed out that questionnaire instrument is one of the primary source of data collection and must be design in a manner that is reliable, unambiguous and valid.

Face to face, interview with the County Director of Education in Nandi County took place in the County Education Office. The interview schedule consisted of structured questions, which were in line with the objectives of the research study. The responses from CDE interview generated qualitative data save for questionnaires used to gather quantitative data. Zohrabi (2013) contend that conducting interview in mixed method research; allows the researcher to get first hand information, collect qualitative data and assists in understanding people's perception and interpretation of the world around them.

3.5.1 Interview Schedule for County Director of Education

The interview schedule elicited responses from the respondent. The instrument captured information on the items that measured all the variables of the study. The instrument was divided into two parts; A and B. Part A consisted of CDE's demographic information that included gender while part B highlighted questions on; student centered instruction strategy, teacher centered instruction strategy, assessment strategy, and resource-based instruction strategy and students' performance.

3.5.2 Questionnaire for Principals

There were three types of questionnaires used in the study; for the principals, teachers and students. The instrument was divided into part A and B. Part A was structured to capture general information on items that established the principals demographic information which, included their school categories, age, years spent in pre service training and as the head teacher. Part B of the questionnaire consisted of the questions on; student centered instruction strategy, teacher centered instruction strategy, assessment strategy, resource-based instruction strategy and students' performance.

3.5.3 Questionnaires for Teachers

The instrument elicited the teachers' responses and captured information on the items that measured the variables of the study. In the questionnaires was structured into part A and B; part A consisted of the teachers' demographic information that included their school categories, age, years spent in pre service training and academic qualification while part B consisted of questions on variables of the study; student centered instruction strategy, teacher centered instruction strategy, assessment strategy, resource-based instruction strategy and students' performance.

3.5.4 Questionnaires for Students'

The instrument elicited the students' responses that captured information on the items that measure the variables of the study. The questionnaire for the students was structured into two parts A and B. Part A consisted of demographic information for the student while part B highlighted questions on; students performance, student centered instruction strategy, teacher centered instruction strategy, assessment strategy, and resource-based instruction strategy. Use of variety of research methods to collect data allowed for triangulation of results, which facilitated cross verification of data from more than two sources.

3.5.5 Observation Schedule

The observation schedule had items that sought to elicit information from the public secondary school relating to students' performance. Observation schedule was design to elicit information on indicators of students' performance; academic achievement and co-curricular activities. In academic achievement, the aspects for the study were; use of students attendance records, progress records for monitoring students academic performance and national examination records.

The items in the observation schedule further captured information on co-curricular activities, where the aspects of the study were; availability and diversity of co-curricular activities equipment and facilities, usage of co-curricular activities training facilities and adequacy of co-curricular activities trainers and personnel. Observation was useful in authenticating data collected by use of other research instruments. Use of variety of research methods to collect data allowed for triangulation of results, which facilitates cross verification of data from more than two sources. Thus, it enhanced confidence in the study findings (Sekaran, 2010).

3.5.6 Piloting

Piloting of the research instruments was done in the public secondary schools in Nandi County, in the sub-county, which did not form part of the study sample. Piloting of the Principals, teachers and students questionnaires was to assess the content validity and internal consistency of the items in the questionnaire instrument. The study focused on three sub-counties, and hence the pretesting of the instruments concentrated in two sub counties that were not part of the study counties. This involved six public secondary schools that were not part of the study sample, but was identical to the actual sample used in the study.

According to Kasunic (2004) pilot study follows a structured approach involving; planning and designing the pilot study, training the personnel to be involved, supporting and monitoring the study, evaluating pilot results and making recommendations and ways of improvement. The initial challenge in undertaking the pilot study was identifying the locale of the pilot study, familiarity to the environmental context and time of undertaking the pilot study. These issues were sorted out when the locale of the study were identified and study undertaken.

Pilot study is important part of the preliminary phase in all research studies and vital in improving the efficiency and quality of the main study. According to Hazzi and Maldaon (2015) pilot study is the initial stage of a research and assist a researcher to design clear steps in undertaking the actual study. In addition, pilot study is a small-scale test involving methodologies and procedures to be used in the large scale or actual study. Pilot study enables the researcher to administer the main study with flexibility.

Stratified sampling was used to identify the public secondary schools to participate in the pilot study. The response rates for the respondents in the pilot samples were high (100%). Mugenda (2008) point out that the sample considered for pre testing ought to be between 1% and 10%. Therefore, a random sample of (10%) was used to select the subjects to participate in the pilot study. This included two boys boarding public secondary school, two girls boarding public secondary school and two mixed public secondary school. The respondents' included 1 County Director of Education, 6 principals, 18 teachers and 30 students, who were selected to participate in the pilot study.

The procedure for collecting data in pilot study was similar to the procedure used during the actual study. The purpose of piloting of the instruments was to assist in detecting any deficiencies in the instruments. Mugenda (2008) argued that piloting of instruments is helpful in ensuring items are clear and that the respondents are likely to interpret the questions in the same manner. Editing of the instruments was done to enhance readability and completeness as per the objectives of the research study. Piloting enhanced the validity of the instruments and form basis of assurance of carrying out full study. According to Cooper and Schindler (2006), pilot test helps in identifying weaknesses in the research instruments used and research design employed during the study.

3.5.7 Validity of the Research Instruments

Validity is the degree to which an instrument measures what it purports to measure (Mugenda, 2008). Content analysis ensured validity of the research instruments. Content validity ensures that the measure used include an adequate and representative set of items captured in the concept (Sekaran, 2010). Review of research instruments helped in ascertaining content validity.

The education experts in the Department of education Management, Planning and Curriculum Studies scrutinised and made judgement on the research instruments and any poorly constructed questions were re-worked on while unclear and ambiguous questions were deleted. During defense, the comments from the panel of experts, that involved experienced education professors, lecturers, and education experts were incorporated into the final document.

According to Zohrabi (2013), content validity is very important in research and involves effectively measuring different elements, behaviours and skills. Content validity involves getting inputs from research experts and comments from the reviewers. The feedback from their reports is used, and any non-functioning questions are rewritten and unclear ones deleted. In addition, the researcher ought to use variety of research instruments to enhance internal validity. Triangulation may be used to reduce any biased or weakness arising out of using a single instrument to assist in enhancing credibility and confirmation of the findings. Other methods include use of peer examination, member checks, long-term observations and using collaboration research.

3.5.8 Reliability of the Research Instruments

The reliability of an instrument is ascertained by testing its internal consistency. According to Sekaran (2010) reliability refers to the extent to which similar results can be replicated or obtained from the same population overtime. The Cronbach Alpha Coefficient was used to measure the internal consistency to ensure homogeneity of the items in the instruments used during the study. The Cronbach Coefficient Alpha that measures multi point scaled items was

used; it measures how well the items in a set are positively correlated (Mugenda, 2008; Sekaran, 2010). Cronbach's Alpha α is defined as;

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum_{i=1}^k \sigma^2_{yi}}{\sigma^2_x} \right)$$

Where σ^2_x denotes variance while σ^2_{yi} is the variance of component of i (sample population).

The closer the Cronbach Coefficient Alpha is to 1, the higher the internal consistency (Sekaran, 2010). The findings are summarized in Table 3.5

Table 3.5: Reliability Statistic for Research Instruments

Respondents	N	Cronbach's Alpha	Number of Items
Principals	29	.965	37
Teachers	83	.824	37
Students	360	.688	37
Total	472	.826	

Predictor Variables: Student centered instruction strategy, Teacher centered instruction strategy, Assessment strategy, Resource-based instruction strategy

As shown in Table 3.5, Cronbach's Alpha Coefficient reliability estimate indicated high correlation (0.965, 0.824 and 0.688>0.05) for the principals, teachers and students items, showing high internal consistency in the items used in the study. In Table 3.5, the combined results of the reliability test using Cronbach Alpha for all the items shows high reliability of (0.826>0.05). This is greater than minimum threshold of 0.5, implying that the items used in the data collection instruments were consistent, reliable and appropriate for analysis and interpretation.

3.6 Data Collection

Kenyatta University granted the authorization to conduct research and research permit by National Council of Science and Technology Innovation (NACOSTI).

3.6.1 Logistical and Ethical Considerations

The researcher visited all the relevant authorities in Nandi County to inform them on the intention to carry out research in sampled public secondary schools in the County. This was through an introduction letter and research permit issued by National Council of Science Technology and Innovation (NACOSTI) the institution dealing with research within Ministry of Education. The County Commissioner and County Director of Education informed the school Principals of the intended research and the confidentiality that the researcher committed herself to uphold.

Kenyatta University sent the letter of authorization to conduct the study to NACOSTI. The NACOSTI issued a permit and a letter granting the authority to carry out research within Kenya. The introduction letter was sent to the Nandi County Commissioner who is the overall head and co-ordinator of national government functions at the county and under the Ministry of Interior and National Co-ordination. In addition, another introductory letter was delivered to the County Director of Education in Nandi County.

3.6.2 Research Protocol and Itinerary

The Nandi County Commissioner and County Director of Education wrote and issued letters granting the researcher authority to carry out research in public secondary schools in the county. The CDE gave the list of school principals including their contacts. This helped in mapping out the sample schools targeted for the study. The researcher also identified two research assistants, who assisted in the distribution and collection of the questionnaires in the sample schools. Training of each research assistants was done and letters of introduction given. This ensured co-operation from the schools involved. Letters of introduction to the respondents were taken to every sample school to seek authority to collect data.

After all logistical arrangements were finalised, the researcher and research assistants embarked on collecting data in the selected public secondary schools in Nandi County. The research team was conscious of the existing cultural sensitivities and were careful in their approach to the respondents. Ethical considerations formed the core of the research from the inception to the completion of the research. Respondents were treated with respect and their identities kept confidential.

The actual research study commenced and involved visiting the sample units and meeting the County Director of Education, Principals, teachers and students to administer the research instruments. The research assistants were able to co-ordinate research in schools after briefing was done. This was through securing the day and time of the interview and obtaining school contacts from the County Director of Education office. The collection of data further involved visiting the sample schools and meeting the school principals for briefing.

The principals' office was the entry point where brief introduction was done and the purpose of research introduced, participants targeted in the survey and how the research instruments were to be administered. After briefing, the Principal introduced the research team and briefed the teachers on the purpose of research, the time of commencing the research in the school and the duration of collecting information. The co-operation between the school principal and teachers made data collection easier. The data collected generated information, which was organized for data analysis.

3.6.3 Actual Data Collection

Data was collected in sample public secondary schools in the three sub-counties of Nandi County. The researcher used questionnaires to collect the quantitative data in every sample school visited. In all the schools visited, the researcher administered questionnaires to the respondents. The collection of data required patience as some of the teachers saw as if it was waste of time. According to Kombo and Tromp (2011), administering questionnaires during data collection is vital in getting the expected data.

During the study, this involved identifying the respondents. The Principal briefed the respondents after research team introduced themselves. Respondents were informed of the nature of research and the need to answer the questions honestly. Administering the questionnaires gave the respondents to respond to questions individually.

The questions had spaces where the respondent answered or indicated their choice of answers. In some cases, questionnaires were dropped in some public secondary schools by use of drop and collect method to be picked after one week, when the respondents have answered. Questionnaires are easy to administer and adopt, especially where the respondents were spread over a geographical region and the investigation is vast (Sekaran, 2010). In addition, the questionnaires were administered to the respondents in instances where there was willingness and cooperation. The questionnaires that were dropped were collected and pick at agreed time in different weeks from March to August 2014. In some instance, the researchers learnt that the respondents had collected the questionnaires and kept in the Principals office.

After mapping out the sampled public secondary schools and identifying the respondents, the researcher contacted County Director of Education to agree on the day to conduct face-to-face interview. After introduction and persuasion to participate in the interview, appointment with the interviewee was secured after explaining the nature, purpose of the research study and the commitment to observe confidentiality. During the day of the interview, the respondent co-operated and the data needed for the purposes of the study was collected. This involved asking the informant questions and collecting the desired information relating to the research study while the researcher and research assistant noted down the answers given. Information collected using the method is original in character and first hand (Kombo and Tromp, 2011).

The CDE interview was undertaken in County Education Office. The County Director also granted the permission to visit different public secondary schools in the County where the research was conducted. The data collection took a period of six months starting from March to August 2014. The combining the use of questionnaires and interview schedule is a mixed method research design and modern trend in social science research. According to Small (2011) and Adato (2011), combining one type of data collection technique with another is beneficial in compensating for the weaknesses posed by the use of one method. This is by enhancing complementarity and providing uniform measures. Moreover, combining both quantitative and qualitative methods offer reliable, coherent and useful conclusion.

3.7 Data Analysis

The data collected was analysed both quantitatively and qualitatively. Quantitative data was analysed by use of; simple statistics involving the use of percentages and frequencies; and inferential statistics involving; the use of simple correlation, where two variables; one independent and one dependent were involved; simple regression analysis and multiple

correlation and regression analysis, where two or more variables were involved. F value was instrumental in either rejecting or accepting the hypothesis.

Creswell (2013) contend that quantitative data analysis uses numeric data for description, comparing groups and relating variables whereas in qualitative data analysis, text and image data is used for coding, theme development and relating themes. According to Kombo and Tromp (2011), data analysis can only be undertaken when the raw data collected from the field has been organized. Organizing data creates order in research data allowing for systematic analysis. Quantitative data obtained from the questionnaires were analysed using descriptive data analysis involving the use of percentages and frequencies.

The hypothesis used inferential statistical techniques such as; correlation and regression analysis. The results of the study were presented by use of tables and statistical figures. Scientific Package for Social Sciences (SPSS) computer based software allowed the analysis of a large number of variables and saved time (Kothari, 2009). SPSS statistic is appropriate software for management and analysis of research data.

Qualitative data from the interview was analysed using thematic data analysis techniques. The themes were drawn from the research objectives. Themes are the major subjects that arises out of discussions and which brings out major concepts related to research area. In qualitative orientation, the main topics, subjects, themes or concepts in the study are identified and analysed (Kombo and Tromp, 2011). The data analysis shows the use of both quantitative and qualitative data analysis techniques. Leech and Onwuegbuzie (2009) integrated different types of data in data analysis, indicating that mixed methods research is now being embraced by researchers to answer the research questions of the study.

3.7.1 Data Measurement

Summated scales were developed using the item analysis approach in which a particular item is evaluated on the basis of how well it discriminates between those persons whose total score is high or low. Therefore the Likert Scale items, commonly used in studying social attitudes and where the respondent is required to respond to items or statements in terms of degrees and may be five degrees of disagreement or agreement were used for both the independent variables and dependent variable. In Likert scale, each respondent gives a numerical score, indicating its favourableness or unfavourableness. The final responses scores are summed up to measure the attitude of the respondent (Kothari, 2009). In the study, the likert scale items were used on a five-point scale.

Likert Scale items utilizes interval scale that is guided by the rule of equal units, where the responses to various items that measure a variable can be tapped on a five or seven-point scale that can be summated across the items (Sekaran, 2010). In research, Likert type Scale is the most preferred due to its affinity to be easily constructed, its reliability, permits the use of statements that may not be related and takes a short time in constructing (Kothari, 2009).

3.7.2 Hypothesis Testing

Hypothesis is a principal instrument in research that enables making probability statements about population parameters. Hypothesis is a formal supposition set forth as an explanation for the occurrence of some specified group of phenomena either asserted as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts (Kothari, 2009).

Hypothesis test is used in statistics to establish that there is or there is no evidence in a sample data to make inference as to whether a certain condition is true for the entire population. According to Kothari (2009) a hypothesis must possess the following characteristics; first, must be clear and precise; secondly, capable of being put to test; thirdly, state relationship between two variables, in case of relational hypothesis, must be specific, limited in scope, use simple language, consistent with most known facts, must be amenable to testing within a reasonable period of time; and fourthly, must be able to explain known facts that gave rise to the need for explanation.

The study used hypothesis tests to analyse the correlation between independent variables and the dependent variable before making conclusion. The following were assumptions made during hypothesis testing; the study sample was random and normally distributed; there was no relationship between independent and dependent variables and absence of extreme values.

i) Test for Students' Performance

During the study, the following indicators were used to determine the dependent variable (students' performance) of the study; students' achievement in national examinations and participation in co curricular activities. The Education Sector Report, Ministry of Education Science and Technology (2013) emphasize the importance of national examinations (KSCE), and co-curricular activities in measuring students learning and educational outcomes among the school performance index.

ii) Normality test for Students Performance

Normality test for the dependent variable (students' performance) was done to ascertain whether the data collected was normally distributed. Kolmogorov–Smirnov (K-S Lilliefors) test and Shapiro-Wilk test were use to assess the normality test.

iii) Tests for Teaching' Strategies (Independent Variables)

The teaching strategies formed independent/or predictor variables were subjected to statistical tests to ascertain whether they were free from multi collinearity and autocorrelation tests. The predictor variables tested were; the student centered instruction strategy, teachers centered instruction strategy, assessment strategy and resource-based instruction strategy.

iv) Multi Collinearity Test

The linear regression statistical analysis considers independent variables as statistically independent. Multicollinearity test was done to ascertain whether there were presence of superfluous variables and linear dependency (high correlation) among the independent variables studied. To determine the presence of multi collinearity, tolerance value (*i*th) or variance inflation factor, statistic were used. The *i*th tolerance value was given as $1-R^2_k$ where R^2_k denotes coefficient of determination for regression for *i*th independent variable for all other independent variables: $X_k=X_{others}$. The variance inflation factor (VIF) is calculated as $1/1-R^2_k$. VIF is used to show how multi collinearity has increased the instability of the coefficient estimates through inflation.

v) Auto correlation Test for the Predictor Variables

Auto correlation test was done to establish whether the independent variables influence each other or repeat themselves (assists in detecting non-randomness in the data). Durbin-Watson is a statistic used to test for autocorrelation in the residuals from a statistical regression analysis. Durbin-Watson *d* statistic test was done for the four-predictor variables according to the findings from the respondents. The predictor variables are the student centered instruction strategy, teachers centered instruction strategy, assessment strategy and resource-based instruction strategy.

The assumptions of the regression models are that the error deviation is uncorrelated. The Durbin Watson is always between 0 and 4. Where Durbin Watson has a value of 2, then there is no autocorrelation in the sample. The small values of Durbin Watson statistic indicate presence of positive autocorrelation. When Durbin Watson is large and values toward 4, it indicates negative correlation.

iii) Correlation and Regression Analysis

The study used hypothesis to establish the relationship between independent variables and the dependent variable before making conclusions. Correlation and regression analysis is a quantitative research method that was employed to ascertain whether there exist a relationship between the predictor variables and the dependent variable. Pearson correlation analysis was done to find out the association between teaching strategies (predictor variables) and students' performance in academic achievement and co-curricular activities (dependent variable).

Pearson Moment Correlation Coefficient was preferred, as it is a statistical technique that determines both the magnitude and direction of relationship between the independent and dependent variable. It measures the strength of the relation between two variables and is used with regression to indicate how well the regression line explains variations in the independent variable (Argyrous, 2011). The sign of correlation coefficient (r) serve to specify whether the relationship is negative or positive while the numerical part of the (r) shows the magnitude of the relationship.

The Karl Pearson formula for correlation coefficient is given as;

$$r = \frac{1}{n} \frac{\Sigma(\mathbf{y} - \bar{\mathbf{y}})(\mathbf{x} - \bar{\mathbf{x}})}{\sigma_x, \sigma_y}$$

Where r is the sample correlation coefficient of the relationship between x and y while \bar{x} is x -bar and \bar{y} is y -bar while σ_X σ_Y are standard deviation of x and y .

$\frac{1}{n} \sum (y - \bar{y})(x - \bar{x})$ is the covariance between x and y .

According to Kothari (2009), correlation coefficient denoted by r , has the following properties;

- i) The value of r ranges from -1 to 0 or from 0 to 1;
- ii) A value of $r=1$ indicates that there exists perfect positive correlation between the two variables; A positive correlation exists when the positive values of r is positive
- iii) A value of $r=-1$ indicates that there exists perfect negative correlation between the two variables; A negative correlation exists when the value of r is negative.
- iv) A value of $r=0$ indicates zero correlation. This shows there is no association at all between two variables;

Argyrous (2011) explained that correlation analysis is the most widely used statistical technique that describes the degree to which one variable is related to another. Kothari (2009), discusses that the Pearson's correlation coefficient is guided by the following assumptions, that; there exist linear relationship among the independent and dependent variables; the independent and dependent variables are causally related, implying that one variable is dependent and the other independent; and there exists large number of independent causes that are operating in both the independent and dependent variables to produce a normal distribution.

Regression analysis is a statistical technique extensively used in research. The regression analysis measures how well the regression line explains the variations of the dependent

variable based on the value of the independent variable. Regression analysis used during the study was both bivariate and multiple regression. Multiple regression specifies the relationship between the dependent variable (Y) and the combination the independent variables (X) (Argyrous; 2011).

Regression output had three components that included; regression statistics table; ANOVA table and regression coefficient table. The output was summarised in the regression model results table. Both linear and multiple regression predicted the value of one variable (Y) based on the value of one or more variables (X); where Y denoted the dependent variable and (X) denoted the independent variable. Both linear and multiple regression are used in modeling the relationship between the dependent and one or more independent variable. The modeling is expressed statistically as;

Bivariate model was expressed as;

$$Y = \beta_0 + \beta_1 X_1 + e_i$$

Multiple regression was expressed as;

$$Y = \beta_0 + \beta_1 X_{i1} + \beta_k X_{ik} + \dots + e_i \quad i=1, \dots, n$$

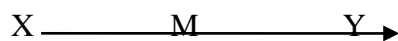
Where k denotes the number of independent variables, X_{i1} are known as the regressors (predictor variables) and e_i is the error variable.

Related studies in education that have shown importance of using regression models in analysing the relationship between variables include; Uyanik and Guler (2013) who studied multiple regression analysis on students' lesson scores and their 2012 KPSS score at the University. Kanyongo, Certo and Launcelot (2006) who used linear regression analysis to establish the relationship between home environment variables and reading achievement among the students of grade 6 in Zimbabwe.

iv. Mediating Effects

Data analysis on the mediating effect of government policy on the relationship between teaching strategies and students' performance was done. A variable is regarded as a mediator to the extent of being able to account for existing relationship between the independent and dependable variable. The process of testing the mediator involves three regression equations; that is regressing the dependent variable on the independent variable; regressing the mediator on the independent variable; and regressing the dependent variable on the mediator. The mediation model is illustrated using path diagrams based on (Baron and Kenny 1986).

Part A: Overall Direct Effect



Part B: Partial Direct and Mediation Effects

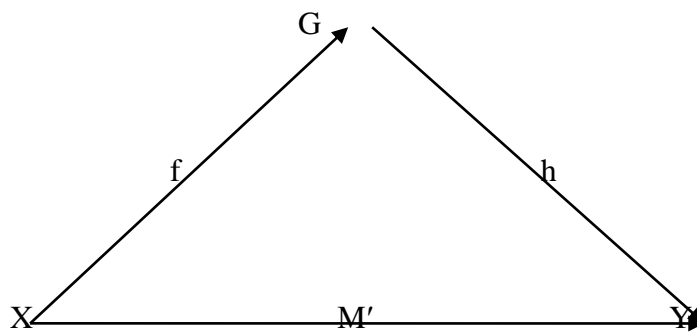


Figure 3.1 Mediation Model using Path Diagrams

Where;

X represents the independent variable (teaching strategies)

Y represents the dependent variable (students' performance)

G represents the intervening variable (government policy)

M, M', f and h represent paths denoting mediator effect.

Table 3.6: Summary of Research Objectives and Hypothesis and Method of Analysis

No.	Research Objectives	Research Hypothesis	Type of Analysis	Regression Model
1.	To establish the influence of student centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County	H ₀₁ : There is no relationship between student-centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.	Linear Regression	$y = \beta_0 + \beta_1 x_1 + e$ β_0 -Constant β_1 - Beta Coefficient x_1 -Student centered instruction strategy y -Students' performance e -Error term
2.	To assess the influence of teacher centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County	H ₀₂ : There is no relationship between teacher-centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.	Linear Regression	$y = \beta_0 + \beta_2 x_2 + e$ β_0 -Constant β_2 - Beta Coefficient x_2 -Teacher centered instruction strategy y -Students' performance e -Error term
3.	To investigate the influence of assessment strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County	H ₀₃ : There is no relationship between assessment strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.	Linear Regression	$y = \beta_0 + \beta_3 x_3 + e$ β_0 -Constant β_3 - Beta Coefficient x_3 -Teacher centered instruction strategy y -Students' performance e -Error term
4.	To explore the influence of resource-based instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County	H ₀₄ : There is no relationship between resource-base instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.	Linear Regression	$y = \beta_0 + \beta_4 x_4 + e$ β_0 -Constant β_4 - Beta Coefficient x_3 -Teacher centered instruction strategy y -Students' performance e -Error term
5.		H ₀₅ : There is no relationship between teaching strategies and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.	Multiple Regression	$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$ Y =Students' performance β_0 = Constant β_1, \dots, β_4 =Beta Coefficient X_1, \dots, X_4 =Teaching Strategies e = Error Term
6.		H ₀₅ : The relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is not dependent on government policy in public secondary schools in Nandi County	Linear Regression Linear Regression Multiple Regression	Test if X predicts Y; $y = \beta_0 + \beta_1 x_1 + e$ Test if X predicts G; $g = \beta_0 + \beta_2 x_2 + e$ Test if X predicts Y when G is introduced in the model; $Y = \beta_0 + \beta_3 X_3 + fG + e$ β_0 -Constant β_3 - Beta Coefficient X_3 Combined teaching strategies G -Government Policy Y -Students' performance e -Error term

CHAPTER FOUR

FINDINGS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter presents the results, interpretation and discussion of the findings of the study according to the research objectives and hypotheses set out at the beginning of the study. The study sought to establish the influence of teaching strategies on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. The study was guided by the following five research objectives. The main objectives of the study were;

1. To establish the influence of student centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.
2. To assess the influence of teacher centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.
3. To investigate the influence of assessment strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.
4. To explore the influence of resource-based instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.
5. To examine the influence of government policy on the relationship between teaching strategies and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The following six hypotheses guided the study;

H₀₁: There is no relationship between student centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₂: There is no relationship between teacher centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₃: There is no relationship between assessment strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₄: There is no relationship between resource-based instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₅: There is no relationship between teaching strategies and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

H₀₆: The relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is not dependent on government policy in public secondary schools in Nandi County.

Questionnaire instruments were used to collect data from Principals, teachers, and students' in public secondary schools in Nandi County, the interview schedule was used to collect data from the County Director of Education of Nandi County and observation schedule was used to collect data pertaining to students' performance. The observation schedule was termed students' performance scale. The data collected were sorted and organized systematically to facilitate coding. Quantitative data were keyed into SPSS computer version 21 for analysis

while qualitative data was analysed using thematic analysis method to triangulate the research findings from the respondents. The statistical techniques such as descriptive statistics, correlation and regression analysis were used to analyse quantitative data. The results of the findings were presented by use of tables and figures.

4.2 General and Demographic Information

The section presents the general information on response rate and demographic information. This included the sampling units (schools), educational level, age, gender and experience.

4.2.1 Response Rate

The sample population totalling 481 consisted of 365 students, 85 teachers, 30 principals and 1 County Director of Education in Nandi County. This means that 481 research instruments were administered to the respondents. The County Director of Education was interviewed using interview schedule while questionnaires were administered to the Principals, teachers and students. The researcher administered questionnaires to the Principals and 29 questionnaires were filled and returned, representing 96.7 percent return rate. In addition, 85 questionnaires were administered to teachers out of which 83 were filled and returned, and this represented a return rate of 97.6 percent. A total of 365 questionnaires were administered to the students and 360 were filled and returned representing a return rate of 98.6 percent. Table 4.1 shows the summary of respondents' response rate.

Table 4.1: Response Rate

Respondents	No. of Respondents	Instruments Returned	%	Instruments Not Completed	%
Principals	30	29	96.7	1	3.3
Teachers	85	83	97.6	2	2.4
Students	365	360	98.6	5	1.4
CDE	1	1	-	-	-
Total	481	473			

As shown in Table 4.1, the response rate was 96.7% for the Principals, 97.6% for the teachers and 98.6% for the students. The study recorded the high response rate due to co-operation from the respondents during the study. This implies that briefing sessions held with the Principals of the sample public secondary schools were effective. The Principals briefed the teachers to mobilise the students to ensure the questionnaires were filled and returned.

The response rate is important in survey research. Rindfuss, Choe, Tsuya, Bumpass and Tamaki (2015) discusses that response rate in research is essential and that where the response rate is low in research, this need not to be taken as bias because there are several factors that affect survey responses including; survey design, social environment, respondent interest, obligations, lifestyle, experience and psychological predisposition. The high response rate indicates the willingness and cooperation of the respondents to participate in the study. The high response rate in Table 4.1 shows that the return rate from the respondents was high hence acceptable.

4.2.2 Demographic Information of the Respondents

The section provides the brief background information of the respondents that related to the study sample, the respondents gender, age, years spent on pre-service training, years of experience for the Principals and teachers including information on age for students and the teaching subjects for teachers.

4.2.3 Distribution of the Respondents by School Categories

The study sought to establish the public secondary school categories of the respondents. Table 4.2 summarizes the distribution of respondents according to school categories.

Table 4.2: School Categories Distribution of Respondents

School Category	Principals		Teachers		Students	
	F	(%)	F	(%)	F	(%)
District	15	52	40	48	187	52
County	12	41	38	46	144	40
National	2	7	5	6	29	8
Total	29	100	83	100	360	100

Table 4.2 shows that 52%, 48% and 52% of the Principals, teachers and students were from district schools. The respondents, 7% of the principals, 6% of the teachers and 8% of the students were from national schools. The findings revealed that the population of district (Sub County) schools formed a high proportion of sample schools for the study. The District schools had high number of students and teachers combined.

4.2.4 Gender of the Respondents

The study sought to establish out the gender of the Principals, teachers and the student respondents. Table 4.3 shows the gender distribution of the respondents.

Table 4.3 Gender of the Respondents

School Category	Principals		Teachers		Students	
	F	(%)	F	(%)	F	(%)
Male	20	69	55	68	184	51
Female	9	31	26	32	176	49
Total	29	100	81	100	360	100

The disaggregated data in Table 4.3 shows that 69% of the Principals were male while 31% were females. In addition, 68% of the teachers were male while 32% were female. The demographic data further showed that 51% of the students were male while 49% were female. These findings reveal the gender disparity in favour of males among the Principals and teachers. The gender representation for the students reveals a near gender parity between both male and female students. In education, gender issues are regarded key to establishing gender needs and expectations of students learning.

4.2.5 Age Profile of the Principals, Teachers and the Students

The researcher sought to establish the age profile for the Principals, teachers and students.

The findings are summarized in Table 4.4.

Table 4.4: Age Category of the Principals, Teachers and Students in years

Age Category of the Respondents in Years	Principals		Teachers		Students	
	F	(%)	F	(%)	F	(%)
11-14					11	3
15-19					328	91
20-24			13	17	14	4
25-29			20	27	7	2
30-34			19	25		
35-39			15	20		
40-44	11	38	3	5		
45 and Above	18	62	5	6		
Total	29	100	75	100	360	100

As shown in the table 4.4 majority 62% of the Principals who participated in the study, were above the age of 45. The findings shows that teachers who take up the headship responsibilities are those who have gained experience in teaching over the years, have managerial and leadership skills and have been trained in educational management. Table 4.4 carries the information that shows 52% of teachers were aged between 25 and 34 years while 25% were aged between 35 and 44 years. The findings indicate that the bulk of teachers in the sample were aged between 20 and 39 years. In addition, as shown in Table 4.4 91% of the student respondents were aged between 15 and 19 years.

4.2.6 Years of Pre-Service Training for Principals and Teachers

The study sought to find out the number of years spent by the Principals and teacher respondents in pre-service training. Table 4.5 summarizes the findings of the study.

Table 4.5: Number of Years spent in Pre-service Training by Principals and Teachers

Years of Pre Service Training	Principals		Teachers	
	F	(%)	F	(%)
4 Years	8	28	57	84
3 Years	21	72	10	15
2 Years			1	1
Total	29	100	68	100

Table 4.5 shows that 72% of the Principals respondents attended pre-service training for 3 years while few 28% attended for 4 years. The finding from the study is an indication that for one to be a head teacher in public secondary school, one must have attained a minimum of a Bachelor’s Degree from the university or Diploma certificate. As shown in the table 4.5, 84% of teacher indicated they had attended pre-service training for 4 years with few 15% having attended pre-service training for 3 years. This is very important noting that for a person to teach in secondary school, he or she should have undergone pre service training. The findings agree with Ko et al (2013) who posited that teachers’ effects are among the aspects that determine student progress and effective teaching in schools.

4.2.7 Experience of the Principal respondents in years

The researcher sought to establish the number of years of experience of Principal respondents. Table 4.6 shows the summary of the findings.

Table 4.6: Headship experience of the Principals

Years of serving as a head teacher	F	(%)
Less than 10 Years	19	66
10-20 Years	8	28
30-40 Years	2	6
Total	29	100

As shown in the table 4.6, majority 66% of the Principals had served for less than 10 years while few 28% had served for between 10-20 years. The finding shows that majority of the

principals have served for less than ten years in the headship position. In addition, the experience of principals imply that leadership needed for improving students’ performance in public secondary schools in Nandi County is provided.

4.2.8 Teaching Subjects for Teachers

The study sought to find out the teaching areas of the teacher respondents in their respective schools. Table 4.7 summarizes the teaching subject areas for the teachers.

Table 4.7: Teaching Subjects for Teachers

Response	F	(%)
English/Literature	19	25.7
Mathematics/Physics	14	18.9
Mathematics/Chemistry	6	8.1
Mathematics/Business Studies	8	10.8
Biology/Chemistry	7	9.5
Geography/Agriculture	1	1.4
Geography/Kiswahili	1	1.4
Biology/Agriculture	2	2.7
Physical Education Teacher	1	1.4
History/C.R.E	5	6.8
Kiswahili/History	3	4.1
Mathematics/Agriculture	1	1.4
Mathematics/Computer Studies	2	2.7
Chemistry/Agriculture	1	1.4
Kiswahili/C.R.E	1	1.4
Kiswahili/Mathematics	1	1.4
Mathematics/Biology	1	1.4
No response	11	13.2
Total	74	100

Table 4.7 shows the teaching area of the teacher respondents. Table 4.7 indicates that 25.7% teachers taught English and Literature, 18.9% Mathematics and Physics, 8.1% Mathematics and Chemistry, and 10.8% taught Mathematics and Business Studies. As shown in table 4.7, Mathematics and English subjects had the highest number of teacher respondents. English and Mathematics are core subjects in secondary education for enabling students to acquire numeracy and reading skills. Teaching and learning English and Mathematics advances

acquisition of knowledge and skills through problem solving, creativity, analytical skills and critical thinking. Table 4.7, further shows that all teachers have two teaching subjects, which is part of the mandatory requirements for a teacher to teach in secondary schools.

4.3 Tests Assumptions

The statistical tests are based on a set of assumptions. The assumptions were that; data is normally distributed, adequate for data analysis, no relationship between independent and dependent variables, no multicollinearity and autocorrelation among the variables and that intervening variable has mediating influence on the independent and dependent variable. A number of statistical tools were used to confirm these assumptions. This section contains the results of reliability and normality test, multicollinearity, and autocorrelation. In addition, the section has the correlation and regression analysis.

4.3.1 Reliability Test for Students' Performance

The researcher sought to establish the reliability of items use to assess students' performance as the dependent variable. In the study, the indicators used to determine the dependent variable included; academic achievement (attendance register, student progress records, and examinations), and co-curricular activities (availability and diversity of co-curricular facilities, usage of co-curricular training facilities and adequacy of co-curricular trainers or personnel). Table 4.8 shows test of reliability of the items used to test performance index of the school.

Table 4.8: Reliability Statistics for Students' Performance

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.948	0.950	6

Table 4.8, shows high reliability of the instruments used to measure students' performance (0.950>0.05). Cronbach's Alpha, a commonly used statistical technique, measures inter item

correlations and hence an estimate of reliability of instruments used in the study. Mugenda (2008) explained that Cronbach Alpha of 0.5 in research is sufficient for analysis and interpretation. The Cronbach's Alpha value of 0.950 implies that items used in the instrument to measure students' performance were reliable and for this reason sufficient for statistical analysis and interpretation.

4.3.2 Normality Test for Students' Performance

The dependent variable, students' performance was subjected to normality test to establish whether the data collected was normally distributed. The distribution of students' performance indicators had normal distribution implying that the mean, mode and the median are equal as portrayed by the bell-shaped graph. Kolmogorov –Smirnov (K-S Lilliefors) test and Shapiro-Wilk test was used to assess the normality test. Table 4.9 shows the results of the normality test using Kolmogorov–Smirnov test and Shapiro-Wilk test.

Table 4.9: Normality Test of Students' Performance

Respondents		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
Principals	P1	0.328	29	0.000	0.821	29	0.000
Teachers	P1	0.277	83	0.000	0.811	83	0.000
Students	P1	0.303	360	0.000	0.817	360	0.000

Legend: P1-Students performance

As shown in Table 4.9, the results of the tests were statistically significant as indicated by the Kolmogorov–Smirnov test ($0.328 < 0.05$, $0.277 < 0.05$, $0.303 < 0.05$) and Shapiro-Wilk test ($0.821 > 0.05$, $0.811 > 0.05$, $0.817 > 0.05$) for the variables from the respondents (Principals, teachers and students). The statistic values were also significant ($0.000 < 0.05$). The findings from the analysis indicate that the responses from respondents were consistent and there were no major outliers.

4.3.3 Tests for Teaching Strategies (Independent Variables)

The teaching strategies used as the independent or predictor variables were subjected to statistical tests to establish whether they were free from multicollinearity and autocorrelation.

4.3.4 Test of Multicollinearity for Teaching Strategies (Independent Variables)

Multicollinearity test was done to establish the presence of superfluous variables and establish whether there was consistent pattern (inter correlation) among the independent variables. Variance Inflation Factor and Tolerance Factor coefficients were used to measure the level of multicollinearity among the variables. Table 4.10 shows the summary of the findings of multicollinearity test of the predictor variables studied.

Table 4.10: Test of Multicollinearity Statistic on Predictor Variables

Responses	Predictor Variables	Collinearity Statistics	
		Tolerance	VIF
Principals	Student Centered Instruction strategy	0.718	1.393
	Teacher Centered Instruction strategy	0.541	1.847
	Assessment strategy	0.584	1.711
	Resource-Based Instruction Strategy	0.786	1.273
Teachers	Student Centered Instruction strategy	0.718	1.393
	Teacher Centered Instruction strategy	0.541	1.847
	Assessment strategy	0.584	1.711
	Resource-Based Instruction Strategy	0.786	1.273
Students	Student Centered Instruction strategy	0.816	1.226
	Teacher Centered Instruction strategy	0.769	1.300
	Assessment strategy	0.547	1.827
	Resource-Based Instruction Strategy	0.612	1.635

As shown in Table 4.10, variance inflation factor were below 4 while tolerance factor for all the independent variables (student centered instruction strategy, teacher centered instruction strategy, assessment strategy and resource-based instruction strategy) was above 0.1 indicating that large errors due to high correlation among variables and coefficient that are very large were absent. Tolerance factors take into account the interaction effects of the independent variables relating to other independent variables. This implies that there is no serious inter-correlation among the independent variables.

4.3.5 Test of Auto Correlation for the Independent Variables

Durbin-Watson test was done to test autocorrelation in the residuals from a statistical regression analysis. The test checks whether there is presence of serial correlation among variables. Table 4.11 shows the test of autocorrelation using Durbin Watson test.

Table 4.11: Test of Autocorrelation for the Independent Variables

Respondents	Model	Number of Observations	Durbin-Watson	Significance Level
Principals	1	29	1.450	0.000
Teachers	2	83	2.280	0.000
Students	3	360	1.991	0.000

Predictors: (Constant), Student Centered Instruction Strategy, Teacher Centered Instruction Strategy, Assessment Strategy, Resource-Based Instruction Strategy

As shown in Table 4.8 the results of Durbin Watson test residual value ranged between 1.450 to 2.280 for Principals, teachers and students. The results from the analysis indicates that there were no auto correlation among the independent variables (1.450, 2.280 and 1.991<2.4). This implies that the independent variables do not influence each other in the model.

The finding agrees with the Durbin Watson coefficient values that range from 1.5 to 2.5, which means that there was no autocorrelation. The values above 2.5 means no serial correlation while below 1.4 to zero implies there is a negative correlation. The correlation between variables in the study is expected to be independent. However, a number of frequently occurring phenomenon may result in the occurrence of autocorrelation leading to variations or bias (Neville, Simsek and Jensen, 2004).

4.3.6 Test for Sample Adequacy

The sample adequacy test was done to ascertain whether the study sample was adequate for statistical analysis. This was to ensure that whatever outcome of the study can be replicated to a large population to get similar results. Test of sampling adequacy was done using KMO-

Bartlett’s test. Table 4.12 summarizes the results of the sampling adequacy of the respondents (Principals, teachers and the students).

Table 4.12: Sample Adequacy Test

Responses	Sample Adequacy Test	
Principals	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.738
	Approx. Chi-Square	150.467
	Bartlett's Test of Sphericity	Sig. 0.000
Teachers	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.742
	Approx. Chi-Square	81.230
	Bartlett's Test of Sphericity	Sig. 0.000
Students	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.721
	Approx. Chi-Square	114.038
	Bartlett's Test of Sphericity	Sig. 0.000

Predictor Variables: Student Centered Instruction Strategy, Teacher Centered Instruction Strategy ,Assessment Strategy, Resource-Based Instruction Strategy

As shown in Table 4.12, KMO measures sample adequacy where a figure above 50% (.50) is sufficient for analysis. Table 4.12 shows the sample adequacy for the school Principals was 73.8 %, teachers 74.2% and students 72.1%. The results in Table 4.12 imply that the sample used in the study was adequate.

Bartlett's test of sphericity measures the significance of the sample used. The analysis results shows that the sample used in the study was significant ($0.000 < 0.05$) and that there was no statistical difference in variance among the samples used. The high rate of KMO and the significance (0.000) of the variables means that the results from statistical analysis can be replicated in large population and therefore sufficient for interpretation.

4.3.7 Reliability Test for the Teachers’ Strategies

The Cronbach Alpha was used to measure the internal consistency of items used during the study. The findings are summarized in Table 4.13.

Table 4.13: Reliability Statistic for the Independent Variables

Respondents	N	Cronbach's Alpha	Number of Items
Principals	29	.965	37
Teachers	83	.824	37
Students	360	.688	37
Combined		.826	37

Predictor Variables: Student Centered Instruction Strategy, Teacher Centered Instruction Strategy ,Assessment Strategy, Resource-Based Instruction Strategy

As shown in Table 4.13, the reliability estimate indicates high correlation (0.965, 0.824 and 0.688>0.05) showing high internal consistency in the items used in the study. The combined results of the reliability test using Cronbach Alpha Coefficient in Table 4.13 for all the items shows high reliability of (0.826>0.05), which is greater than minimum threshold of 0.5. This implies that items used in the data collection instruments are consistent and reliable and therefore are appropriate for analysis and interpretation.

4.3.8 Students' Performance

In this study, students' performance was considered as the dependent variable. In the study, academic achievement and co-curricular activities are indicators of students' performance.

a) Descriptive Analysis of Students' Performance in Academic Achievement and Co-Curricular Activities

The objective of secondary education in Kenya is to provide holistic education for learners to be useful members of the society. Table 4.14 shows the summary of findings on students' performance in academic and co-curricular activities.

Table 4.14: Analysis of Students' Performance in Academic Achievement and Co-Curricular Activities

Students' Performance	Poor F (%)	Fair F (%)	Good F (%)	Very Good F (%)	Total F (%)
Principals	5 (17)	17 (59)	5 (17)	2 (7)	29 (100)
Teachers	7 (8)	37 (45)	37 (45)	2 (2)	83 (100)
Students	14 (4)	202 (56)	119 (33)	25 (7)	360 (100)

Legend: 1= Poor 2=Fair 3=Good 4=Very Good

As shown in Table 4.14 the research findings shows that 24% of the Principals and 40% of students revealed that students' performance in academic achievement and co-curricular activities were very good. In addition, 59% of Principals, 45% of teachers and 56% of students indicated students' performance was fair while less than 14% of all respondents indicated that students' performance was poor.

The high rating by Principals 59% and students 50% that students' performance was fair is an indication that despite schools following the laid down education programme for public secondary schools, students' performance is not the best. The study findings revealed that the public secondary schools and teachers have an enormous duty to put in place workable strategies to realize improved and excellent students' performance.

Academic achievement in the study shows that inculcation of knowledge enhances students' performance at higher levels of independence. Students who have acquired knowledge are capable solving mathematical problems based on cognitive abilities. In addition, acquisition of intellectual skills by students enhances critical thinking contributing to improved students' performance. Students can compare and contrast new and existing knowledge acquiring higher order thinking hence enhancing their performance. In addition, inculcation of affective skills to students improves their attitude towards problem solving, collaboration, creativity and communication.

The findings agree with Campbell and Campbell (2009), who argued that a student possesses prior knowledge and their beliefs and academic experiences that they bring into the classroom influences what they learn and how they learn. The findings further concur with Sreenivasulu (2013), who opined that intellectual skills and knowledge are critical to an

individual and economy for decision-making research and innovation. The task of the teacher is to facilitate learning and provide variety of experiences and opportunities to enhance students' understanding and their performance.

b) The Extent to Which Students' are Engaged in Co-Curricular Activities

The study sought to establish the extent to which students' are engaged in co-curricular activities in public secondary schools in Nandi County. The findings are summarized in Figure 4.1

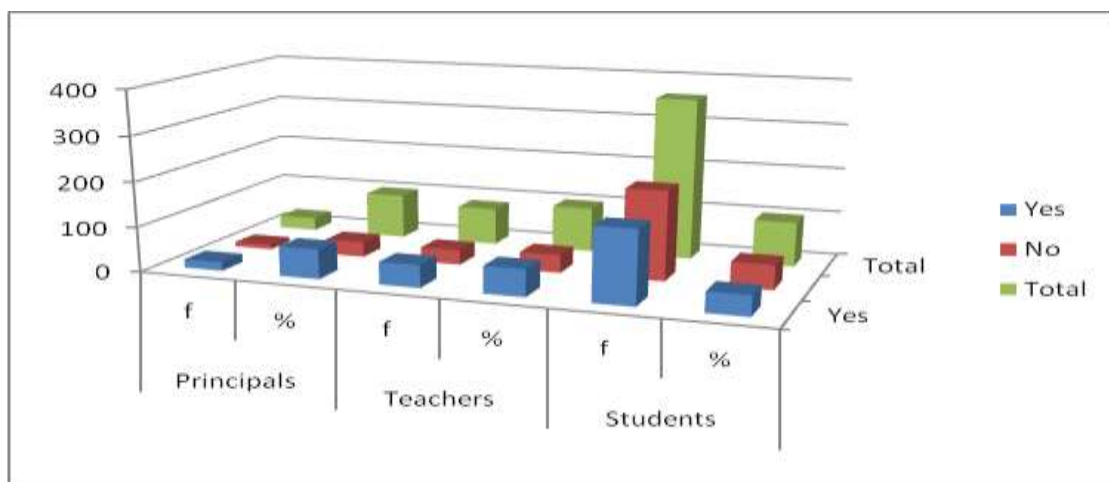


Figure 4.1: 3-D Common Bar Graph showing the Extent of Student Engagement in Co-Curricular Activities

As shown in Figure 4.1, 66% of Principals indicated that students in their schools are engaged in co-curricular activities, 60% of teachers revealed that students are engaged in co-curricular activities in their schools while 45% of the students revealed that their school engages them in co-curricular activities.

The findings in Figure 4.1 has shown higher rating by Principals 66% and teachers 60% while for the students, the rating was lower 45%. The findings is an evidence that public secondary schools in Nandi County do not offer academic programmes alone but also

encourages students participation in co-curricular activities. The students' responses pointed out that either students are not realizing that co-curricular activities are important for their personality development and future career choices or the schools are not involving them. This shows that public secondary schools have a duty to ensure students participate in at least one co-curricular activity to develop holistically.

The government is keen on providing quality education and improving students' performance. Teachers should use effective teaching strategies to expose students to a variety of learning activities and experiences to enable them participate in academic and co-curricular activities and gain skills for further education and social development. This will ensure learners achieve desired performance in cognitive, affective and psychomotor domains (Republic of Kenya, 2012).

The findings agrees with views of Amadi, Modebelu and Umezulike (2016) who explained that curriculum is a framework for teaching and learning and must be implemented in its totality. Therefore, academic programmes that includes sum of learning experiences that learners are exposed to under the guidance of their school including co-curricular activities must be provided.

The findings concur with views of Bashir and Hussain (2012) who contend that co-curricular activities increases student social interaction leading to increased student self-confidence and discipline. According to Harris (2013), co-curricular activities have greater impact on student grades; improve relationships between students, their peers, and teachers. Articulating co-curricular goals exposes students to variety of academic and co-curricular activities contributing to improved students' performance.

c) Descriptive Analysis on the Types of Co-Curricular Activities Students are Engaged in

The study sought to establish the types of co-curricular activities students are involved in. The findings are summarized in Figure 4.2.

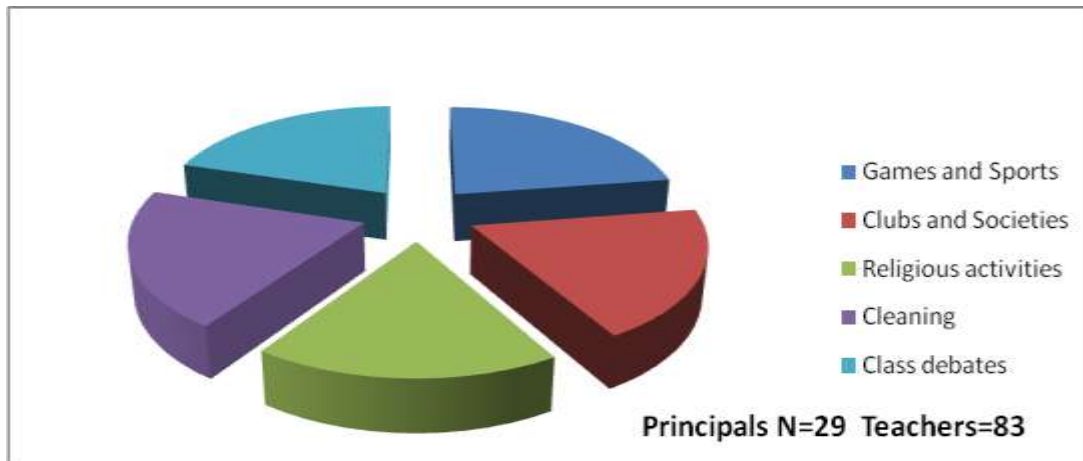


Figure: 4.2: Principals Rating on Types of Co-Curricular Activities

As shown in figure 4.2, the responses from the Principals and teachers were high above 50% showing the type of co-curricular activities students are engaged in. The findings indicated that 65% of Principals and 60% of teachers revealed that students are involved in games and sports. Figure 4.2, also indicates that 55% of the Principals and 50% of teachers revealed that students are involved in participating in club and society activities. In addition, the findings show that 50% of the Principals and 65% of teachers involve students in religious activities. The findings further show that 60% of Principals and 50% of the teachers revealed that students in their schools are involved in general cleaning in school while 60% of Principals and 50% of teachers involve students in class debates.

The findings revealed high rating by Principals and teachers all above 50% showing that it is the responsibility of the leadership in school to involve students in variety of co-curricular activities to enable students develop talents and acquire skills for personality development.

Example of games and sports include; volley ball, netball, basketball, and athletics. Clubs include activities like drama and music. Religious activities involve participating in religious gathering or unions based on what students believe in. Cleaning and debates are activities that expose students to acquaint themselves to community service activities.

The results of the findings concur with, Cook-Harvey (2014) findings, which shows that encouraging students to participate in co-curricular activities, gives them, the freedom to engage in activities based on their interests. The findings also concur with Annu and Sunita (2015) who contend that co-curricular activities exposes students to variety of experiences that include drama, music, athletics students council, debate, contests, students publications, and other social activities. In addition, Ajoke (2015) noted that co-curricular activities exposes students to learning English through debates, symposiums, press updates and games. The outcome of these experiences contributes to improvement in students' performance.

According to Wilson (2014) the three domains of learning based on Benjamin Bloom (1956) classification of educational objectives are; cognitive (thinking skills), affective (emotions and values) and psychomotor (physical/kinesthetic). The domains of learning have been documented to contribute to constructing learning tasks and creating better holistic learning experiences.

In addition, El-Sayed and El-Sayed (2012) discusses that psychomotor development promotes acquisition of skills based on the mind and the muscle and that there is direct relationship between quality of thought and the manipulative performance. The cognitive domain focuses on knowledge arranged in a segmented sequence and analytical style. The

findings further agree with Sharrifudin, Mislán, Wong, and Julia (2011) who in their study investigated the effects of E-Sports courseware for teaching psychomotor skills in triple jump, developed, based on Simpson's Psychomotor Domain Taxonomy. The results revealed that acquisition of skills and knowledge had significant and positive effects on physical movement and motor skill acquisition.

d) Qualitative Analysis of County Director of Education on Students' Performance

To triangulate the results in Figure 4.2, the qualitative analysis of County Director of Education interview responses on the extent to which academic achievement resulted in improved students' performance in public secondary schools in Nandi County. The findings revealed the importance of students' performance in public secondary schools for the school, community and the society.

The CDE elaborated that some public secondary schools academic performance is poor due to lack of innovative use of teaching strategies, inadequate teaching resources and the prevailing parental and community issues, poverty being significant. Another issue was on access to learning in which students travelled long distance to reach school and sometimes there exists limited learning space opportunities.

CDE indicated that the County Education Office has records for co-curricular activities undertaken by public secondary schools in Nandi County. The qualitative findings during the interview with CDE indicated that majority of public secondary school students in Nandi County participated in games. The CDE stated the co-curricular activities that students were involved in and included athletics, indoor games, basketball, table tennis and soccer. Others were in music, drama, scouting, societies and clubs. This evidence shows that students

participation in co-curricular activities, varied from school to school depending on availability of resources, playing field and training personnel.

The CDE was asked to elaborate on ways of promoting students' involvement in co-curricular activities. The CDE stated that although students participate in co-curricular activities, the costs of sponsoring co-curricular activities are high, time consuming and sometimes, students may engage in socially unacceptable behaviours such as pre-marital sex. The CDE indicated that the Ministry of Education, sometimes provide funding or allow schools to levy extra funding to assist schools to organize and support students' to participate in co-curricular activities. In addition, during assembly days, students are encouraged to participate in co-curricular activities of their choice.

The findings agree with Massoni (2011) who explained that co-curricular activities reduces student behaviour problems. As they are involved in games, the students' engages in drills and through constant practice increases a sense of responsibility. Students who engage in games as athletics earn respect, status and develop higher self-esteem. This enhances students' performance in reading and mathematics.

4.4 Analysis of the Influence of Student Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

In this section quantitative and qualitative data analysis, presentation and interpretation of the findings was done. The objective one of the study sought to establish the influence of student centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. The objective was investigated by addressing the aspects (indicators) of the variable that included; student behaviour, learning expectations and students' social emotional learning.

4.4.1 Descriptive Analysis of the Influence of Student Centered Instruction Strategy on Students' Performance

The section presents the findings of the study on aspects of student centered instruction. The respondents of the study were Principals, teachers and the students.

a) Student rating on the Extent to which Students' Behavioural Problems disrupts Learning

Students were asked to rate the extent to which students' behavioural problems in school disrupted learning. Quantitative data analysis was done and the findings are summarized in Table 4.15.

Table 4.15: Student rating on the Extent to which Students' Behavioural Problems disrupts Learning

Classroom behavioural problems	Very great extent	Great Extent	Moderate Extent	Small extent	Very small extent	Total
	F(%)	F(%)	F(%)	F(%)	F(%)	F(%)
Being late for class	119 (33)	151 (42)	58 (16)	18 (5)	14 (4)	360 (100)
Being Inattentive	126 (35)	187 (40)	43 (12)	32 (9)	14 (4)	360 (100)
Frequent loss of books	122 (34)	151 (42)	43 (12)	29 (8)	18 (5)	360 (100)
Being violent	140 (39)	133 (37)	43 (12)	40 (11)	4 (1)	360 (100)
Bullying	126 (35)	97 (27)	83 (23)	43 (12)	11 (3)	360 (100)

Table 4.15 reveals the students rating on the students' behavioural problems that contribute to students' misbehaviour in school and hence the need for effective teaching strategies. Table 4.15 reveal 75% of students indicated that students being late for class manifest students' behavioural problems; 75% indicated students being inattentive; 76% indicated students experiencing frequent loss of books; 76% of the students indicated being violent and; 62% of the students indicated students being engaged in bullying.

The findings from the students show that students' misbehaviour is a problem resulting in student indiscipline, affecting teaching and disrupting learning. These acts of student misbehaviour disrupt the teachers from engaging in teaching effectively and students from performing well. The students rated highly that students sometimes exhibit violent behaviour 76% and frequent loss of books 76% as key contributing factors to students' behavioural problems in the classroom.

To establish the influence of student centered instruction strategy on students performance in academic achievement and co-curricular activities, data were collected from; the Principals using Principals Questionnaire; teachers using Teacher Questionnaire, the students using Students Questionnaire and; from County Director of Education using Interview Schedule. The summary of the findings is presented in Table 4.16, 4.17 and 4.18.

b) Principals rating on the Influence of Student Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The findings on the influence of student centered instruction strategy on students' performance from the Principals are summarized in Table 4.16.

Table: 4.16: Principals Rating on the Influence of Student Centered Instruction Strategy on Students' Performance

Student Centered Instruction Strategies	Principals					Total F(%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
Effective classroom organization	2 (7)	2 (7)	2 (7)	16 (55)	7 (24)	29 (100)
Effective time management on tasks	4 (14)	6 (20)	1 (3)	6 (21)	12 (42)	29 (100)
Enforcing students discipline control	1 (7)	4 (14)	4 (14)	19 (66)	1 (3)	29 (100)
Management of student behaviour	2 (7)	1 (3)	6 (21)	12 (41)	8 (28)	29 (100)
Clear communication of teaching and learning objectives	1 (3)	3 (10)	4 (14)	15 (52)	6 (21)	29 (100)
Giving students opportunities to develop clear classroom learning expectations	2 (7)	1 (3)	3 (10)	10 (35)	13 (45)	29 (100)
Supporting students to develop talents	1 (3)	5 (17)	2 (7)	11 (38)	10 (35)	29 (100)
Promoting students social emotional development to improve attitudes towards learning		4 (14)	3 (10)	12 (41)	10 (35)	29 (100)
Putting in place counselling sessions to increase students' self awareness	1 (3)	3 (10)	6 (21)	11 (38)	8 (28)	29 (100)
Promoting positive teacher-student relationship	3 (10)	1 (4)	6 (21)	8 (27)	11 (38)	29 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

The findings in Table 4.16 revealed that 79% of the Principals indicated that effective classroom organization improves students' performance. The study findings in Table 4.16 show that 63% and 69% of the Principals revealed that effective management of time on task and enforcing students discipline contributed to improved students' performance. In addition, Table 4.16 shows that 69% of the Principals indicated that management of students' behaviour influences performance of students. The study finding further show that 73% and 80% of the Principals indicated that having clear communication of teaching and learning objectives in the giving students opportunities to participate in developing clear classroom learning expectations enhances their performance.

Table 4.16 further reveals that 73% of the Principals showed that supporting students to develop their talents influences their performance. As shown in Table 4.16, 76% and 66% of the Principals showed that promoting students' social emotional development improves students' attitudes towards learning and result in increased self-awareness through counselling sessions respectively. In addition, 65% of the Principals indicated that promoting positive teacher- student relationship improves students' performance. The Principals rated highly the study findings on the influence of classroom learning expectations 80%, the need for effective classroom organization 79% and the need to promote social and emotional learning 76% as enhancing students' performance.

It is quite evident from the findings that student centered instruction strategy influences students' performance. Effective teaching can be realized where there are effectively managed classrooms, clear classroom expectations, and rules and regulations that guide students' behaviour. The findings agree with what Kratochwill et al (2015) who documented that the classroom that works focuses on students learning.

c) Teachers rating on the Influence of Student Centered Instruction Strategy on Students' performance in Academic Achievement and Co-Curricular Activities

The findings on the influence of student centered instruction strategy on students' performance from the teachers are shown in Table 4.17.

Table 4.17: Teachers rating on the Influence of Student Centered Instruction Strategy and Students' Performance

Student Centered Instruction Strategies	Teachers					Total F (%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
Effective classroom organization	4 (5)	12 (14)	22 (27)	35 (42)	10 (12)	83 (100)
Effective time management on tasks	7 (8)	13 (16)	11 (13)	35 (42)	17 (21)	83 (100)
Enforcing students discipline	3 (4)	5 (6)	20 (24)	46 (55)	9 (11)	83 (100)
Management of student behaviour	3 (4)	5 (6)	17 (21)	37 (44)	21 (25)	83 (100)
Clear communication of teaching and learning objectives	3 (4)	6 (7)	20 (24)	41 (49)	13 (16)	83 (100)
Giving students opportunities to develop clear classroom learning expectations	4 (5)	5 (6)	21 (25)	38 (46)	15 (18)	83 (100)
Supporting students to develop individual talents	6 (7)	11 (13)	6 (7)	43 (52)	17 (21)	83 (100)
Promoting students social emotional development to improve attitudes towards learning	7 (8)	7 (8)	8 (10)	49 (59)	12 (15)	83 (100)
Increasing students' self awareness through counselling sessions	6 (7)	5 (6)	7 (9)	43 (52)	22 (26)	83 (100)
Promoting positive teacher-student relationship	7 (9)	1 (1)	9 (11)	23 (38)	42 (51)	83 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

The findings in Table 4.17 show that teachers in public secondary schools in Nandi County implements student centered instruction in teaching influencing students' performance. Table 4.17 reveals that 54% of teachers indicated that effective classroom organization, 63% revealed effective time management of tasks, 66% indicated enforcing students' discipline by teachers; 69% revealed management of students' behaviour; and 65% revealed having clear classroom communication of teaching and learning objectives contributed to improved students' performance.

In addition, Table 4.17 show that 73% of the teachers revealed that supporting students to develop their talents, 64% giving students opportunities to develop clear classroom learning expectations, 74% promoting students social and emotional development and; 78% revealed

that increasing students' self-awareness through counselling sessions influenced their performance. In addition, 79% of the teachers revealed that promoting positive teacher-student relationship improve students' performance.

Teachers rated highly promoting positive teacher-student relationship 79%, increasing students' self-awareness through counselling sessions 78%, promoting students' social emotional learning 74%; and supporting students to develop talents 73% as strategies influencing students' performance. The findings therefore show that teachers play a crucial role in ensuring students demonstrate positive behaviours, and are socially adjusted to fit into the learning environment. Teachers ought to develop social emotional programmes for students' development, behaviour management and discipline.

The finding further shows that teacher's skills in nurturing of positive teacher students' relationship, nurturing student talents and increasing their self awareness adds value to students learning and their performance. The use of student centered instruction strategies in classroom management by the teacher remains vital in students' performance. Teachers are expected to articulate students' learning needs, plan the necessary content and how best it can be delivered to students. The results of the findings have revealed that teachers who use the student centered instruction strategies to improve classroom management practises and students learning, instils a sense of responsibility and control amongst students.

The findings concur with the findings of Owoyemi and Adesoji (2012) and Stoop (2011) that emphasised that teachers should use teaching strategies which, guide learners to be responsible and to realise optimal learning.

d) Students rating on the Influence of Student Centered Instruction Strategy on Students' performance in Academic Achievement and Co-Curricular Activities

The findings in Table 4.18 show the students rating on the influence of student centered instruction strategy on students' performance. The findings are summarized in Table 4.18.

Table 4.18: Students rating on the Influence of Student Centered Instruction Strategy on Students' Performance

Student Centered Instruction Strategies	Students					Total F(%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
My teacher organises our classroom well	18 (5)	68 (19)	50 (14)	130 (36)	94 (26)	360 (100)
My teacher manages time for doing classroom tasks to improve our performance	7 (2)	29 (8)	86 (24)	180 (50)	58 (16)	360 (100)
My teacher maintains discipline in class for students to perform better	29 (8)	79 (22)	36 (10)	122 (34)	94 (26)	360 (100)
My teacher manages our behaviour so that we learn better		14 (4)	25 (7)	169 (47)	151 (42)	360 (100)
My teacher communicates clear teaching/learning objectives	7 (2)	22 (6)	58 (16)	169 (47)	104 (29)	360 (100)
My teacher provide opportunities on what is expected regarding learning to improve on our performance	7 (2)	14 (4)	83 (23)	148 (41)	108 (30)	360 (100)
My teacher give support for the development of talents	7 (2)	18 (5)	65 (18)	166 (46)	104 (29)	360 (100)
My teachers promote social emotional development to improve our learning attitudes	4 (1)	32 (9)	83 (23)	155 (43)	86 (24)	360 (100)
My teacher provide counselling on what we should be aware about ourselves	29 (8)	58 (16)	36 (10)	144 (40)	93 (26)	360 (100)
My teacher guide us to that we relate well with both students and teachers	21 (6)	54 (15)	43 (12)	94 (26)	148 (41)	360 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

The findings in Table 4.18 show that the student centered instruction strategies with respect to classroom management highly influences students' performance as per the students responses. The findings from 62% and 66% of the students' shows that effective classroom organization and teacher's management of time on tasks contributes to improved students' performance. As shown in Table 4.18, 60%, 89% and 76% of the students revealed that

maintaining student discipline by teachers and management of student behaviour and having clear communication of teaching and learning objectives influences their performance.

As shown in Table 4.18, 71% of the students revealed that their teachers provided students with opportunities to participate in developing classroom learning expectations; 75% indicated that their teachers support the students to develop their talents; 67% indicated that their teachers promote students social emotional development; 66% revealed that teachers provided counselling sessions to increase their self awareness while 67% of students revealed that their teachers guided them to have positive teacher-student relationship influencing their performance.

Therefore, more than two thirds of the student respondents rated highly; teachers' management of student behaviour 89%; clear communication of teaching and learning objectives 76%, supporting student talent development 75% and; giving students opportunities to develop clear classroom learning expectation 76%, as student centered instruction strategies influencing their performance.

It is clear from the study findings from the students respondents that effective student centered instruction set the pace for students learning. In situations where the teacher encounters unpleasant students' behaviour, investigations need to be done to establish the root cause of unwarrantable behaviour. It could be that the students learning needs have not been met, have personal problems or deviating from the expected rules and expectations. Teachers are expected to ensure learning goals are constantly communicated to students to reduce the challenges facing the students.

In a learning environment where the teacher work collaboratively with students to manage the classroom practices by means of managing students' behaviour and setting clear classroom expectation, students' performance was bound to improve. The findings concur with Bear (2010) who argues that the problems faced by modern classrooms is students misbehaviour and hence there is need for secondary schools through their teachers to put in place strategies for effective behaviour management.

e) Qualitative analysis of County Director of Education interview responses on the Influence of Student Centered Instruction Strategy on Students' performance

The qualitative analysis of the CDE interview responses on the ways of enforcing adherence of classroom procedures through student centered instruction strategy in the Nandi County, revealed that teachers use a variety of teaching methods appropriate to the subject being taught in class. In addition, teachers encourage student interaction and group discussions on ways in which laid down procedures are expected to be followed in the classroom.

In addition, the qualitative analysis shows the findings from the CDE in Nandi County on the use of student centered instruction strategy to manage students' behaviour. The CDE revealed that public secondary schools in Nandi County encounter students with misbehaviour problems and regularly receive reports from public secondary schools. The County Education Office takes the initiative to ensure student misbehaviour is checked. This is done by having frequent meetings, consultations and issuing circulars to the public secondary schools in the County. The County Education Office issues circulars directing schools to form discipline committees and offering guidelines on ways of enforcement of school discipline procedures. The school circulars are binding documents that ensures Principals upholds students' education as a basic human right.

The qualitative findings from the CDE further revealed that the County Education Office has instituted measures that are communicated to schools to ensure that the Principals routinely supervise teachers to ensure the teaching strategies that are used, promote active student learning and order in the classroom. The CDE organises meetings with public secondary schools to deliberate on the mentorship programmes through which students are coached and mentored to take responsibility of their learning and acquire knowledge. The County Education Office circulates all legal policies pertaining to secondary school education programme.

The study sought to find ways in which CDE support students in public secondary schools to shape personal growth. The qualitative analysis shows that the CDE encourages schools to organize school meetings where students are provided with opportunities for airing their grievances related to learning or social matters affecting them. In addition, the CDE revealed that the County Education Office, designs self-awareness programmes for students' personal growth. In addition, schools are encouraged to establish peer teams among students to foster positive behaviour management and ways of reducing emotional stress. The CDE further revealed that emphasis has been placed on establishment and strengthening of guidance and counselling units in schools. These measures guide students to develop positive attitudes and good behaviours, have healthy thoughts, become cognitively competent and improve their performance.

The CDE further revealed that where teacher uses student centered instruction strategy, the teacher takes the role of a facilitator or a coach. The students' performance is gauged through use of student portfolios, projects, and active learning through classroom participation. The

findings from qualitative analysis of findings have further shown that a student voice is encouraged when student centered instruction strategy is use in the classroom and is supported by the County education office in public secondary schools.

The findings from the study have revealed that the student centered instruction strategies includes; involving students in organizing the classroom, effective planning and management of time on tasks, encouraging student self-discipline and teachers exercising control on matters relating to student discipline, working collaboratively with students by communicating learning goals effectively, guided by existing education policies.

In addition, the findings have further shown that teachers should provide learning opportunities for students to explore, identify and nurture their talents, promote students' social emotional development, put in place counselling sessions to increase students' self-awareness and promote positive teacher-student relationship. Teachers should also strive to increase learning momentum during lessons by ensuring students undertake classroom tasks while taking responsibility for their actions, communicate and work closely with students in setting high behavioural and learning expectations and demonstrate the desired and appropriate behaviour. Teachers should support and demonstrate students' skills that will built and strengthen their social emotional competence; and improve their attitudes towards better performance.

The findings from the study agree with Langer (2007) five-year study report that recognizes classrooms as places of structuring ideas, organizing students for group instruction, having high student engagement and contributing to content knowledge. The findings concur with the findings of Wilkinson and Meiers (2007) who suggested that teachers should have wide

range of skills on behaviour management. Teachers should give opportunities to students to participate actively in shaping their learning and behaviour and create responsive and enabling learning atmosphere. The results of this study concur with the finding of Tiwari and Panwar (2014) who alluded that effective classroom management improves content delivery and students' performance.

4.4.2 Hypothesis 1: There is no Relationship between Student Centered Instruction Strategy and Students' Performance in Academic Achievement and Co-Curricular Activities in Public Secondary Schools in Nandi County

The finding of the study was also in response to the first research hypothesis of the study.

The null hypothesis was expressed statistically as;

$$H_{01}: p=0$$

Where P represents the correlation between student centered instruction strategy and students' performance, which is equal to zero (no correlation).

H_{A1} : There is relationship between student centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The alternative hypothesis is statistically expressed as;

$$H_{A1}: p>0$$

The hypothesis was tested and the influence of independent variable (student centered instruction strategy) and dependent variable (students' performance) was measured using

linear regression model. In the hypotheses for the study, the results of hypotheses tests are discussed as per the variables of the study.

a) Correlation Analysis on the Influence of Student Centered Instruction Strategy on Students’ Performance in Academic Achievement and Co-Curricular Activities

The correlation and regression analysis was done to measure the relationship between student centered instruction strategies on students’ performance. The findings and presentation of results of the correlation analysis are arranged according to responses from the Principals, teachers and students. The findings of the study are summarized in Table 4.19.

Table 4.19: Correlation Analysis on the Influence of Student Centered Instruction Strategy on Students’ Performance

Respondents			PI	(Sci)
Principals	Students’ Performance	Pearson Correlation	1.000	.609**
		Sig. (1-tailed)		.000
		N	29	29
	Student Centered Instruction Strategy	Pearson Correlation	.609**	1.000
		Sig. (1-tailed)	.000	.
		N	29	29
Teachers	Students Performance	Pearson Correlation	1	.556**
		Sig. (2-tailed)		0.000
		N	83	83
	Student Centered Instruction Strategy	Pearson Correlation	.556**	1
		Sig. (2-tailed)	0.000	
		N	83	83
Students	Students Performance	Pearson Correlation	1.000	0.403**
		Sig. (2-tailed)		0.000
		N	360	360
	Student Centered Instruction strategy	Pearson Correlation	.403**	1.000
		Sig. (2-tailed)	0.000	
		N	360	360

** . Correlation is significant at the 0.01 level (2-tailed).
 Predictors: (Constant), Student Centered Instruction strategy (Sci)
 Dependent Variable: Students Performance (P1)

As shown in Table 4.19, the results show that all the correlation coefficients for all the variables from the respondent categories were positive. The results indicated that the more student centered instruction strategies are used, the more the students’ performance improves. The *r*-values is significant (0.609 and p-value of 0.000<0.01) for the school Principals, (0.556 and p-value of 0.000<0.01) for the teachers and (0.403 and p-value of 0.000<0.01) for the

students. The results show that there is a correlation between student centered instruction strategies and students' performance. The results in Table 4.19 imply that an improvement in student centered instruction strategies results in positive influence on students' performance.

The findings agree with Wong and Wong (2011) who explained that quality of instructional strategies adds between 15 to 20 times improvement in students' performance. Educators (Walters et al, 2014) discusses the need to shift teaching instruction from teacher centered teaching to student centered instruction, because it promote deep students learning and improved on their performance. Colombi and Osher (2015) explained the need for classroom and students' discipline to enhance active student participation in teaching and learning.

b) Regression Analysis Results on the Influence of Student Centered Instruction Strategy and Students' Performance in Academic Achievement and Co-Curricular Activities

Regression model was used in data analysis to generate a statistical relationship between one or more predictor (independent) variables and a response (dependent) variable. Table 4.20 shows the regression model summary for student centered instruction strategy and students' performance in academic achievement and co-curricular activities.

Table 4.20: Regression Analysis Results on the Influence of Student Centered Instruction Strategy on Students' Performance

Respondents	Model 1	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Change Statistics Sig. F Change
Principal		.609 ^a	.371	.348	.63734	15.955	.000
Teachers		.556 ^a	.309	.300	.57007	36.152	.000
Students		.403 ^a	.112	.105	.67723	16.023	.000

Respondents	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Principals	(Constant)	.372	.703		.529	.601
	Sci	.844	.211	.609	3.994	.000
Teachers	(Constant)	.704	.454		1.549	.125
	Sci	.859	.143	.556	6.013	.000
Students	(Constant)	.284	.613		.464	.643
	Sci	.788	.159	.403	4.962	.000

Dependable Variable: Students' Performance

Predictors: (Constant), Student Centered Instruction strategy (Sci)

Table 4.20 reveals the results of coefficient of determination (R^2) that shows the extent to which a unit change in student centered instruction strategy leads to an improvement in students' performance. The results of the analysis revealed that the coefficient of determination (R^2) is (0.371, 0.309 and 0.112) at ($0.000 < 0.05$) significance level for all the respondents.

Table 4.20 further shows that all the regression coefficients from the results of the findings from the Principals, teachers and the students indicates that 37%, 30% and 11% of the changes in students' performance can be attributed to the student centered instruction strategies (X). However, the remaining 63%, 70% and 89% of variability in students' performance (Y) can be explained by other factors outside the model. Table 4.20 shows the F ratio results that show that F-value is greater than ($F_{cal} > F_{crit}$), F-critical value ($15.955 > 4.21$,

36.152>3.96 and 16.023>3.84) for all the respondents and significant at (0.000<0.05). This indicates that the statistical model is significant in prediction of students' performance in public secondary schools in Nandi County, Kenya.

The null hypothesis that stated that; "there is no relationship between student centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County" was rejected. The finding shows that there exists a positive and significant relationship between student centered instruction strategy and students' performance in academic achievement and co-curricular activities in Nandi County. This means that effective student centered instruction strategy leads to improved students performance.

Table 4.20 shows the structure of the regression model, with the independent variable (X_1) and the constant. The regression coefficients for the model to measure the effect of student centered instruction strategy on students' performance is expressed as; $Y = \beta_0 + \beta_1 X_1$

In the regression model, the constant β_0 and X_1 (student centered instruction strategy), measures the changes in Y (students' performance). The results of the analysis in Table 4.20 show that for all the respondents, the constant was redundant in the model. This means the model that measured the influence of students' performance has a direct positive relationship with student centered instruction strategy ($Y=X$).

This further show that for all the results from all the respondents; the models were used to measure the effect of the independent variables on students' performance (Y) which is the dependent variable and expressed as;

$$Y = 0.609X_{11} \dots \dots \dots \text{Principals} \dots \dots \dots \text{(i)}$$

$$Y = 0.556X_{12} \dots \dots \dots \text{Teachers} \dots \dots \dots \text{(ii)}$$

$$Y = 0.403X_{13} \dots \dots \dots \text{Students} \dots \dots \dots \text{(iii)}$$

The results of this study concur with UNESCO (2017) that noted that the world we live in experiences insurmountable challenges. The challenges include; technological and global, social diversity and individualisation, expanding cultural and economic uniformity and massification of the information. To address the challenges, cognitive, volitional, motivational and affective skills are required. These skills are acquired through education and the teacher is the eventual imparter of the requisite skills and knowledge using appropriate pedagogical approaches. Additionally the choice of the teaching or learning method has to match the needs of the learning group that include; age consideration, interest, prior knowledge and abilities and the learning context.

Garrett (2008) compares student centered and teacher centred instruction considering their managerial and instructional approaches. It was noted that student centered instruction enhances community building, shared leadership and a sense of balance between teachers and students needs. In addition, teacher centered instruction strategy is the preferred method of teaching for improved students' performance, as it emphasised active learning and higher order thinking skills.

4.5 Analysis of the Influence of Teacher Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The second objective of the study sought to assess the influence of teacher centered instruction strategy on students' performance in academic achievement and co-curricular

activities in public secondary schools in Nandi County. The aspects analysed in the study were; lecture method, demonstration method, drill and practice.

To answer the research objective, the following teacher centered instruction strategies were investigated; lecture methods, demonstration method, drill and practice. The Principals Questionnaire, Teacher Questionnaire, Students Questionnaire and; Interview Schedule for the County Director of Education were instruments used to collect data.

4.5.1 Descriptive Analysis of Influence of Teacher Centered Instruction Strategies on Students' Performance in Academic Achievement and Co-Curricular Activities

This section presents the findings of the study on the influence of teacher centered instruction strategies on students' performance.

a) The Extent to which Teacher Centered Instruction Strategies influences Students' Performance in Academic Achievement and Co-Curricular Activities

The respondents who were the teachers were required to provide information on the extent to which teacher centered instruction strategies influences students' performance. The data collected was analysed and the summary of the findings are presented in Table 4.21.

Table 4.21: The Extent to which Teacher Centered Instruction Strategy influences Students' Performance

Teacher Centered Instruction Strategy	Very frequently F (%)	Frequently F (%)	Neutral F (%)	Rare F (%)	Very rarely F (%)	Total F(%)
Lecture method	25 (30)	17 (20)	21 (25)	12 (15)	8 (10)	83 (100)
Demonstration method	8 (10)	11 (13)	13 (15)	8 (10)	43 (52)	83 (100)
Drill and Practice	17 (20)	8 (10)	17 (20)	8 (10)	33 (40)	83 (100)

Table 4.21 reveal the teachers rating on the extent to which teacher centered instruction strategies influences students' performance. Table 4.21 reveal that 50% of teachers indicated that teachers were using lecture method in teaching very frequently while 70% of the teachers shows that the demonstration method were rarely used. In addition, the findings in Table 4.21 shows 62% of the teachers indicates that drill and practice was rarely used for improving students' performance.

The findings indicate that though in teacher-centered approaches, teachers take full control and maintains orderly classrooms, the approach has limitations. The approach is characterized by teacher directed learning, memorization of facts, talking, students being passive during the discussion and depending on the teacher for learning. The finding agrees with the finding of Schraw and Robinson (2011) which indicated that teacher centered instruction encouraged limited acquisition of high cognitive skills, problem solving, critical thinking skills, analysis and interpretation, decision-making and self regulation.

b) Principals rating on the Influence of Teacher Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The study sought to establish the influence of teacher centered instruction strategy on students' performance in academic achievement and co-curricular activities. School Principals, teachers and students were asked to provide information as the respondents of the study. The findings are summarized in Table 4.22, 4.23 and 4.24.

Table 4.22: Principals rating on the Influence of Teacher Centered Instruction Strategy on Students' Performance

Teacher Centered Instruction Strategy	Principals					Total F(%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
Teacher dominates the teaching of the students in the classroom	4 (14)	3 (10)	9 (31)	11 (38)	2 (7)	29 (100)
Students are actively involved in undertaking the tasks while listening to teachers instruction	1 (3)	3 (12)	7 (25)	10 (35)	7 (25)	29 (100)
Class assignments are undertaken independently and silently by students	1 (3)	3 (10)	4 (13)	14 (48)	7 (25)	29 (100)
Lecture method improves performance of learners	4 (14)	6 (20)	1 (3)	6 (21)	12 (42)	29 (100)
Use of collaborative learning in groups enhances students' performance	2 (4)	4 (14)	2 (4)	11 (38)	12 (40)	29 (100)
Students comply with strict and well define expectations, rules and regulation in the classroom which enhances their performance	1 (5)	4 (12)	7 (25)	12 (41)	5 (17)	29 (100)
Receiving and memorization of learning information enhances students' performance	2 (4)	2 (4)	7 (23)	8 (28)	12 (40)	29 (100)
Use of demonstration method enhances students' performance	3 (10)	6 (21)	2 (7)	12 (41)	6 (21)	29 (100)
Use of drill and practice engages students in learning leading to better performance	2 (6)	1 (3)	8 (28)	10 (35)	8 (28)	29 (100)
There is more emphasis on mastery of learning and recall of information in the learning process	2 (8)	3 (12)	4 (15)	6 (20)	13 (45)	29 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.22 shows the responses from the Principals on the influence of teacher centered instruction strategy strategies on students' performance. Table 4.22 shows that 45% the Principals indicated that teacher is in charge of the teaching of the students influencing students' performance. The rating by principals revealed that the teacher takes control of teaching of the students in the classroom 60%, involve students actively in learning tasks 73%, students undertake assignments independently and silently 63%, lecture method frequently used 78%, group work through collaborative learning 58%, strict and define rules

and expectations followed 68%, demonstration method used 62%, drill and practice used 63% and more emphasis on mastery of learning 65%.

Table 4.22 shows that Principals rated highly group work through collaborative learning 78% and undertaking assignment independently and silently 73% as teacher centered instruction strategies for improving students' performance. The findings in Table 4.22 indicate a low response 45% from the Principals, on the teacher taking control of teaching in the classroom as part of the teacher centered instruction strategy. The low responses show that lecture method is not an appealing instructional method for improving students' performance. The intended instruction stops with the teacher who is the authority in the teaching and learning process.

The use of group work in the classroom is needed to propel learning in the classroom and enhance teaching. Undertaking assignments independently and silently enhances students' accountability of their own learning as they actively involve themselves in learning tasks that result in acquisition of cognitive skills improving on their own knowledge. Although, lecture method encourages passive learning, when used with other teaching methods, it results in improved learning.

The findings in Table 4.22 agrees with the findings of Gardner and Jeon (2009) who documented that using variety of teaching strategies through guiding students to learn and giving opportunities to demonstrate what they have learnt and the acquisition of the relevant skills influences their performance.

c) Teachers rating on the Influence Teacher Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

Table 4.23 shows the summary of the findings on the influence of teacher centered instruction strategy on students' performance as per the responses from the teachers.

Table 4.23: Teachers rating on the Influence of Teacher Centered Instruction Strategy on Students' Performance

Teacher Centered Instruction Strategy	Teachers					Total F(%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
Teacher dominates the teaching in the classroom	10 (12)	8 (10)	30 (36)	34 (41)	1 (3)	83 (100)
Students are actively undertake the tasks while listening to teachers instruction	2 (2)	14 (17)	9 (11)	35 (42)	23 (28)	83 (100)
Class assignments are done independently and silently by students	6 (7)	5 (6)	19 (23)	31 (37)	22 (27)	83 (100)
Lecture method improves performance of learners	5 (6)	8 (10)	15 (18)	36 (43)	19 (23)	83 (100)
Use of collaborative learning in groups enhances students' performance	6 (7)	5 (7)	14 (17)	31 (37)	27 (32)	83 (100)
Students follow strict and well define expectations, rules and regulation	2 (2)	4 (5)	26 (31)	36 (44)	15 (18)	83 (100)
Receiving and memorization of learning information enhances students' performance	7 (8)	1 (2)	17 (21)	31 (37)	27 (31)	83 (100)
Use of demonstration method enhances students' performance	4 (5)	6 (7)	13 (16)	42 (51)	18 (22)	83 (100)
Use of drill and practice lead to better performance	7 (8)	5 (6)	11 (13)	35 (42)	25 (31)	83 (100)
There is more emphasis on mastery of learning and recall of information in the learning	6 (7)	2 (2)	17 (21)	36 (43)	22 (26)	83 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.23 shows the descriptive analysis of the responses from the teachers. Table 4.16 indicates that the 44% of the teachers indicated that the teacher's control of teaching in the classroom influences students' performance. Table 4.23 show 70% of teachers indicated that students' involvement in tasks while listening to the teacher influences students' performance. The rating by teachers revealed students undertaking assignments independently and silently 64%, use of lecture method 66%, use of group work 69%, use of

strict and define rules and expectations 62%, memorization of facts 68%, use of demonstration method 73%, use of drill and practice 73%, and more emphasis on mastery of learning 69% improves students' performance.

The analysis of findings shows that teachers rated highly use of demonstration method 73% and use of drill and practice 73%, as important strategies for improving student's mastery of content, evaluating lesson objectives, instructional methodology and giving feedback. The findings in Table 4.23 indicate a low response by the teachers 44% on the teacher taking control of teaching in the classroom as an instructional strategy. The low responses show that teacher dominance in teaching in the classroom remains the least preferred instructional strategy.

Teachers should be able to use teacher centered teaching alongside other instructional strategies to improve their teaching. The results of the study concurs with Marzano and Toth (2014) research findings showing that in teacher centered instruction teacher dominates the teaching giving less attention to students participation. In addition, Garrett (2008) noted that in teacher centered instruction teachers exercise control through identification of well-designed routines, rules, and regulations that will guide the students and classroom teaching.

d) Students rating on the Influence of Teacher Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

Table 4.24 shows the summary of the findings on the influence of teacher centered instruction strategy on students' performance in academic achievement and co-curricular activities as per the responses from the students.

Table 4.24: Students rating on the Influence of Teacher Centered Instruction Strategy on Students' Performance

Teacher Centered Instruction Strategy	Students					Total
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
My teacher is the only person who teaches us	72 (20)	51 (14)	72 (20)	151 (42)	14 (4)	360 (100)
My teacher gives me learning tasks to do and i listen	18 (5)	21 (6)	108 (30)	130 (36)	83 (23)	360 (100)
My teacher gives me class assignments to do independently and silently	7 (2)	33 (9)	65 (18)	169 (47)	86 (24)	360 (100)
My teacher instructs me on what to do by giving me lots of subject information	11 (3)	36 (10)	94 (26)	137 (38)	82 (23)	360 (100)
My teacher places me in a group to work while teaching us in class	14 (4)	32 (9)	83 (23)	151 (42)	79 (22)	360 (100)
My teacher guide me to follow class rules and regulations and learning objectives	50 (14)	18 (5)	36 (10)	144 (40)	112 (31)	360 (100)
My teacher teaches me how to memorize all the information i have learned	7 (2)	14 (4)	115 (32)	137 (38)	87 (24)	360 (100)
My teacher demonstrates how to undertake classroom assignments	11 (3)	14 (4)	72 (20)	173 (48)	90 (25)	360 (100)
My teacher persistently shows me how to do and practice a learning task during the lesson	18 (5)	28 (8)	83 (23)	137 (38)	94 (26)	360 (100)
My teacher teaches me how to master and recall all the information i have learned in the classroom	7 (2)	28 (8)	51 (14)	180 (50)	94 (26)	360 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.24 shows the students rating indicating that in teacher centered instruction; teachers takes control of the class 46%, involve students in learning tasks 59%, ensure students undertake classroom tasks independently and silently 71%, teacher dictates and provide lots of information to students 61%, assigns students into groups 64%, follow strict class rules 71%, ensure students memorize what has been taught 62%, follow teacher demonstration during the lesson 73%, ensure students do a lot of practice on classroom tasks 64%, and recall and master what has been taught 76% to improve on their performance.

The analysis of findings shows that students rated highly teacher demonstration during the lesson 73% and; recalling and mastery of the content 76%. This implies that teacher demonstration is important in guiding students in classroom tasks, while recall is imperative for improving student's mastery of content and evaluating lesson objectives. The high rating serve to suggest that variables studied were important for the study and influenced by the existing education context (curriculum and education policy).

In addition, the findings in Table 4.24 indicate that teacher control of teaching in the classroom had low response 46% by the students' respondents. This shows that it hinders students learning. The study has indicated that teacher centered teaching remains relevant in teaching of students influencing their performance. Teachers need to ensure there is quality of teaching instruction, and possess deep knowledge of the subject matter to teach the students, possess teaching skills and use methods that promote great teaching for students. There is need for teachers to respect the students and create favourable learning environment by engaging students in learning.

The findings agrees with the findings of Jabbour (2013) who argued that in lecture method of instruction, the teacher is sole holder of information while students remains as receivers of information. In addition, the findings agree with Ngaroga (2011) who noted that the lecture method could be used appropriately in teaching when informing the learners of the expected outcomes.

e) Qualitative analysis of County Director of Education interview responses on the Influence of Teacher Centered Instruction Strategy on Students' performance

The qualitative analysis from the interview of the County Director of Education indicated that some public secondary schools have continued to record dismal performance especially in mathematics and English. The CDE attributed this to poor use of teaching methods resulting in students not being very focused in their learning and consequently their performance.

In addition, the study sought to establish whether teacher centered instruction strategy influences students' performance in the County. The CDE revealed that teacher centered instruction strategy influences students' performance in that teaching is contextual activity that mainly rely on the teacher in both planning and implementation. In addition, a teacher remain as the authority of teaching through, talk and chalk, facing the students in front of class and students receiving information from the teacher; there is also role-play, simulations, lectures, discussions and competitions, use of textbooks and; use of questions and answer technique. The CDE noted that this teaching strategy is measured through assessments, which can be internal or national examination. The CDE emphasised that to address teaching problems in the classroom, there has to be a rapport between the teacher, content to be learn and the student who is the receiver of the information.

The study sought to establish ways in which teacher centered instruction strategy are used to promote effective teaching and learning in schools to improve students' performance. The qualitative analysis from the interview of the CDE revealed that the County Education Office; organizes in-service courses for teachers to improve on teaching skills and knowledge such as, SMASSE for science and mathematics, refresher courses for teachers, organises

meetings with teachers on ways of improving teaching methods and carrying out periodic quality assurance in schools to improve students' performance.

The CDE indicated that the teacher centered instruction strategy used by teachers in the public secondary schools in the County include the use variety of teaching approaches and evaluation strategies, including; demonstration, questioning, discussion, direct teaching, and cooperative teaching. However, CDE indicated that in public secondary schools students' achievement has not been impressive. Teachers are being encouraged to research on more innovative teaching approaches to improve students' performance. The County Director of Education explained that public secondary schools are encouraged to use interactive teaching, ICT tools and variety of teaching techniques to improve on students' performance.

The findings of the study have shown that teachers are required to implement teacher centred instruction strategies in their teaching. The teacher centered strategies are; teacher having control of teaching and learning in the classroom, independent study, giving students' opportunities to engage in group work learning activities, use of large information and memorization of facts, following well defined rules and expectations, use of demonstration, drill and practice teaching method and mastery learning. This means that teachers should improve teaching instruction and be in the forefront of ensuring students are involved in the learning process to improve students' performance.

The findings of the study concur with Sellers et al (2007) who emphasised the importance of studying the students learning styles to meet their learning needs. Scott (2015) discusses that lecture model when used in teaching is ineffective in teaching skills and competences. Garrett (2008) explains that teachers dedicated to teacher centered instruction take control of

teaching in the classroom, observe strictly the classroom rules, enforces class discipline, uses punitive measures where students shows misbehaviour and authority is exercised hierarchically. This means that students voice is curtailed and restricted and cannot have freedom to explain the areas of study they have not understood. There is more focus on extrinsic motivation as opposed to intrinsic motivation.

According to UNESCO (2012) teachers centered instruction are applicable in teaching situations where the students are good listeners, readers, can memorize and listen yet not all learners have listening abilities. In addition, OECD (2009) noted that teacher centered teaching promote direct transmission of knowledge to the learner in a more structured and clear manner while the classrooms are orderly and quite.

4.5.2 Hypothesis 2: There is no Relationship between Teacher Centered Instruction Strategy and Students' Performance in Academic Achievement and Co-Curricular Activities in Public Secondary Schools in Nandi County

The second hypothesis was in response to the second objective of the study.

The null hypothesis was expressed statistically as;

$$H_{02}: p=0$$

Where P represents the correlation between teacher centered strategy and students' performance, which is equal to zero (no correlation).

H_{A2} : There is relationship between teacher centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The alternative hypothesis is statistically expressed as;

H_{A2}: p>0

The hypothesis was tested and the influence of independent variable (teacher centered instruction strategy) and dependent variable (students' performance) was measured using linear regression model.

a) Correlation Analysis on the Influence of Teacher Centered Instruction Strategy on Students Performance in Academic Achievement and Co-Curricular Activities

Table 4.25 shows the results of correlation analysis between teacher centered instruction strategy and students' performance.

Table 4.25: Correlation Analysis on the Influence of Teacher Centered Instruction Strategy on Students' Performance

Respondents			PI	(Tci)
Principals	Students' Performance	Pearson Correlation	1.000	.768**
		Sig. (2-tailed)	.	.000
		N	29	29
	Teacher Centered Instruction Strategy	Pearson Correlation	.768**	1.000
		Sig. (2-tailed)	.000	.
		N	29	29
Teachers	Students Performance	Pearson Correlation	1.000	.487**
		Sig. (2-tailed)		0.000
		N	83	83
	Teacher Centered Instruction Strategy	Pearson Correlation	.487**	1.000
		Sig. (2-tailed)	0.000	
		N	83	83
Students	Students Performance	Pearson Correlation	1	.294**
		Sig. (2-tailed)		.001
		N	360	360
	Teacher Centered Instruction Strategy	Pearson Correlation	.294**	1
		Sig. (2-tailed)	.001	
		N	360	360

a. Dependent Variable: Students' Performance (PI)

b. Predictors: (Constant) Teacher Centered Instruction Strategy (Tci)

Table 4.25 shows the results of correlation analysis which indicates that the correlation between teacher centered instruction strategies and students performance was significant (0.768 and p-value of 0.000<0.01) for Principals, (0.487 and p-value of 0.000<0.01) for teachers and (0.294 and p-value of 0.000<0.01) for students. From the results in Table 4.25,

the more the improvement of teacher centered instruction strategies, the more it contributes to the positive influence on students' performance.

b) Regression Analysis on the Influence of Teacher Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The regression results on teacher centered instruction strategy and students' performance in academic achievement and co-curricular activities are summarized in Table 4.26.

Table 4.26: Regression Analysis Results on the Influence of Teacher Centered Instruction Strategy on Students' Performance

Respondents	Model	R	R Square	Std. Error of the Estimate	Change Statistics F	Sig.
Principals	1	.768 ^a	.590	.51480	38.837	.000
	Model					
Teachers	1	.487 ^a	.237	.59882	25.174	.000
	Model					
Students	1	.294 ^a	.086	.68693	12.015	.001
	Model					
Respondents	Model	Unstandardized Coefficients			T	Sig.
		B	Std. Error			
Principals	(Constant)	.556	.425		1.308	.202
	Tci	.845	.136		6.232	.000
Teachers	(Constant)	1.340	.418		3.208	.002
	Tci	.582	.116		5.017	.000
Students	(Constant)	1.168	.621		1.882	.062
	Tci	.581	.168		3.466	.001

a. Dependent Variable: Students Performance

b. Independent variable: Teacher Centered Instruction Strategy (Tci)

The results in Table 4.26 shows that coefficient for determination (R^2) is (0.590, 0.237 and 0.086) according to results from Principals, teachers and the students, at (0.000<0.05) confidence level. In Table 4.26, the results of all the regression coefficients indicates that the R^2 show that 59%, 23.7% and 0.8% of the changes in students' performance can be attributed to the teacher centered instruction strategy (X). Consequently, for the Principals 41%, teachers 76.3% and students 99.2% of variability in students' performance (Y) can be explained by other factors outside the model.

As shown in Table 4.26, the F- value is greater than ($F_{cal} > F_{crit}$) critical value for all the results from the Principals, teachers and students, and significant at ($0.000 < 0.05$) confidence level. Since the F calculated is greater than F critical for the variable ($38.837 > 4.21$; $25.174 > 3.96$; $12.015 > 3.84$), it show that the statistical model is significant in prediction of students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County, Kenya.

The null hypothesis that states that; “there is no relationship between teacher centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County” was rejected. The finding show that there exists a relationship between teacher centered instruction strategy and students performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

Table 4.26, regression analysis results indicate that the teacher centered instruction strategy (independent variable) is significant ($0.000 < 0.05$) at the 0.05 confidence level. Table 4.26 shows that the teachers' response had both the constant and coefficients for teacher centered instruction (X_2) being significant at ($0.000 < 0.05$) level of significance. This means that in the model for the Principals and students, the constant are redundant $Y = \beta_{21}X_{21}$ (Principal); $Y = \beta_{23}X_{23}$. This means the model that measures the influence of students' performance has a direct relationship with teacher centered instruction strategy. While for teachers, the model is expressed as; $Y = \beta_0 + \beta_{22}X_{22}$

$$Y = 1.340 + 0.582X_{22}$$

Where;

Y=Students Performance

X_2 =Teacher centered instruction strategy

β_0 = Constant

This mean there is positive relationship between teacher centered instruction strategy and students performance. This therefore means that for all the results from the Principals, teachers and students; the model is expressed as;

$$Y = 0.845X_{21} \dots\dots\dots \text{Principals} \dots\dots\dots (i)$$

$$Y = 1.340 + 0.582X_{22} \dots\dots\dots \text{Teachers} \dots\dots\dots (ii)$$

$$Y = 0.581X_{23} \dots\dots\dots \text{Students} \dots\dots\dots (iii)$$

The findings concur with Langer (2007) and Kwek (2011) who noted the need to encourage student independent study, group work, collaboration with peers and providing feedback to students to increase student engagement.

4.6 Analysis of the Influence of Assessment Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The objective three of the study sought to investigate the influence of assessment strategy on students' performance in public secondary schools in Nandi County. The aspects analysed included continuous assessment tests, formative assessment and summative assessments.

4.6.1 Descriptive Analysis of the Assessment Strategy and Students' Performance

This section consists of data analysed and presented relating to assessment strategy and students' performance.

a) The Extent to which Learners frequently undertake Assessments

The study sought to find out the extent to which learners undertake the assignments in school. The findings from teachers are summarized in Table 4.27.

Table 4.27: The extent to which Learners frequently undertake Assessments

Learners Assessments	Teachers F (%)	Total F (%)
Never	50 (60)	83 (100)
Almost Never	20 (24)	83 (100)
Occasionally	4 (5)	83 (100)
Often	5 (6)	83 (100)
Frequently Use	4 (5)	83 (100)

Table 4.27 shows that 84% of teachers indicated that learners never take on classroom assessments after their learning while only 11% revealed that learners frequently and often undertake classroom assessments after their learning. The study has shown that students never take on classroom assessments frequently. Assessment remains an integral part of learning and serves to show the students learning progress. The study findings have shown that teachers do not frequently administer classroom assessments.

The findings agree with the findings of Mikre (2010) who explained that assessment remains an indispensable part of the curriculum, which ensures that student abilities can be demonstrated as part of the outcomes of learning. Teachers are in a better position to institute or introduced effective ways of enhancing assessment practices in school to enhance students' students' performance.

b) Principals rating on the Influence of Assessment Strategy on Students' Performance in Academic Achievement and Co-curricular Activities

The study sought to establish the influence of assessment strategy on students' performance. The findings from Principals, teachers and students are presented in Table 4.28,4.29 and 4.30.

Table 4.28: Principals rating on the Influence of Assessment Strategy on Students' Performance

Assessment Strategies	Principals					Total F(%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
Continuous assessment tests reinforces students' learning of materials in a systematic way	1 (4)	3 (10)	6 (21)	11 (38)	8 (27)	29 (100)
Continuous assessment tests augment students' learning enhancing retention of the materials	2 (7)	5 (17)	4 (14)	12 (35)	7 (24)	29 (100)
Giving continuous assessment tests enhances learners interaction connecting learning to the real world	1 (3)	2 (8)	5 (18)	14 (48)	7 (24)	29 (100)
Formative assessments enhances students active participation in answering questions	2 (7)	8 (28)	1 (3)	8 (28)	10 (34)	29 (100)
Formative assessments equips students with 'learning to learn' skills enhancing their performance	1 (4)	3 (9)	6 (21)	7 (24)	12 (42)	29 (100)
Providing timely feedback enhances students self assessment enables students to take responsibility for their own learning	1 (3)	4 (14)	6 (20)	12 (41)	6 (22)	29 (100)
Integrating assessments with teaching and learning influences students' performance	2 (7)	7 (24)	4 (14)	9 (31)	7 (24)	29 (100)
Summative assessment shows whether the learning goals have successfully been met	1 (3)	9 (31)	2 (7)	9 (31)	8 (28)	29 (100)
Summative assessments ensure that the sequence of instructional activities results in the intended learning outcomes.		5 (17)	3 (10)	13 (45)	8 (28)	29 (100)
Giving students assessments increases accountability to students performance	1 (3)	4 (14)	2 (8)	10 (35)	11 (40)	29 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.28 shows the Principals' rating on the influence of assessment strategy on students' performance. Table 4.28 shows that 65% of the Principals revealed that administering continuous assessment tests reinforced student learning; 59% revealed continuous assessment tests increases retention of material; 72% revealed continuous assessment tests enhances learners interaction connecting learning to real world; 62% indicated ensuring active student participation in learning and 66% revealed promoting students development through 'learning to learn' skills.

Table 4.28 further shows 63% of the Principals revealed that providing timely feedback enhances students self-assessment; 55% revealed that integrating assessment with teaching and learning influences students' performance; 59% indicated that administering summative assessments show whether intended goals have been met; 73% revealed that summative assessments shows sequence of instructional activities; and 75% revealed that administering summative assessments increased accountability for students performance.

The analysis of the results shows that Principals rated highly summative assessments that it increases accountability for students' performance 75%, and shows achievement of the intended learning outcomes 73% and using continuous assessment test to improve student interaction 72%. This means undertaking assessment of students remains a critical factor in improving students' performance.

Principals should encourage the use of creative teaching to ensure effective teaching takes place. In order to enhance feedback from assessments, teachers should practise mastery learning, interactive peer assisted learning and individualised instruction and group work. The Kenya education report shows that the existing education policies are often diagnostic in nature requiring their enhancement for effective evaluation of students' achievement at all levels (Republic of Kenya, 2012). The results of the study concur with the findings of Lunenburg and Lunenburg (2014) who argued that for effective teaching to take place, teachers should take into account students' varied capacities and apply multiple intelligence based teaching methods.

From the findings, assessment is critical in improving teaching and learning. The findings have revealed that through assessments students are able to interact by connecting what they

have learned with the real world, achievement of the intended learning outcomes and increased accountability for students performance. Assessment serve to show the extent in which learners have achieved and improved in their performance and where there increased achievement students tend to be encouraged and motivated to learn even more.

The results concur with the findings of Jabbarifar (2009) who discussed that assessment and evaluation involves collecting, analysing and interpreting information about teaching. In addition, teachers are actively involved in developing, administering and analysing questions that will more likely to improve their own teaching. The findings further concur with, Regier (2012) who posited that instruction and assessment are inseparable and teachers are required to use different strategies for student assessment taking into account student learning needs.

c) Teachers rating on the Influence of Assessment Strategy on Students' performance

The findings on the influence of assessment strategy on students' performance as per the teachers responses are summarised in Table 4.29.

Table 4.29: Teachers rating on the Influence of Assessment Strategy on Students' performance

Assessment Strategies	Teachers					Total F(%)
	1 F(%)	2 F(%)	3 F (%)	4 F(%)	5 F(%)	
Continuous assessment tests reinforces students' learning of materials systematically	5 (7)	7 (8)	15 (18)	34 (41)	22 (26)	83 (100)
Continuous assessment tests augment students' learning enhancing retention of the materials	4 (5)	7 (9)	20 (24)	32 (39)	19 (23)	83 (100)
Giving continuous assessment tests enhances learners interaction connecting learning to the real world	4 (5)	1 (1)	17 (21)	38 (46)	22 (27)	83 (100)
Formative assessments enhances students active participation in answering questions	4 (5)	10 (12)	13 (15)	34 (41)	22 (27)	83 (100)
Formative assessments equips students with 'learning to learn' skills enhancing their performance	3 (4)	7 (9)	21 (25)	38 (46)	13 (16)	83 (100)
Timely feedback enhances self assessment enabling students to take responsibility for their own learning	1 (2)	12 (15)	17 (20)	32 (38)	21 (25)	83 (100)
Integrating assessments with teaching and learning influences students' performance	1 (2)	4 (9)	13 (16)	37 (45)	23 (28)	83 (100)
Summative assessment shows whether the learning goals have successfully been met	1 (1)	1 (1)	16 (37)	45 (23)	28 (44)	83 (100)
Summative assessments ensures that the sequence of instructional activities results in the intended learning outcomes.	4 (5)	6 (7)	12 (14)	39 (47)	22 (27)	83 (100)
Giving students assessments increases accountability to students performance	1 (1)	7 (9)	9 (11)	42 (51)	23 (38)	83 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.29 shows the teachers rating on the following assessment strategies; 67% reinforcing students learning of material; 62% tests are administered to augment retention of material; 73% enhances learner interaction; 68% enhances students participation in learning 62% equips students with learning skills. Table 4.29 further shows that 63% of the teachers revealed that engaging students in assessment provides timely feedback; 73% integrating assessments with learning influences students' performance; 67% variety of assessments gauges students understanding of concepts; 74% gauges the achievement of learning goals; and 79% summative assessments increases accountability in students' outcome.

The analysis of the results shows teachers' rated highly summative assessments 79%, gauging achievement of the intended learning outcomes 74%, integrating assessments with learning 73%, resulting to improved students' performance. This means a teacher should plan teaching instruction taking into account all domains of learning that will gauge the extent of student learning.

Teachers should prioritise all types of assessment in planning teaching instruction. Variety of assessment should be administered through sequential instructional activities to realize intended learning outcomes. The findings concur with the findings of Regier (2012) who contend that formative assessment enables teachers to determine students understanding and mastery of instructional goals. In addition, the findings concur with UNESCO (2004), that documented that teachers need to understand barriers to successful students' assessment and administer continuous assessment of the students based on what each student already know, can do, what each student needs to know and do.

d) Students rating on the Influence of Assessment Strategy on Students performance

Table 4.30 shows the summary of the findings on the influence of assessment strategy on students' performance as per the student's responses.

Table 4.30: Students rating on the Influence of Assessment Strategy on Students performance

Assessment Strategies	Students (N=360)					Total F(%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
My teacher gives continuous assessment tests that reinforces my commitment to learning	3 (1)	14 (4)	94 (26)	155 (43)	94 (26)	360 (100)
My teachers engages students in continuous assessment tests to improve my retention of the materials learned	11 (3)	32 (9)	83 (23)	158 (44)	76 (21)	360 (100)
My teacher gives me continuous assessment tests enabling interaction with other students enhancing connections of learning to the real world	14 (4)	18 (5)	108 (30)	130 (36)	90 (25)	360 (100)
My teacher involves me in formative assessments enhancing my active participation in answering questions	7 (2)	18 (5)	115 (32)	155 (43)	65 (18)	360 (100)
My teacher gives me formative assessments enabling me gain learning skills	4 (1)	32 (9)	83 (23)	133 (37)	108 (30)	360 (100)
My teacher engages me in learning activities and provide feedback enabling self assessment	21 (6)	43 (12)	54 (15)	148 (41)	94 (26)	360 (100)
My teacher gives me variety of assessments to gauge understanding of learning concepts	14 (4)	47 (13)	50 (14)	140 (39)	108 (30)	360 (100)
My teacher ensures my learning goals are met through assessments		14 (4)	79 (22)	166 (46)	101 (28)	360 (100)
My teacher plan many learning activities to achieve learning goals through assessments	4 (1)	14 (4)	58 (16)	133 (37)	151 (42)	360 (100)
My teacher engages me in summative assessments to ensure increased accountability to students performance		29 (8)	50 (14)	176 (49)	104 (29)	360 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.30 reveal the students rating on the influence of assessment strategy on students' performance. The students rated assessment strategies as follows; the teacher gives tests that reinforces student commitment to learning 69%; results in improved retention of materials 65%; enhances student interaction 61%; student active participation 67%; increased skill acquisition 67%; engages students in activities integrating assessment with teaching and learning 69%; providing variety of assessment to gauge student understanding of concepts 74%; gauging achievement of the intended learning outcomes 79%; and summative assessment increases accountability to students' performance 78%.

The students' rating on assessment strategy by students indicated that summative assessment increases accountability to students performance 79%, using summative assessments to establish whether achievement of the intended learning outcomes have been realised 78%, and providing variety of assessment to gauge student understanding of concepts 74%; enhances improved students performance. Teachers have enormous responsibility to see to it that schools creates favourable atmosphere for using assessments to increase accountability to students' performance, enhance students active participation, engage students in learning activities that integrates assessment with teaching and learning and improve on skill acquisition, reinforce students' learning and gauge achievement of the intended learning outcomes.

e) Qualitative analysis of County Director of Education interview responses on the Influence of Assessment Strategy on Students' Performance

To triangulate the findings of the study, the study sought to determine the type of assessments monitored by the CDE in public secondary schools in your County. The CDE interview responses revealed that the type of assessments offered to students by public secondary schools include; teachers use continuous assessment tests, end of term examinations, inter-school competitions and summative (national) examination.

The study sought to establish assessment strategies applied by teachers to improve on students' performance in County. The CDE revealed that policies guiding assessment of students in schools exists and schools are monitored to get feedback on their effectiveness in enforcement. The evaluation strategies include national examinations, school tests and reports on students' learning progress. The CDE revealed that the County Education Office issues Ministry of Education and Kenya National Examination Council circulars to guide the public secondary schools in scheduling and administration of examinations.

The CDE revealed that the term dates are communicated to schools to guide in undertaking all relevant school activities. In addition, schools file reports on students' performance giving feedback on the areas that needs improvement. The report may outline the progress in use of various teaching methods, daily teacher evaluation by students, and frequency of Principal's supervision of teachers, student behaviour follow-ups and undertaking school impromptu visits.

The study sought to establish whether assessments improve the students' performance. The qualitative analysis of CDE interview responses revealed that assessment of students in public secondary schools assists in identifying weak areas in student learning, areas of education syllabus that have not been adequately covered and consequent plan for remedial teaching and follow-up.

The CDE noted that the County Education Office as a rule, generate timelines on the expected schedule of assessment per term or per year, monitor and demand for assessment reports from public secondary schools to ensure the assessments administered to students are quality assessments. The monitoring is often undertaken using classroom observations. In addition, the CDE revealed that assessment assists to gauge on the methods of teaching, how teachers are using the teaching learning resources and quality assurance and standards. The CDE noted the importance of assessment of students as part of the learning cycle.

The qualitative analysis of data from the responses from the interview of County Director of Education shows the assessments strategies needed to ensure improved students' performance in public secondary schools in Nandi County. The strategies used by the County Education Office to improve students' performance include; disseminating educational guidelines on school assessments; carrying out periodic assessments on learning; organising motivational

talk sessions on ways of improving progress in assessments to students; rewarding the best performing students and schools within the County and scheduling education and speech days for students on better ways of approaching and doing assessments.

The CDE revealed that in order to enhance student learning, the County Education Office organizes school contests and symposium for the students to present what they have learned. Resource persons are also invited to schools to talk to the students on various learning issues and types of assessments aimed at improving on the students' performance. The CDE stated that the outcome of examination for each public secondary school in the County is reported in the school reports.

The findings shows that the assessment strategies to improve students performance include; learning reinforcement, increasing students retention on learning and encouraging students interaction, emphasizing students increase participation in learning, equipping students with learning to learn skills, and integrating assessment with teaching and learning. The findings show the need for sequential instructional activities and summative assessment that will increase realization of learning goals and accountability for students' performance.

The findings from the study concur with McFarlene (2010) who noted that due to changing learning environment arising from advent of digital age, teachers should increasingly update their teaching strategies. This will address the needs of diverse students, increase students' participation in learning and assist in reflecting on ways of increasing teachers' motivation while addressing emerging teaching and learning challenges in the classroom. The study findings further agrees with Strobel (2010) and Lai (2011) who suggested that exposure of

students to classroom practices increases academic efficacy, leading to improved student mastery levels mastery levels hence improving on their performance.

The findings further agree with Dwyer and William (2015) who contends that assessment of students learning should entail using variety of assessment strategies, which include; clarity of learning expectations, engaging learners using diverse assessment approaches, providing feedback, and establishing areas of improvement in students learning. The finding concur with Dunslosky, Rawson, Marsh, Nathan, and Willingham (2013) who posited that students are lagging in their performance and hence need for teachers to support them by assessing the learning techniques they use. The learning techniques include; self explanation, elaborative interrogation, summarization, highlighting, rereading, keyword mnemonic, imagery use for text learning, practice testing, distributed practice and interrelated practice.

4.6.2 Hypothesis 3: There is no relationship between assessment strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The third hypothesis was in response to the third objective of the study.

The null hypothesis was expressed statistically as;

$H_{03}: p=0$

Where P represent the correlation between assessment strategy and students' performance, which is equal to zero (no correlation).

H_{A3} : There is relationship between assessment strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The alternative hypothesis is statistically expressed as;

H_{A3}: p>0

The hypothesis was tested and the influence of the independent variable (assessment strategy) and dependent variable (students' performance) was measured using linear regression model.

a) Correlation Analysis on the Influence of Assessment Strategy on Students' Performance

The correlation analysis findings are presented in Table 4.31 and show the results of correlation analysis between assessment strategy and students' performance.

Table 4.31: Correlation Analysis on the Influence of Assessment Strategy and Students Performance

Respondents			Students Performance	Assessment strategy
Principals	Students Performance	Pearson Correlation	1.000	.677**
		Sig. (2-tailed)	.	.000
		N	29	29
	Assessment strategy	Pearson Correlation	.677**	1.000
		Sig. (2-tailed)	.000	.
		N	29	29
Teachers	Students Performance	Pearson Correlation	1.000	.569**
		Sig. (2-tailed)	.	.000
		N	83	83
	Assessment strategy	Pearson Correlation	.569**	1.000
		Sig. (2-tailed)	.000	.
		N	83	83
Students	Students Performance	Pearson Correlation	1.000	.335**
		Sig. (2-tailed)	.	.000
		N	360	360
	Assessment strategy	Pearson Correlation	.335**	1.000
		Sig. (2-tailed)	.000	.
		N	360	360

** . Correlation is significant at the 0.01 level (2-tailed).

- a. Dependent Variable: Students' Performance
- b. Independent variable; Assessment Strategy (As)

Table 4.31 shows the results of Pearson correlation for the responses from the Principals, teachers and students. The correlation analysis results indicates that the relationship between assessment strategies and students' performance was positive and significant (0.677 and p-value of 0.000 < 0.01) for the Principals, (0.569 and p-value of 0.000 < 0.01) for the teachers and (0.335 and p-value of 0.000 < 0.01) for the students. The results in Table 4.31 mean that an improvement in assessment strategy results in positive influence on students' performance.

b) Regression Analysis Results on the Influence of Assessment Strategy and Students Performance in Academic Achievement and Co-curricular Activities

The the regression analysis shows the output of coefficients of determination on assessment strategy and students' performance. The summary of the results are presented in Table 4.32

Table 4.32: Regression Analysis Results on the Influence of Assessment Strategy and Students Performance

Respondents	Model	R	R Square	Std. Error of the Estimate	Change Statistics	
					F Change	Sig. F Change
Principals	1	.677 ^a	.458	.59158	22.857	.000
Teachers	1	.569 ^a	.324	.56387	38.745	.000
Students	1	.335 ^a	.112	.67723	16.023	.000

Respondents	Model	Unstandardized Coefficients		Std. Error	Standardized Coefficients Beta	T	Sig.
		B					
Principals	(Constant)	0.889		.483		1.841	.077
	As	.0.708		.148	.677	4.781	.000
Teachers	(Constant)	0.477		.475		1.003	.319
	As	0.820		.132	.569	6.225	.000
Students	(Constant)	1.105		.554		1.994	.048
	As	0.579		.145	.335	4.003	.000

a. Predictors: (Constant)Assessment Strategy (As)

b. Dependent Variable: Students' Performance (P1)

Table 4.32 shows positive and significant correlation (0.677, 0.569, and 0.335) between assessment strategy and students' performance from the results from the Principals, teachers and the students. The coefficient for determination (R^2) were also positive (0.458, 0.324 and 0.112) at ($0.000 < 0.05$) significance level according to results from all the respondent categories. R^2 measures the effect of change on students' performance due to increased use of assessment strategy.

Table 4.32, further indicates the results of all the regression coefficients, which shows that a change in one unit of assessment strategy (X) according the Principal, teachers and students

respectively leads to 45.8%, 32.4% and 11.2% of the changes in students' performance (Y). This implies that in the models used, 45.8%, 32.4% and 11.2% of the changes in students performance is attributed to assessment strategy. However, the remaining 54.2%, 67.6% and 88.8% of variability in students' performance (Y) can be explained by other factors outside the model.

Table 4.32 shows that the F-value is greater than ($F_{cal} > F_{crit}$) ($22.857 > 4.21$; $38.745 > 3.96$; $16.023 > 3.84$) for all the respondents (Principals, teachers and students) and significant at ($0.000 < 0.05$) confidence level. This implies that; the null hypothesis that stated as; "there is no relationship between assessment strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County" was rejected. This indicates that the statistical model is significant in prediction of students' performance in public secondary schools in Nandi County, Kenya.

In Table 4.32, shows the coefficient of factors that measure the effect of assessment strategy on students performance indicate that the assessment strategy (independent variable) is significant ($0.000 < 0.05$) at the 0.05 confidence level. The finding show that for all the respondent categories, the coefficient for the model that measure the effects of assessment strategy and students performance can be expressed as;

$Y = \beta_0 + \beta_3 X_3$. Table 4.32 further shows that for all the respondent categories, the constant is redundant in the model; ($0.077 > 0.05$; $0.000 < 0.05$ and $0.319 > 0.05$; $0.48 > 0.05$).

This means the model that measures the effect of students' performance has a direct correlation with assessment strategy ($Y=X$) for the principals and teachers and yields positive achievement. In the regression model, the constant β_0 and X_3 (assessment strategy), measures

the changes in Y (students' performance); Where Y=Students performance and X₃= assessment strategy.

This therefore means that for all the results from all the respondents' categories; the model is expressed as;

$$Y = 0.708X_{31} \dots\dots\dots \text{Principals} \dots\dots\dots \text{(i)}$$

$$Y = 0.820X_{32} \dots\dots\dots \text{Teachers} \dots\dots\dots \text{(ii)}$$

$$Y = 0.579X_{33} \dots\dots\dots \text{Students} \dots\dots\dots \text{(iii)}$$

The results shows there exists a relationship between assessment strategy and students' performance in public secondary schools in Nandi County, Kenya. This implies that a school, which has effective assessment strategies, tend to record improved students' performance. The findings concur with Regier (2012) who discusses that instruction and assessment are inseparable and teachers are expected to use different strategies to assess students' readiness in studying and meet their learning needs.

UNESCO (2004) explains the importance of knowing student previous knowledge, what they can do and needs to know. Assessments in students learning guides decision making on teaching taking into account students characteristics and learning styles. This remains important consideration in differentiating instruction for diverse students in class.

4.7 Analysis of the Influence of Resource-based Instruction Strategy on Students Performance in Academic and Co-Curricular Activities

The objective four of the study sought to explore the influence of resource-based instruction strategy on students' performance in academic achievement and co-curricular activities in

public secondary schools in Nandi County. The aspects analysed in the study included teaching resources, physical and material resources and technology resources.

4.7.1 Descriptive Analysis of Influence of Resource-based Instruction Strategy on Students Performance

The section discussed the findings of data analysis on the influence of resource-based instruction strategy on students performance in public secondary schools in Nandi County.

a) Adequacy of Teaching and Learning Resources to Students learning

The study sought to establish the adequacy of teaching and learning resources and the influence of teaching and learning resources strategy on students’ performance in public schools in Nandi County. To answer the objective, the teacher respondents were asked to indicate the extent to which teaching and learning resources were adequate in promoting improved students’ learning. The findings of the study are summarized in Table 4.33.

Table 4.33: Teachers Rating on the Adequacy of Teaching and Learning Resources to Students learning

Teaching and Learners Resources	Inadequate F (%)	Adequate F (%)	Total F (%)
Class based learning materials(textbooks, reading materials)	60 (73)	23 (27)	83 (100)
Physical resources(classrooms, laboratories)	56 (67)	27 (33)	83 (100)
ICT resources(hardware, software, and infrastructure)	54 (65)	29 (35)	83 (100)
School Libraries	55 (66)	28 (34)	83 (100)
Teacher resources	50 (60)	33 (40)	83 (100)

Table 4.33 shows that 73% of teachers indicated that class based learning materials were inadequate. The study findings further show that 67% and 65% of the teachers indicated that physical resources and ICT resources were also inadequate. Table 4.33 further shows 66% and 60% of the teachers indicate that school libraries and teacher resources were inadequate.

Table 4.33 further reveals that less than 40% of the teachers indicated that learning resources were adequate for improving students learning and hence their performance.

The results of the findings indicate that most of the public secondary schools in Nandi County had inadequate teaching and learning resources. The findings indicate that teaching and learning resources has linkage to students' performance. This means that where there are inadequate teaching and learning resources, teachers are handicapped in facilitating teaching instruction during the lessons either forcing teachers to use lecture method as mode of teaching. This method promotes memorization of facts by the students.

The findings concur with the Kenya's Taskforce report findings (Republic of Kenya, 2012) that documented that the shortage of teachers and inadequacy of learning materials has resulted in poor quality education acquired by learners. In addition, the findings agree with European Union (2013) that documented that one of the challenges of integrating technology into education is teaching using technology resources in multi cultural classrooms and integrating technology to increase learning opportunities to learners and teachers. The challenge is whether teachers have the necessary competences to successfully use technology in their teaching and improve students' performance.

b) Principals rating on the Influence of Resource-based Instruction strategy on Students' Performance

School Principals, teachers and student respondents were asked to provide information on how resource-based instruction strategy influences students' performance. The findings are presented in Table 4.34.

Table 4.34: Principals rating on the Influence of Resource-based Instruction strategy on Students' Performance

Resource-based Instruction strategy	Principals (N=29)					Total F(%)
	1 F(%)	2 F (%)	3 F(%)	4 F(%)	5 F(%)	
Utilising teacher resources effectively increases acquisition of multiple skills by students	1 (3)	7 (24)	1 (3)	10 (35)	10 (35)	29 (100)
Providing high quality multiple learning materials both in print and non print enhances students' deep involvement in learning		1 (3)	3 (10)	11 (38)	14 (48)	29 (100)
Providing class based learning facilities provide opportunities for developing independent learning skills and acquisition of knowledge		4 (14)	7 (24)	12 (41)	6 (21)	29 (100)
Establishing library resources to enhance access of learning materials and research skills		2 (7)	5 (17)	11 (38)	11 (38)	29 (100)
Providing physical learning environment enhances students active participation in their learning	1 (3)	1 (3)	8 (28)	8 (28)	11 (38)	29 (100)
Providing information and communication technology resources support learning	3 (10)	3 (11)	2 (7)	12 (42)	9 (30)	29 (100)
Making appropriate selection and use of ICT resources increases in teaching and learning exposes students to global experiences improving their cognitive and affective skills		5 (17)	9 (31)	13 (45)	2 (7)	29 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

As shown in Table 4.34, resource-based instruction strategy influences students' performance. As shown in Table 4.34, 70% of the Principals indicated that utilizing teacher resources effectively increases acquisition of multiple skills by students enhancing their performance. The results further reveal that 86% of Principals indicated that provision of high quality learning materials enhances students' performance. Table 4.30 further indicates 62% and 76% of the principals indicated that providing class based learning materials and establishing library resources improves access to quality learning materials enhancing students' performance.

The results also show that 66% of the Principals indicated that providing physical learning environment enhances students' performance. The results further show that 72% of the

Principals indicated that the use of information and communication technology facilitates teaching and learning. Table 4.34 further reveal that 52% of the Principals indicated that making appropriate selection and use of ICT in teaching and learning exposes learners to global experience and therefore improving their performance.

The findings concur with the findings of World Bank (2008) that noted that secondary schools endowed with library resources provide access to variety of learning materials to the learners improving students' learning and their performance. In addition, the findings agree with OECD (2009) who discussed that availability of learning resources enables teachers to undertake necessary planning while shortages of resources hampers students' performance.

c) Teachers rating on the Influence of Resource-based Instruction strategy on Students' Performance

Teachers were asked to provide information on how resource-based instruction strategy influences students' performance. The findings are presented in Table 4.35.

Table 4.35: Teachers rating on the Influence of Resource-based Instruction Strategy on Students' Performance

Resource-based Instruction strategy	Teachers					Total F (%)
	1 F (%)	2 F (%)	3 F (%)	4 F (%)	5 F (%)	
Utilising teacher resources effectively increases acquisition of multiple skills by students	4 (5)	10 (12)	21 (25)	34 (41)	14 (17)	360 (100)
Providing high quality multiple learning materials both in print and non print enhances students' deep involvement in learning	2 (2)	14 (17)	17 (21)	35 (42)	15 (18)	360 (100)
Providing class based learning facilities provide opportunities for developing independent learning skills and acquisition of knowledge	6 (7)	13 (16)	19 (23)	31 (37)	14 (17)	360 (100)
Establishing library resources to enhance access of learning materials and research skills	5 (6)	8 (10)	15 (18)	36 (43)	19 (23)	360 (100)
Providing physical learning environment enhances students active participation in their learning	7 (8)	10 (16)	14 (17)	31 (37)	18 (22)	360 (100)
Providing information and communication technology resources support learning	7 (8)	10 (12)	18 (22)	31 (37)	17 (21)	360 (100)
Making appropriate selection and use of ICT resources increases enhances teaching and learning exposing students to global experiences improving their cognitive and affective skills	4 (5)	6 (7)	12 (15)	42 (51)	19 (23)	360 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.35 show that 58% of the teachers revealed that utilising teacher resources, increases acquisition of multiple skills by students, enhancing their performance. The results further reveal that 60% of teachers indicated that provision of high quality learning materials enhances students' performance. Table 4.35 further reveal 54%, 66% and 59% of the teachers indicate that providing class based learning materials, establishing of library resources and providing physical learning environment, enhances students' performance respectively. The results further reveal that 58% of the teachers indicated that the use of information and communication technology facilitates teaching and learning. Table 4.35 further reveal that 74% of the teachers indicated that making appropriate selection and use of ICT in teaching and learning exposes learners to global experience and therefore improving their performance.

Teachers rated highly the study findings on the influence of ICT resources on teaching and learning 74% and; establishing library resources to enhance access to learning materials 66%, as influencing students' performance. Teaching and learning resources are very critical for students learning. The finding shows that for successful learning to take, teachers need variety of learning resources to enhance students' learning and their performance.

Effective teaching requires the use of variety of class based learning materials. Teachers are encouraged to acquire necessary ICT teaching competences and train students on how to use ICT to improve teaching and learning to meet education goals. In addition, library resources provide repertoire of knowledge and information in variety of teaching subjects. Teachers need to guide students to use library resources to improve their learning achievement.

The findings concur with the findings of Koroye (2016) who noted that instructional materials, school equipment and infrastructural facilities are part of the teaching strategies that influences students' performance.

d) Students rating on the Influence of Resource-based Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

Table 4.36 summarises the findings on the students rating on the influence of resource-based instruction strategy on students' performance.

Table 4.36: Students rating on the Influence of Resource-based Instruction Strategy on Students' Performance

Resource-based Instruction strategy	Students (N=360)					Total F(%)
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)	
My teacher uses resources in teaching me variety of learning skills	10 (3)	18 (5)	112 (31)	155 (43)	65 (18)	360 (100)
My teacher provide multiple learning materials both in print and non print to enhance participation in learning	14 (4)	25 (7)	108 (30)	130 (36)	83 (23)	360 (100)
My teacher ensures class based learning facilities provide opportunities for acquisition of independent learning skills and knowledge	7 (2)	32 (9)	67 (19)	168 (47)	86 (24)	360 (100)
My teacher provides library resources to enhance access of learning materials and research skills	10 (3)	36 (10)	94 (26)	137 (38)	83 (23)	360 (100)
My teacher provides physical learning environment to increase my active participation in their learning	14 (4)	32 (9)	90 (25)	152 (42)	72 (20)	360 (100)
My teacher provides Information and Communication Technology resources support learning	7 (2)	14 (4)	116 (32)	137 (38)	86 (24)	360 (100)
My teacher uses ICT resources in teaching and learning to enable us acquire cognitive and affective skills	10 (3)	14 (4)	108 (30)	174 (48)	54 (15)	360 (100)

Legend: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Table 4.36 reveals that 61% of the teachers indicated that utilising teacher resources effectively increases acquisition of multiple skills by students, which enhances students' performance. The results further indicate that 59% of teachers indicated that provision of high quality learning materials enhances students' performance.

Table 4.36 further indicates 71%, 61% and 62% of the teachers revealed that providing class based learning materials, establishing of library resources and providing physical learning environment, enhances students' performance. The results further show that 62% of the teachers indicated that the use of information and communication technology facilitates teaching and learning. Table 4.36 further shows that 63% of the teachers indicated that

making appropriate selection and use of ICT in teaching and learning exposes learners to global experience and therefore improving their performance.

The findings revealed that teaching and learning resources strategy influences students' performance. The strategies include; use of ICT in teaching and learning, providing physical learning environment, class based learning materials, library resources and utilising teacher resources that enhances acquisition of multiple skills by the students resulting in improved students' performance.

The findings from the study have revealed that for teachers to promote effective teaching, teaching and learning resources are very necessary. The finding concurs with research findings that teaching and learning resources assist in meeting educational requirements and learning needs. Teachers are able to provide quality and deeper educational opportunities to students. In addition, availability of teaching and learning resources motivates teachers to support and increase their commitment to student learning (OECD, 2009; World Bank, 2008; Baker, 2012).

e) Qualitative analysis of County Director of Education interview responses on the Influence of Resource-based Instruction Strategy on Students' performance

The CDE was asked to state the status of resources for teaching and learning in public secondary schools in the county in terms of teaching resources and learning facilities, which enables teachers to teach effectively with the aim of enhancing students' performance. The qualitative analysis of the findings revealed that there are shortages of resources including shortage of teacher resources and inadequate teaching and learning facilities. Secondary education require adequate classrooms, laboratories, computer laboratories, dining halls and dormitories.

The CDE was asked to state whether resource-based instruction contributed to improved students' performance in the County. The qualitative analysis of the interview responses revealed that resource-based instruction strategy improves students' performance. Through resource-based instruction strategy, students get access to multiple resources both in non-print or print form. Students are given responsibility and opportunity to share resources according to the learning requirements and interests.

The qualitative analysis of CDE interview responses shows that several measures have been put in place to ensure resource-based instruction strategies are beneficial to the learner and results into improved students' performance. The measures include; lobbying for the government to factor the plan of employing teachers in annual budgets; employing contract teachers or volunteer teachers to mitigate on teacher shortfall; encouraging secondary schools to employ BOM teachers where there is serious shortage; rationalizing teacher distribution to deploy teachers where there is high demand; balancing and distribution of teachers; identifying schools that are understaffed and undertaking deliberate new recruitment of teachers to address teacher shortages.

Apart from addressing teacher shortages, the CDE revealed that the County Education Office factor the required school resources on the annual budget. This assists in procuring resources needed to promote teaching and learning in public secondary schools. Audit is done to ensure the prudent use of public funds as per the Ministry of Education guidelines. In addition, the office has partnered with key education stakeholders to ensure resources are provided for teaching and learning to take place. For instance, there is partnership with Constituency Development Fund that provide resources for building physical facilities such as classrooms, administration blocks and laboratories. The CDE suggested that schools should collaborate

with key education stakeholders in mobilising resources to meet the teaching and learning resource shortages. The public secondary schools are issued circulars and meetings held regularly to discuss ways of using scarce teaching and learning resources prudently.

The County Director of Education revealed that, principals in public secondary schools are expected to provide resources and facilities (conducive for learning), support teachers attending in service training workshops, forge for good stakeholder relationship, manage school resources effectively, motivate teachers in order to motivate students, employ adequate personnel to support students learning in schools. The finding from the study agrees with Kenya's secondary education strategy that has shown the need for providing adequate learning and teaching resources and ensuring their effective utilization in secondary school (Ministry of Education, 2012).

The qualitative analysis of interview responses from the CDE revealed that there are education policies that give direction on how teaching and learning resources can be provided for teachers to facilitate teaching and learning for students. The education policies included the Education and Training Policy of 2012. The CDE explained with regard to technology resources in public secondary schools, that schools are embracing the use of ICT as a tool to facilitate teaching and learning. Secondary school teachers are also being trained to integrate ICT in teaching. However, CDE revealed that, although progress has been made in integrating ICT into education, the process is slow and hence a lot remains to be done to fully embrace the use of technology in teaching.

The results from the findings mean that secondary schools in general and teachers in particular need to put concerted efforts to provide quality education. The Constitution of

Kenya 2010 Article 43(1) states that education is a basic right that must be provided to all (The Laws of Kenya, 2010). The teaching and learning resources strategies includes; effective planning and sourcing of teaching and learning resources to increase achievement of learning goals and effective curriculum implementation. Teachers through their schools should collaborate with stakeholders to ensure there are adequate teachers, libraries, science and computer laboratories. In addition, teachers should complement the existing resources through appropriate evaluation, selection and use of ICT resources.

In addition, findings from the study in Table 4.20 concur with other international research findings. OECD (2009) and OECD (2011) have shown that shortage of resources and disparities in students' individual resources and the resources invested in schools reflects inequality in students' attainment and hinders students' performance. In addition, the findings from the study concur with the recent Kenya's report on education sector, that although Kenya has taken measures to provide resources to enhance teaching and learning in public secondary schools, resources are still required (Republic of Kenya, 2012).

The findings supports other studies in the same area such as; Baker (2012) who established that schools with adequate resources have greater ability to provide higher quality, and deeper educational opportunities to their students. Kong et al (2009) found that teachers require technology resources to facilitate teaching, learning, and meet learning needs of the students. The findings agree with Yara and Otieno (2010) who argued that there is inadequate teaching and learning resources, is a challenge to teaching and learning which in turn affect students' performance in public secondary schools.

The findings further concur with Cierski, Garmany and Hollingworth (2009) who argued that resource-based learning is an educational model based that individual learners will be exposed or get the content or the media that matches their learning styles and own processing skills. In addition, learners will undertake tasks that are authentic and develop valuable skills and techniques. This will lead to independent and autonomous learners who are self directed, and effective users of information.

The findings agrees with, Campbell et al (2014) who discusses the benefits of resource-based learning and noted that resource-based learning enhances individual learners' use of information from variety of sources enriching their information literacy. In addition, teachers act as student's coaches, guide or facilitators. As such in the teacher centered and student learning, resource-based learning resides in the middle of the continuum.

4.7.2 Hypothesis 4: There is no relationship between resource-based instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The fourth hypothesis was in response to the fourth objective of the study.

The null hypothesis was expressed statistically as;

$$H_{04}: \rho = 0$$

Where P represent the correlation between resource-based instruction strategy and students' performance, which is equal to zero (no correlation).

H_{A4} : There is relationship between resource-based instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The alternative hypothesis was statistically expressed as;

H_{A4}: p>0

The hypothesis was tested and the influence of independent variable (resource-based instruction) on the dependent variable (students' performance) was measured using linear regression model.

a) Correlation Analysis on the Influence of Resource-based Instruction Strategy on Students' Performance

Correlation analysis was done to establish the influence of Resource-based Instruction strategy on students' performance. Table 4.37 shows the results of correlation analysis.

Table 4.37: Correlation Analysis on the Influence of Resource-based Instruction Strategy and Students' Performance

Respondents			PI	(Rbi)
Principals	Students' Performance	Pearson Correlation	1.000	.732**
		Sig. (2-tailed)	.	.000
		N	29	29
	Resource-based Instruction Strategy	Pearson Correlation	.732**	1.000
		Sig. (2-tailed)	.000	.
		N	29	29
Teachers	Students Performance	Pearson Correlation	1.000	.528**
		Sig. (2-tailed)		0.000
		N	83	83
	Resource-based Instruction Strategy	Pearson Correlation	.528**	1.000
		Sig. (2-tailed)	0.000	
		N	83	83
Students	Students Performance	Pearson Correlation	1	.428**
		Sig. (2-tailed)		.000
		N	360	360
	Resource-based Instruction Strategy	Pearson Correlation	.428**	1
		Sig. (2-tailed)	.000	
		N	360	360

a. . Dependent Variable: Students' Performance (P1)

b. Predictors: Resource-Based Instruction Strategy (Rbi)

The results of correlation analysis in Table 4.37 indicates that the correlation between resource-based instruction strategies and students performance was positive and significant (0.732 and p-value of 0.000<0.01) according to the findings from school Principals (0.528

and p-value of $0.000 < 0.01$) according to teachers and (0.428 and p-value of $0.000 < 0.01$) according to students. The results in Table 4.37 further mean that an improvement in resource-based instruction strategies results in positive influence on students' performance.

The findings agree with, Orey (2015) who while discussing emerging issues on learning, teaching and technology contend that effective implementation of resource-based learning should start with identification of instructional goals, determination of student produced artifacts, enhancement of collaboration with educators, selection of resources in variety of formats and maximisation of time and use of identified instructional goals. In addition, Campbell et al (2014) noted that resource-based learning serves to supplement the instructivistic teaching and focuses more on flexible and blended learning. The instruction method enhances acquisition of relevant skills as students actively participate in their learning.

b) Regression Analysis Results on Resource-based Instruction Strategy and Students' Performance in Academic Achievement and Co-Curricular Activities

The regression analysis results on the influence of resource-based instruction strategies and students' performance are shown in Table 4.38.

Table 4.38: Regression Analysis Results on Resource-based Instruction Strategy and Students' Performance

Respondents	Model	R	R Square	Std. Error of the Estimate	Change Statistics	
					F Change	Sig. F Change
Principals	1	.732 ^a	.535	.54799	31.103	.000
Teachers	1	.528	.279	.58219	31.326	.000
Students	1	.428 ^a	.184	.64938	28.557	.000
Respondents	Model	Coefficients			T Value	Sig.
		Unstandardized Coefficients	Std. Error	Standardized Coefficients		
		B		Beta		
Principals	(Constant)	.868	.420		2.068	.048
	Rbi	.763	.137	.732	5.577	.000
Teachers	(Constant)	1.406	.364		3.864	.000
	Rbi	.588	.105	.528	5.597	.000
Students	(Constant)	.596	.511		1.167	.246
	Rbi	.758	.142	.428	5.344	.000

a. Dependent Variable: Students Performance

b. Predictor variables: resource-based instruction strategy (Rbi)

The regression analysis results in Table 4.38 shows the effect of changes in resource-based instruction strategy on students' performance. The results in Table 4.38, shows that R² is (0.535, 0.279 and 0.184) according to results from all the respondents (Principals, teachers and the students) at 0.000<0.05) confidence level. Table 4.38 shows that an increase in one unit of resource-based instruction leads to 53.5% improvement in students' performance (Principals) while for teachers and students, an increase in one unit of resource-based instruction leads to 27.9% and 18.4% improvement in students' performance respectively. However, the remaining 46.5%, 72.1% and 81.6% of variability in students' performance can be explained by other factors outside the model.

Table 4.38 shows the output of F-calculated values used to reject or accept the null hypothesis. The F-value is greater than (Fcal>Fcrit) (31.103>4.21; 31.326>3.96;

28.557>3.84) critical value for all the results from the Principals, teachers and students, and the p-values were significant at (0.000<0.05) level of significance. This indicated that the statistical model was significant in prediction of students' performance in public secondary schools in Nandi County, Kenya.

The result from the regression analysis indicates that the null hypothesis that stated that; "there is there is no relationship between resource-based instruction strategy and students' performance in academic performance and co-curricular activities in public secondary schools in Nandi County", was rejected. The finding show that there is a relationship between resource-based instruction strategies and students' performance.

In Table 4.38, the coefficient of factors that measure the effect of resource-based instruction strategy on students performance, shows that the resource-based instruction is significant (0.000<0.05) at the 0.05 confidence level. The results shows that for all the respondent categories, the coefficient for the model to measure the effects of resource-based instruction strategy and students performance can be expressed as; $Y = \beta_0 + \beta_4 X_4$. Table 4.36 further shows that for all the respondent categories, apart from the students' responses, the constant coefficients (0.868 and 1.406) were significant (0.000<0.05) for the principals and teachers. For the students, the independent variable X_{43} had a direct effect on Y (dependent variable expressed as $Y=X$).

This implies that the resource-based instruction strategy have direct effect on students' performance and yields positive achievement according to students.

In the regression model, the constant β_0 and X_4 (resource-based instruction strategy), measures the changes in Y (students' performance); Where $Y=$ Students Performance and $X=$

resource-based instruction strategy. This therefore means that for all the results from all the respondents' categories; the model is expressed as;

$$Y = 0.868 + 0.763X_{41} \dots\dots\dots \text{Principals} \dots\dots\dots (i)$$

$$Y = 1.406 + 0.588X_{42} \dots\dots\dots \text{Teachers} \dots\dots\dots (ii)$$

$$Y = 0.758 X_{43} \dots\dots\dots \text{Students} \dots\dots\dots (iii)$$

4.7.3 Hypothesis 5: There is no Relationship between Teaching Strategies and Students' Performance in Academic Achievement and Co-Curricular Activities in Public Secondary Schools in Nandi County

The study examines the influence of combined teaching strategies on students' performance. The findings from literature review on various types of teaching strategies; student centered instruction, teacher centered instruction, assessment strategy and resource-based instruction. This was in response to the fifth hypotheses of the study that stated;

H₀₅: There is no relationship between teaching strategies and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

This is expressed statistically by;

$$H_{05}: p=0$$

H_{A5}: There is relationship between teaching strategies and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

The alternative hypotheses for the null hypotheses can statistically be expressed as;

$$H_{05}: p>0$$

a) The Effect of Combined Multiple Correlation Analysis on Teaching Strategies and Students' Performance

To respond to the fifth hypothesis, a multiple correlation and multiple regression was computed to determine the combined influence of teaching strategies and students' performance in academic achievement and co-curricular activities. Multiple regression is used when analysing several variables and predicts one variable from more independent variables. Multiple correlation analysis assisted in interpreting the relationship between four independent variables and dependent variable used in the study. The results of multiple correlation analysis are summarized in Table 4.39.

Table 4.39: The Effect of Combined Correlation analysis between Teaching Strategies and Students' Performance

		P1	Sci	Tci	As	Rbi
P1	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	360				
Sci	Pearson Correlation	.271**	1			
	Sig. (2-tailed)	.002				
	N	360	360			
Tci	Pearson Correlation	.509**	.219*	1		
	Sig. (2-tailed)	.000	.013			
	N	360	360	360		
As	Pearson Correlation	.528**	.005	.682**	1	
	Sig. (2-tailed)	.000	.956	.000		
	N	360	360	360	360	
Rbi	Pearson Correlation	.446**	-.097	.491**	.668**	1
	Sig. (2-tailed)	.000	.273	.000	.000	
	N	360	360	360	360	360

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

a. Dependent Variable: students' performance (P1)

b. Predictor variables: (Constant) Student centered Instruction Strategy (Sci); Teacher Centered Instruction Strategy (Tci); Assessment Strategy (Is); Resource-based Instruction strategy (Rbi).

Table 4.39 indicates the combined multiple correlation analysis for the four-predictor variables (teaching strategies) on students' performance. The multiple correlation coefficient analysis output shows positive correlation coefficients of the four teaching strategies; student

centered instruction strategy (0.271), teacher centered instruction strategy (0.509), assessment strategy (0.528), and resource-based instruction strategy (0.446) at 0.05 level of significance. In addition, the multiple correlation coefficient ' r ' was also significant ($0.000 < 0.05$) as depicted by the output of the four independent variables in the study.

As shown in Table 4.39, the combined multiple correlation analysis of the four-predictor variables; student centered instruction strategy, teacher centered instruction strategy, assessment strategy and resource-based instruction strategy show relatively low to moderately strong association with students' performance. The results indicate that investing in all the teaching strategies leads to improved students' performance. This also means that a public secondary school with appropriately active teaching and learning in an effectively manage classroom, facilitated through student centered teaching or adequate resources for facilitating teaching and learning contributes to better students' performance.

b) Multiple Regression Model on the Influence of Teaching Strategies and Students Performance in Academic Achievement and Co-Curricular Activities

Regression coefficient model was run to determine the combine effect of teaching strategies on students' performance. The regression model is illustrated in Table 4.40

Table 4.40: The Multiple Regression Model on the Influence of Teaching Strategies on Students' Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F	Sig.
1	.624 ^a	.390	.370	.31748	.390	19.810	.000 ^b

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
(Constant)	-.230	.405			-.569	.570
1 Sci	.232	.068	.254		3.413	.001
Tci	.202	.125	.163		1.620	.108
As	.351	.142	.279		2.469	.015
Rbi	.230	.108	.204		2.128	.035

a. Dependent Variable: students' performance (P1)

b. Predictor variables: (Constant) Student centered Instruction Strategy (Sci); Teacher Centered Instruction Strategy (Tci); Assessment Strategy (Is); Resource-based Instruction strategy (Rbi).

Table 4.40 reveal that the coefficient value of 'R' between the independent variables and dependent variable was high (0.624) at 0.05 confidence level. The R² (0.390) shows the proportion of variance in teaching strategies associated with variance in students' performance. The results of the adjusted R square show that the coefficient value of "R²" was 0.370. This results shows that when all the four independent variables are combined, the teaching strategies explains (effect) 37% of changes or variation in students' performance. The adjusted R square shows the amount of variation by combination of independent variables in the model and indicates whether the regression model is a good predictor of the dependent variable (Argyrous, 2011).

The results further signify that the changes are attributed to improvement in teaching strategies (student centered instruction strategy, teacher centered teaching strategy, assessment strategy and resource-based instruction strategy) while the difference 63%, can be explained by other factors outside the model. The F cal>Fcrit (19.810>4.34) was significant

($0.000 < 0.05$) at 0.05 level of significance. The result from the regression analysis indicates that the null hypothesis that stated that; “There is no relationship between teaching strategies and students’ performance in academic achievement and co-curricular activities in public secondary schools in Nandi County”, was rejected. The finding show that there is significant relationship between teaching strategies and students’ performance in academic achievement and co-curricular activities in public secondary schools in Nandi County.

As shown in Table 4.40 the multiple regression model can be expressed statistically as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + e$$

Where k, denotes the number of independent variables.

$$Y = -.230 + .254S + .163T + .279A + .108R$$

$$Y = -.254S + .163T + .279A + .108R$$

Where Y=Students’ Performance

S= student centered instruction strategy

T= teacher centered teaching strategy

A= assessment strategy

R= resource-based instruction strategy

e=Error Term

As observed in Table 4.40, the value of predictor variables; β_1 , β_2 , β_3 and β_4 changes when X_1 , X_2 , X_3 and X_4 are included in the regression model. In the regression model, X_1 , X_3 and X_4 measures the changes in Y (students’ performance). This implies that the variance in X_1 , X_3 and X_4 were positive and directly accounts for variance in Y_1 (students’ performance). This further implies that as the teachers’ improves and implement student centered instruction strategies, assessment strategies and resource-based instruction strategies, the students’ performance improves.

In summary, Table 4.40 shows the coefficients to substitute in the model used to assess the influence of teaching strategies on students' performance. Table 4.40, shows the T value that; student centered instruction (3.413) was very important, followed by assessment strategy (2.469) resource-based instruction strategy (2.128) and teacher centered instruction strategy (1.620). The regression model is therefore a good predictor of students' performance.

Table 4.40 shows that the variables that were statistically significant were; student centered instruction strategies ($0.001 < 0.05$), assessment strategies ($0.015 > 0.05$), resource-based instruction strategy ($0.035 > 0.05$) are significant while the constant ($0.570 > 0.05$), and teacher centered instruction strategies ($0.108 > 0.05$) are insignificant at 0.05 level of significance. This suggest the constant and teacher centered instruction strategies were redundant and not useful in the model. The findings further show that as the teachers' improves and implement student centered instruction strategies, assessment strategies and resource-based instruction strategies, the students' performance also improves. The findings imply that the four-predictor variables influence students' performance in public secondary schools in Nandi County.

4.7.4 The Influence of Government Policy on Teaching Strategies and Students' Performance

The study sought to establish the influence of intervening variable on the relationship between teaching strategies and students' performance in academic achievement and co-curricular activities. The literature review revealed the evidence from many studies that have shown that government policy is paramount in promoting educational development,

promoting achievement of quality education through enforcing required education standards and accountability to the students' performance.

The independent variable is conceptualised in research as the cause of the dependent variable. However, research studies shows that intervening variable influences the relationship between the independent variable and the dependent variable. This part of the study was in response to sixth hypothesis of the study that sought to establish whether; the relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is not dependent on government policy in public secondary schools in Nandi County.

The government policy was the intervening variable, with its aspects as the implementation of secondary schools curriculum guidelines and accountability for students' results. To measure the influence, descriptive analysis was done, hypothesis tested and multiple regression model developed.

a) Descriptive analysis on the influence of government policy on students' Performance

The Principals gave their responses and the results are summarized in Figure 4.3.

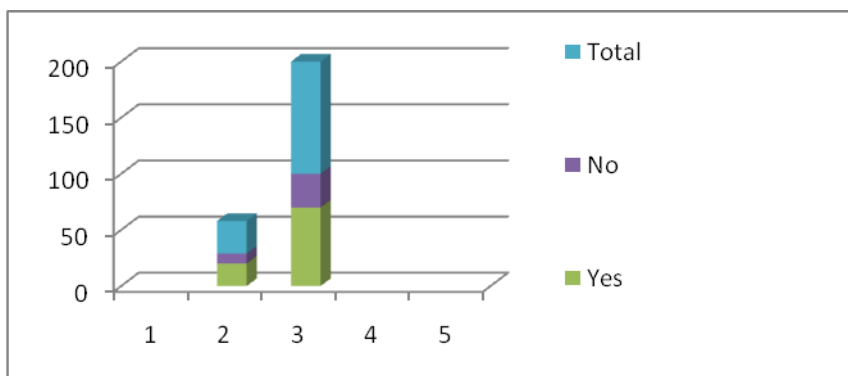


Figure 4.3: Influence of Government Policy on Students' Performance

Figure 4.3 shows the influence of government policy on students' performance. The Principals 70% revealed that government policy influences students' performance. The government policy can be viewed in terms of the curriculum provided by the education system that must be followed. The curriculum defines the courses or subjects to be studied in secondary schools and teachers must derive goals of education from the subject syllabus. Ministry of Education has set forth guidelines that teachers have to follow in using the syllabus with subjects having the necessary teaching guides.

b) Principals Rating on the Influence of Government Policy on Teaching Strategies and Students' Performance

School Principals, teachers and student respondents were asked to provide information on how government policy influences teaching strategies and students' performance. The findings are presented in Table 4.41.

Table 4.41: Principals rating on the Influence of Government Policy on Teaching Strategies and Students' Performance

Government Policy	Principals (N=29)					Total F %
	1 F%	2 F%	3 F%	4 F%	5 F%	
There is a relationship between the implementation of curriculum delivery guidelines and improvement in students' performance	1 (5)	4 (10)	1 (5)	10 (35)	13 (45)	29 (100)
Implementation of curriculum delivery guidelines contributes to realisation of learning objectives	2 (8)	3 (12)	3 (9)	12 (40)	9 (31)	29 (100)
Effective implementation of teaching strategies improves students' performance	4 (14)	4 (14)	2 (34)	10 (34)	10 (34)	29 (100)
Government policy offers uniform education standards to be enforced	4 (13)	3 (11)	1 (3)	10 (36)	11 (37)	29 (100)
Government policy gives direction on the expected teaching threshold to be met by teachers	3 (10)	4 (12)	3 (11)	9 (31)	10 (36)	29 (100)
Specifying key result areas in students' performance enhances better approach to learning interventions	2 (4)	4 (14)	4 (13)	9 (31)	11 (38)	29 (100)
Specifying expected levels of student engagement increases probability of accounting for students' performance	5 (17)	3 (9)	2 (7)	9 (32)	10 (35)	29 (100)
Government policy emphasises increased accountability to student performance	3 (11)	4 (13)	1 (2)	12 (42)	9 (32)	29 (100)

Creating accountability climate among the key education players enhances responsibility for students' performance	1 (3)	4 (13)	5 (17)	10 (33)	9 (32)	29 (100)
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Legend: **(1)** Strongly Disagree **(2)** Disagree **(3)** Neutral **(4)** Agree **(5)** Strongly Agree

Table 4.41, shows the Principals rating that indicates that government policy has mediating influence on teaching strategies and students' performance. Table 4.41 revealed that there is an existing relationship between use of curriculum delivery guidelines and improvement of students performance 80%. The Principals revealed that curriculum delivery guidelines contributes to realization of learning objectives 71%; and that effective implementation of teaching strategies improves students' performance 68%. In addition, Principals revealed that government policy contribute to enforcement of education standards 73%, uniformity in implementation 67%, specify key result areas in realising expected standards of students' performance 69%, and specify expected student engagement levels 67%.

In addition, Principals results show that use of government policy increases accountability to students' performance 74% and emphasises inclusion of key education stakeholders in accounting for students' performance 65%. The Principals rating have shown that government policy has mediating influences on teaching strategies and students' performance in public secondary schools in Nandi County.

The high rating from the Principals is an attestation that mediating effects of government policy influences the association between the teaching strategies and students' performance. Government policy in education is pertinent in addressing key issues that requires attention and achieving what has been set out in the existing broad government plans. The government policy may address issues that include quality education, access, equity and inclusion and

may include undertaking curriculum reviews and putting in place guidelines for enforcement of quality and assurance standards in all secondary schools in the republic.

The ultimate goal of education policy is for the students' to realise higher learning outcomes for further education and employment. The teaching that goes on in public secondary schools are anchored on an existing government policy in education. According to education report, most public secondary schools have not been able to achieve the minimum quality standards because secondary schools are not regularly inspected and that school managers and teachers are not held to account when there are declining educational achievements (Republic of Kenya, 2012).

The findings of the study concur with the results of findings by Jawadin and Gempes (2016) who established the mediating influence of accountability climate on the relationship between transcendental leadership of school heads and institutional productivity. In addition, the findings agrees with the study findings of Sarfo and Elen (2011) that investigated the impact of positive resource interdependence as mediating effect and individual accountability on students' academic performance in cooperative learning. Pike, Smart and Ethington (2011) study looked at the mediating effects of student engagement on the relationship between academic disciplines and learning outcomes.

The qualitative analysis of the County Director of Education responses showed that government policy with regard to curriculum implementation is mandatory and all public secondary schools are required to have the relevant education laws and policies. The CDE displayed all the policies of education that form reference to teaching and checking on education quality. This included Teachers Service Commission code of regulation for

teachers, Basic Education Act 2013, Teachers Service Commission Act 2012 and Education Sector Plan.

The research hypothesis was stated as;

4.7.5 Hypotheses 6: The relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is not dependent on government policy in public secondary schools in Nandi County.

This was expressed statistically as;

$$H_{06}: p=0$$

H_{A6} : The relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is dependent on government policy in public secondary schools in Nandi County.

The alternative hypotheses for the null hypotheses can statistically be expressed as;

$$H_{06}: p>0$$

The hypotheses was tested and the measurement of the influence of intervening variables on the relationship between independent (teaching strategies) and dependent variable (students' performance) was measured in two levels using linear regression models. The steps involved the process of testing was; if

$$X \text{ predicts } Y; Y = \beta_0 + \beta_1 X_1 + e \dots \dots \dots (i)$$

$$X \text{ predicts } G; G = \beta_0 + \beta_2 X_2 + e \dots \dots \dots (ii)$$

$$X \text{ predicts } Y \text{ when } G \text{ is introduced in the model; } Y = \beta_0 + \beta_3 X_3 + fG + e \dots \dots \dots (iii)$$

Where;

X= Independent Variable

Y=Dependent Variable

G=Government Policy

f=Path of the mediator between X and G

The hypothesis was tested by running stepwise multiple regression model shown;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_1 X_2 X_3 X_4 X_5 + e$$

Y=Students' performance

β_0 = Constant

$\beta_{1...5}$ =Beta Coefficient

$X_{1...5}$ =Teaching Strategies

X_6 = Government policy

e= Error Term

Establishing the mediation influence of intervening variable was done in steps using stepwise method. Step 1 involved testing the influence of the independent variables (teaching strategies) on the dependent variable (students' performance). Secondly, step 2 involved regressing the mediator (government policy) on the independent variable (teaching strategies) and step 3 involved regressing the dependent variable (students' performance) on the mediator (government policy) while controlling for the independent variable.

Step 1: Influence of the Teaching Strategies on Students' Performance

Regression analysis was computed to establish the influence of teaching strategies on students' performance.

a) Multiple Regression Analysis on the Influence of Teaching Strategies and Students Performance in Academic Achievement and Co-Curricular Activities

Regression coefficient model was run to establish the influence of teaching strategies on students' performance in academic achievement and co-curricular activities. The regression model is summarised in Table 4.42.

Table 4.42: The Multiple Regression Analysis on the Influence of Teaching Strategies on Students' Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F	Sig.
1	.624 ^a	.390	.370	.31748	.390	19.810	.000 ^b

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
(Constant)	-.230	.405			-.569	.570
1 Sci	.232	.068	.254		3.413	.001
Tci	.202	.125	.163		1.620	.108
As	.351	.142	.279		2.469	.015
Rbi	.230	.108	.204		2.128	.035

a. Dependent Variable: students' performance (P1)

b. Predictor variables: (Constant) Student centered Instruction Strategy (Sci); Teacher Centered Instruction Strategy (Tci); Assessment Strategy (Is); Resource-based Instruction strategy (Rbi).

Table 4.42 reveals that the coefficient value of 'R' between the independent variables and dependent variable was high (0.624) at 0.05 confidence level. The R² (0.390) shows the proportion of variance in teaching strategies associated with variance in students' performance. The results of the adjusted R square show that the coefficient value of "R²" was 0.370. This means the teaching strategies explains 37% of variation in students' performance.

The multiple regression models can be expressed statistically as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + e$$

Where k, denotes the number of independent variables.

$$Y = -.230 + .254S + .163T + .279A + .108R$$

$$Y = -.254S + .163T + .279A + .108R$$

Where Y=Students' Performance

S= student centered instruction strategy

T= teacher centered teaching strategy

A= assessment strategy

R= resource-based instruction strategy

e=Error Term

Step 2: Influence of Teaching Strategies and Government Policy on Students Performance

Step 2 involved introduction of the intervening variable (government policy) on relationship between teaching strategies and students' performance.

b) Regression Coefficient Model on the Influence of Teaching Strategies on Government Policy

Regression coefficient model on the influence of government policy (intervening variable) on teaching strategies (independent variable) was developed. The model summary is illustrated in Table 4.43.

Table 4.43: Regression Coefficient Model on the Influence of Teaching Strategies on Government Policy

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change R	Change Square	F	Sig. Change
1	.624 ^a	.390	.370	.31748	.390		19.810	.000 ^b
2	.656 ^a	.430	.335	.57229	.430		4.529	.007
Model			Unstandardized Coefficients	Std. Error	Standardized Coefficients			Sig.
			B		Beta			
			(Constant)	1.628	.713			.032
			Student Centered instruction strategy	1.169	.485	.950		.024
1			Teacher centered instruction strategy	-1.597	.627	-1.718		.018
			Assessment strategy	.474	.671	.485		.486
			Resource based instruction Strategy	.634	.323	.684		.061

a. Dependent Variable: intervening variables (iv)
 b. Predictors: (Constant), Sci, Tci, As, Rbi

The regression results in Table 4.43 shows the value of R that shows the strength and the direction of relationship between the variables and R² that measures the rate of change per unit in independent variables and dependent variables respectively attributed to a unit change in the intervening variables. Table 4.43 shows the relationship between the independent

variable (teaching strategies) and the intervening variable (government policy) when introduced as measured by regression model. Table 4.43 shows a positive and strong multiple correlation ($R = 0.656$) while $R^2 = 0.335$. This implies that 33.5% of changes in the independent variables (student centered instruction, teacher centered instruction, assessment strategy and resource based instruction) is explained by a unit change in intervening variable.

The introduction of the intervening variable (Government policy) into the model 2 improves the value of R^2 from 39% to 43%. This shows that teaching strategies and government policy explains 43% of the variation in students' performance. The findings further indicate that in all partial regressions, the calculated F value was greater than F critical. The $F_{cal} > F_{crit}$ ($4.529 > 4.34$) was significant ($0.000 < 0.05$) at 0.05 confidence level. This implies that the overall model with variables (student centered instruction strategy (X_1), teacher centered strategy (X_2), assessment strategy (X_3), and resource-based instruction strategy (X_4) predicts Y_1 (students' performance). The results show that the introduction of the intervening variable into model 2 has moderating influence on students' performance in public secondary schools in Nandi County.

As shown in Table 4.43 the results of the findings, shows the multiple regression model can be expressed statistically as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + e$$

Where k, denotes the number of independent variables.

$$VI = 1.628 + .950S - .718T + .485A + .684R + e$$

$$Y = .950T + .485A + .684R$$

Where VI=Government Policy

VI treated in step 2 as the Dependent Variable

S= student centered instruction strategy

T= teacher centered teaching strategy

A= assessment strategy

R= resource-based instruction strategy

e=Error Term

According to Karl (2014) who synthesized the work of Judd, Barron and Kenny (1984) and Mackinnon et al (2002) that gave examples of hypotheses and models that included intervening variables. Karl noted the use of causal steps approach; that first, the independent variable must be correlated with the dependent variable; and secondly, the independent variable must be correlated with the intervening variable.

However, using partial effect example, on hypothesized model in which intention was the intervening while attitude was the independent and behavior as the dependent; when attitude was correlated with behavior, there was high correlation of $r=0.525$ and when attitude was correlated with intention $r=0.767$. However, when attitude was held constant, the $\beta=0.245$, $p=.16$ and fail to result in statistical significance while when intention was remove there was no statistical significance between attitude and behavior and the conclusion was that causal steps does not present evidence of strong mediation, given lack of statistical significance between intention and behaviour.

Step 3: The Mediating Influence of Government Policy on the Relationship between Teaching Strategies and Students' Performance

In step 3, regression coefficient model on the influence of government policy (intervening variable) on students' performance (dependent variable) was developed. The aspects under government policy considered were implementation of curriculum delivery guidelines, enforcing education standards and teaching norms. The model is summarized in Table 4.44.

Table 4.44: Regression Coefficient Model Analysis on the Mediating Influence of Government Policy on the Relationship between Teaching Strategies and Students' Performance

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	R Change	Square F Change	Sig. Change
2	.656 ^a	.430	.335	.57229		.430	4.529	.007
3	.522 ^a	.273	.246	.68550		.273	10.131	.004 ^b
Model				Unstandardized Coefficients	Standardized Coefficients		Sig.	
				B	Std. Error	Beta		
3	(Constant)			.950	.699			.032
	Government Policy (iv)			.588	.185	.522		.024

a. Dependent Variable: intervening variables (iv)

b. Predictors: (Constant),

The regression results in Table 4.44 shows the value of R that shows the strength and the direction of relationship between the variables and R² that measures the rate of change per unit in independent variables and dependent variables respectively attributed to a unit change in the intervening variables. Table 4.44 shows the relationship between the intervening variable (government policy) and students' performance in the regression model. Table 4.44 shows a when the intervening variable is introduced and its effect on students' performance established, though positive multiple correlation (R =0.273) is arrived at, it is generally weak while R² which was previously 0.335 decreases to R²=.246. This means that 24.6 % of changes in the students' performance is explained by a unit change in intervening variable (Government policy).

The introduction of the intervening variable (Government policy) into the model 3 weakens the value of R² from 43% to 27%. This shows that government policy explains 27% of the variation in students' performance. The remaining difference 73% is explained by factors outside the model. The findings further indicate that, the calculated F value was greater than F critical. The Fcal>Fcrit (10.131>3.84) was significant (0.000<0.05) at 0.05 confidence level. This means that the overall model with intervening variable (government policy)

predicts Y (students' performance). The study findings have revealed that that by introducing the intervening variable into model 3, it resulted in moderating influence on students' performance in public secondary schools in Nandi County. The results show that an intervening variable moderates the direction or strength of a relationship.

From the findings show that the null hypothesis that stated, "The relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is not dependent on government policy in public secondary schools in Nandi County" was rejected. The findings reveal that the strength of relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is dependent on government policy in public secondary schools in Nandi County.

As shown in Table 4.44 the regression model can be expressed statistically as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + e$$

Where k, denotes the number of independent variables.

$$Y = .950 + .522 IV + e$$

Where Y=Students' Performance

IV= Intervening Variable

e=Error Term

Step 4: Teaching Strategies, Government Policy and Students' Performance

In step 4, multiple regression was run to test for the mediation effect between the teaching strategies (independent variable), government policy (intervening variable) and students' performance. The results are summarized in Table 4.45.

Table 4.45: Regression Analysis Results on Teaching Strategies, Government Policy and Students' Performance

Model	R	Adjusted R	Std. Error of the Change	Statistics
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	Square	Square	Estimate	R Change	Square F Change	Sig. Change	
3	.522 ^a	.273	.246	.68550	.273	10.131	.004 ^b
4	.847 ^a	.718	.656	.46270	.718	11.700	.000
Model	Unstandardized Coefficients		Standardized Coefficients				Sig.
	B	Std. Error	Beta				
4 (Constant)	-.191	.636					
Sci	-.507	.437	-.366				.767
Tci	.228	.572	.218				.258
As	.977	.548	.888				.694
Rbi	-.147	.281	-.141				.088
Iv	.462	.165	.411				.607

a. Dependent Variable: intervening variables (iv)

b. Predictors: (Constant), student centered instruction strategy (Sci), teacher centered instruction strategy (Tci), assessment strategy (As), resource-based instruction strategy (Rbi)

The regression results in Table 4.45 revealed the value of R^2 that shows the mediated relationship between the teaching strategies, government policy and students' performance in the regression model. The regression model indicates that $R^2=.246$, meaning that 24.6 % of changes in the students' performance is explained by a unit change in intervening variable (Government policy). Table 4.45 further shows that when the intervening variable is introduced and its effect on the relationship between teaching strategies and students' performance established, there is positive and multiple correlation ($R=0.718$) while R^2 revealed that 71.8% of the variation in students performance is attributed to the teaching strategies.

The regression model shows the calculated F value was greater than F critical. The $F_{cal} > F_{crit}$ ($11.700 > 3.84$) was significant ($0.000 < 0.05$) at 0.05 level of significance. This implies that despite the intervening variable being introduced in the overall model with the teaching strategies predicts students' performance.

Part A: Overall Direct Effect

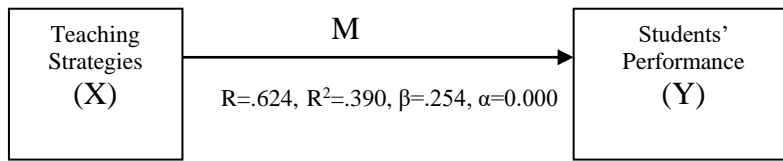


Figure 4.4: Path Analysis of the mediating Influence on the Relationship between Teaching Strategies and Students' Performance

Part B: Path Diagram for Partial Direct Effect and Mediation Effects

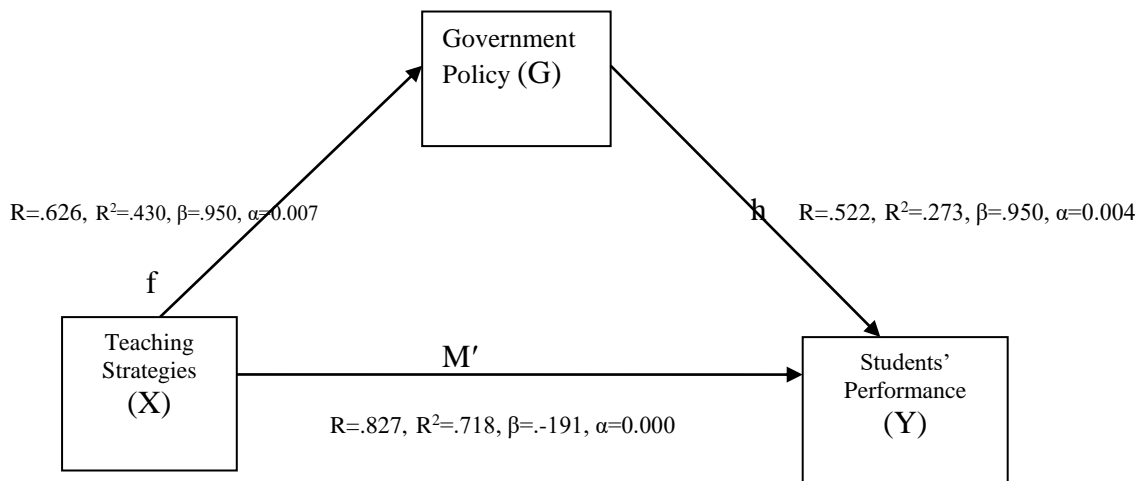


Figure 4.5: Path diagram showing the mediating Influence of Government Policy on the Relationship between Teaching strategies and Students' Performance (Mediation model based on Baron and Kenny's, 1986 Method).

Figure 4.4 and 4.5, uses the mediation model using path diagrams to display the causal effect from X (teaching strategies) to Y (students' performance). The path diagram introduces an intervening variable denoted as G (government policy) to explain the interactive effect on the X to Y causal relationship. In figure 4.4 there is a significant correlation between the predictor variable X (teaching strategies) and dependent variable Y (students' performance) ($R=.624$, $R^2=.390$, $\beta=.254$, $\alpha=0.000$).

In figure 4.5, the mediation model is made up of three paths including; “f”, “h” and “M”. Path “f” represent teaching strategies regressed on government policy. Path “h” represents government policy regressed on students’ performance and treated as a dependent variable while path “M”, represents teaching strategies regressed on and students’ performance with government policy as the intervening variable.

In Figure 4.5, the predictor variable X accounts for a significant variation in the mediating variable G as shown in path f. This are reflected by the regression results ($R=.626$, $R^2=.430$, $\beta=.950$, $\alpha=0.007$). In addition, Figure 4.5 shows that the mediator variable G accounts for a significant proportion of variance in the dependent variable Y as shown in path h where the regression results are summarised as ($R=.522$, $R^2=.273$, $\beta=.950$, $\alpha=0.004$). In addition, Figure 4.5 shows that the relationship between the predictor variable X (teaching strategies) and the dependent variable Y (students performance) as shown in path M’ is significantly less because the constant β is redundant in the regression model despite the correlation and coefficient of determination being high shown in path M’ as; $R=.827$, $R^2=.718$, $\beta=-.191$, $\alpha=0.000$.

In summary, the value of R^2 in the three steps when the intervening variable was introduced changed from 33.5% in step 2, 24.6% in step 3 and increasing to 65.6% in step four at ($0.000 < 0.05$) at 0.05 level of significance. In all the regression models, the F-values were statistically significant. This indicates that the strength of relationship between the teaching strategies and students’ performance in academic achievement and co-curricular activities is reliant on government policy in public secondary schools in Nandi County.

The findings are confirmed by Mallinckrodt, Abraham, Wei and Rusell (2006) explanation of Baron and Kenny's (1986) mediation model and Frazier, Tix, and Barron (2004) description of the Basic Normal Theory approach that stated four component steps as fulfilled in Figure 4.4 and Figure 4.5 on the Baron and Kenny's (1986) mediation model requirements. The steps are that; first, there must be a significant correlation between the predictor variable X and the dependent variable Y (like shown in path M); secondly, the predictor variable X must account for a significant proportion of the variance in the mediating variable G (like shown in path f). Thirdly, the mediator variable must account for a significant proportion of variance in the dependent variable Y (like shown in path h) and fourthly, the association between the predictor variable X and the dependent variable Y must be significantly less after controlling for the variance shared between the mediator and dependent variable (like shown in path M').

The study confirms the fulfilment of the stated conditions as explained. However, studying the effect of mediation as per the conditions stated is not necessary by (Mallinckrodt et al, 2006). The study of mediation is a necessary but not sufficient condition for understanding the influence of teaching strategies on students' performance. Similarly, the findings agrees with Wu and Zumbo (2008) explanation that the mediator is the third variable that links a cause and effect, and the causal model is a theoretical hypotheses that shows how changes in one variable results into changes in another. The causal model assists in deepening and providing more understanding of a causal relationship between an independent and dependent variable.

Kaur (2013) explained that variables are properties that takes on different values and can only be explained in terms of measurable factors. Moreover, Fitrianto and Midi (2013) explained that mediation modelling remains a powerful tool for explaining the nature of relationship

among or between three or more variables. The mediation model shows how an effect occurs through hypothesizing a causal sequence, where an independent variable causes the mediation that sequentially causes the dependent variable.

In the descriptive analysis, majority of the Principals 80% revealed that government policy influences students' performance in public secondary schools. In a qualitative analysis of the responses from the CDE interview, the responses revealed that public secondary school teachers sometimes encounters difficulties in interpreting curriculum delivery guidelines, lack or inadequate training on the implementation of secondary education syllabus; and sometimes the school administrators including the Board of Management and Principals do not share relevant information relating to government policy effectively. The qualitative analysis from the CDE revealed that the County Education Office in its endeavours of overseeing students learning in public secondary schools encourages schools to put in place friendly education and school policies.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings, conclusions and recommendations of the study based on the research evidence. The chapter summarizes the contextual characteristics of Nandi County relating to the area studied in terms of the number of public secondary schools, and the number of public secondary school teachers. The chapter draws conclusion based on the research objectives and hypothesis set out at the beginning of the study. The chapter provides implications and recommendations for the study with regard to policy and practice and proposes areas of further research.

5.2 Summary

The study was undertaken to establish the influence of teaching strategies on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. The study was guided by four research objectives upon which six research hypotheses were developed. The study focused on three sub-counties namely; Nandi East, Nandi Central and Nandi North. According to 2013 Nandi Development profile, the total number of secondary schools in Nandi County were 169 schools; 161 were public and 8 private. The teachers in secondary schools in Nandi were 790 males and 497 females totalling 1,287 (Republic of Kenya, 2013).

Data analysis involved the use of quantitative and qualitative methods; descriptive statistics, interview schedule, observation schedule and hypotheses testing. Hypotheses testing employed the use of linear correlation and regression, multiple and stepwise regression analysis. The linear correlation and regression were use to establish existence of relationship and predict their influence on students' performance. The variables included; student centered

instruction strategy, teacher centered instruction strategy, assessment strategy and resource-based instruction strategy.

In addition, the multiple correlation, stepwise and multiple regression analysis was used to establish relationships and to determine whether the intervening (mediator) variables influences the relationship between the independent variable and the intervening variable. Multiple regression analysis was undertaken to predict whether there exists a relationship between teaching strategies and students' performance. In addition, stepwise regression was done to determine the mediating influence of the intervening variable (government policy) on the relationship between the teaching strategies (independent variable) and students' performance (dependent variable).

5.2.1 Influence of Student Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The first objective of the study sought to establish the influence of student centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. The findings from students revealed that teachers encountered difficulties in managing teaching and learning in the classroom. The results from the descriptive analysis showed that managing students' behaviour, setting clear student learning expectations and supporting students' social and emotional learning using student centered methods, influences students' performance.

The first hypothesis of the study was that, "There is no relationship between student centered instruction strategy and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County". The null hypotheses was rejected

and was found out that there existed significant and positive relationship between student centered instruction strategy and students' performance. The findings were ($r=0.609$ at p-value of $0.000<0.01$) for Principals, ($r=0.556$ at p-value of $0.000<0.01$) for teachers and ($r=0.403$ at p-value of $0.000<0.01$) for the students. Coefficient of determination ($R^2=0.371$, 0.309 and 0.112) at ($0.000<0.05$) significance level for Principals, teachers and students'. This means that an improvement in student centered strategies leads to improvement in students' performance.

5.2.2 Influence of Teacher Centered Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The objective two of the study was to assess the influence of teacher centered instruction strategy on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. To establish the influence of teacher centered instruction strategy on students' performance, descriptive, correlation and regression analysis was done. Teachers stated that use of teacher centered methods in teaching in public secondary schools in Nandi County promoted teacher dominance in teaching resulting in passive learning during the lessons. The qualitative findings from the County Director of Education revealed concerns with teaching methods used by teachers in teaching in public secondary schools in Nandi County.

The correlation analysis showed existence of positive relationship between teacher centered instruction strategy and students' performance. The r -value from the correlation analysis shows existence of significant and positive relationship ($r=0.768$ and p-value of $0.000<0.01$) for principals, ($r=0.487$ and p-value of $0.000<0.01$) for the teachers, ($r=0.294$ and p-value of ($0.000<0.01$) for the students. The results of coefficient for determination (R^2) is (0.590 ,

0.237 and 0.086) according to results from Principals, teachers and the students, at (0.000<0.05) level of significance. The second hypothesis stated that, “there is no relationship between teacher centered instruction strategy and students’ performance in academic achievement and co-curricular activities in public secondary schools in Nandi County”. The null hypothesis was rejected and the conclusion was that there is a significant and positive relationship between teacher centered instruction strategies and students’ performance.

5.2.3 Influence of Assessment Strategy on Students’ Performance in Academic Achievement and Co-Curricular Activities

The objective three of the study sought to investigate the influence of assessment strategy on students’ performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. The descriptive analysis of findings indicated that; classroom assessments that give feedback on students’ learning were never administered frequently.

The correlation analysis results indicated that there is significant positive relationship between assessment strategy and students’ performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. The *r*-value from the correlation analysis shows existence of significant and positive relationship (*r*=0.677 and p-value of 0.000<0.01) for principals, (*r*=0.569 and p-value of 0.000<0.01) for the teachers, (*r*=0.335 and p-value of 0.000<0.01) for the students. The coefficient for determination (R^2) were also positive (0.458, 0.324 and 0.112) at (0.000<0.05) significance level according to results from all the respondent categories. The null hypothesis stated “There is no relationship between assessment strategy and students’ performance in academic achievement and co-curricular activities in public secondary schools in Nandi County”. The null hypothesis was

rejected and the conclusion was that implementing assessment strategies resulted in improved performance.

5.2.4 Influence of Resource-based Instruction Strategy on Students' Performance in Academic Achievement and Co-Curricular Activities

The objective four of the study sought to explore the influence of resource-based instruction strategy on students' performance in public secondary schools in Nandi County. The descriptive, correlation and regression analysis was done to establish the influence of resource-based strategy on students' performance. The findings from the teachers revealed that there was inadequate teaching and learning resources, material resources and physical resources in public secondary schools in Nandi County. The output from the quantitative analysis showed that critical resources to promote learning were needed. The qualitative analysis from the County Director of Education indicated that public secondary schools experiences inadequate teaching and learning resources, material resources and physical resources.

The results of the correlation analysis indicated the existence of positive relationship between resource-based instruction strategies and students performance. The r -value from the correlation analysis shows existence of significant and positive relationship ($r=0.732$ and p -value of $0.000<0.01$) for principals, ($r=0.528$ and p -value of $0.000<0.01$) for the teachers, ($r=0.428$ and p -value of $0.000<0.01$) for the students. The results of coefficient for determination R^2 , shows that ($R^2=0.535, 0.279$ and 0.184) according to results from all the respondents (Principals, teachers and the students) at $0.000<0.05$) level of significance. The null hypothesis was rejected and the conclusion was that there existed a statistically significant relationship between resource-based instruction strategy and students'

performance in academic achievement and co-curricular activities in public secondary schools in Nandi County, Kenya.

5.2.5 Influence of Teaching Strategies and Students' Performance in Academic Achievement and Co-Curricular Activities

Hypothesis five stated that, "There is no relationship between teaching strategies and students' performance in public secondary schools in Nandi County". The multiple regression results shows that the R^2 value which ($R^2=.390$) shows the proportion of variance in teaching strategies associated with variance in students' performance. The multiple regression coefficients indicated that the T-statistic for student centered instruction strategy was higher (3.413) and significant compared to other strategies. The null hypothesis was rejected and the conclusion was that there is a significant relationship between teaching strategies and students' performance in public secondary schools in Nandi County.

The multiple regression analysis provided an opportunity to assess the impact of combination all the independent variables (student centered instruction, teacher centered instruction, assessment strategy and resource-based instruction) on students' performance. In addition, the multiple regression model provided an opportunity for prioritize resources in a situation where there is shortage of finances to implement the strategies. For the four independent variables, student centered instruction strategy is very critical followed by assessment strategies, resource-based instruction strategy and teacher centered instruction strategy.

5.2.6 Influence of Government Policy on the relationship between Teaching Strategies and Students' Performance in Academic Achievement and Co-Curricular Activities

The descriptive analysis of the findings revealed that implementation of curriculum guidelines, enforcing education standards and accountability to students' performance as

aspects of government policy; was a key consideration when establishing the mediating relationship between teaching strategies and students' performance in the study. The principals rated highly that there is a relationship between the implementation of curriculum delivery guidelines and students' performance 80% and that increasing accountability of students' performance resulted in improved students' performance 74%.

The sixth hypothesis stated that, "The relationship between the teaching strategies and students' performance in academic achievement and co-curricular activities is not dependent on government policy in public secondary schools in Nandi County". The regression results shows the mediating influence of government policy on the relationship between teaching strategies and students' performance. The regression analysis was done using stepwise regression. The null hypothesis was rejected, and the conclusion was that government policy has mediating effects on the relationship between teaching strategies and students' performance.

5.3 Conclusions

The following conclusions follow closely the structure of findings from the study. The Gagne's theory of instruction was helpful in explaining the need for teachers to ensure effective curriculum delivery while recognising the diverse needs of all the learners. Teachers should increase their commitment in teaching students to acquire the necessary knowledge, skills and attitude to help them develop as holistic individuals. Gagne's theory emphasised the need for deliberate arrangement of conditions of learning to attain instructional goals. The theory emphasised the need to create consistency in classroom management and offered guidance on the way to facilitate learners to learn and develop.

The first research objective sought to establish the influence of student centered instruction strategy on students' performance. The finding of the study shows that some students exhibit some behavioural and discipline problems including loss of books, being violent, being late for class and practising bullying. This nature of student behaviour shows that students were wasting their own time, time for the teachers, and parents. Most of the respondents preferred student centered instruction, which involved students in constructing knowledge and being in charge of their own learning. The correlation and regression results indicated existence of significant relationship between student centered instruction and students' performance in academic achievement and co-curricular activities.

The second research objective aimed at assessing the influence of teacher centered instruction strategy on students' performance. The findings show that teachers' uses theoretical teaching and lack innovative use of instructional strategies that contribute to poor students' performance. The correlation and regression results shows that teacher centered instruction strategies was significant in predicting students' performance.

The third research objective was to investigate the influence of assessment strategy on students' performance. The findings show those students' experienced challenges in assessments, as they never take on classroom assessments after their learning frequently. Assessment is a pathway to knowledge acquisition, and often requires that they be standardised to measure the learner's level of performance. Most of the classroom assessments are sometimes set without following the learning domains of cognitive, psychomotor and affective. The correlation and regression results show that there is a statistically significant relationship between assessment instruction strategy and students' performance.

The fourth research objective was to explore the influence of resource-based instruction strategy on students' performance. The results of the study showed that there were inadequate teaching and class based learning resources interfering with provision of quality education. In some of the public secondary school classrooms, laboratories, libraries centres were inadequate, rarely used and ill equipped for the learners. In some cases, the available book resources in the library were outdated and not relevant for learning.

The sixth hypothesis explored the influence of government policy on the relationship between teaching strategies and students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. The findings show that government policy mediating influence between teaching strategies and students' performance cannot be ignored.

In summary, the findings from this study shows that in most public secondary school in Nandi County the learning going on is not fully engaging the learner and hence the reason for poor students' performance. Poor students' performance means that the output from education will lead to poor quality human capital and slow overall social and economic development. Although teachers are important in promoting students learning, they must prepare their teaching seriously to improve students' performance. However, the study shows that, other factors including school management, students, quality assurance and standards and resources influences the students' performance. The regression results further show that all the independent variables contributed to students' performance and any variation can only be attributed to factors outside the model.

5.4 Contribution to Knowledge

The findings from the study will add to existing knowledge in research field. The study has identified student misbehaviour, issues in implementing teaching strategies, assessments and inadequate teaching and learning resources as hindering success in students' learning achievement in public secondary schools in Nandi County. The research findings have revealed the importance of teaching strategies in increasing students' acquisition of skills, knowledge and attitudes and developing them as holistic individuals. The teaching strategies will guide teachers on the improvement of teaching and learning in public secondary schools for the benefit of the students.

Interactive Relationship between Teaching Strategies and Students' Performance

The significance of the study has pointed out the existing relationship between teaching strategies and students' performance in public secondary schools in Nandi County. Figure 5.1 shows the teaching strategy model arising from the study findings.

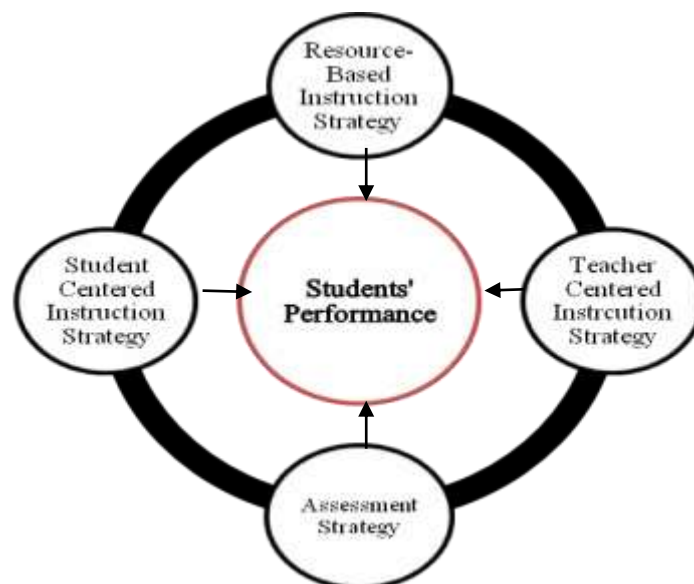


Figure 5.1: Teaching Strategies Model (Source: Author)

The model depicts that where the teaching strategies are strengthened and reinforced through targeted in-service training, it influences students' performance. There is need therefore to

identify the weak areas in students' performance, evaluate the teaching strategies and develop teaching and learning interventions that would yield improvement in students' performance.

5.5 Recommendations

Based on the findings of the study, the following two recommendations are made; policy and practise.

5.5.1 Policy Recommendations

The following are policy recommendations;

The importance of secondary education to students' holistic development cannot be ignored. The Kenya Government long-term development blue print, the Kenya Vision 2030 considers transformation in education and training in the social pillar as a key priority area. Therefore, in order to realise the achievement of the vision, the focus has been investment on quality human capital through providing quality teaching to improve students performance and hence their attainment.

The objective one of the study focused on the influence of student centered instruction on students' performance. In an environment where students' learning is yielding low students' performance, it is recommended that public secondary schools need to focus on policies or guidelines that advances active students' learning, better students behavior management, high learning expectations and student's social emotional development.

The objective two of the study focused on the influence of teacher centered instruction on students' performance. It is recommended that there is need to retrain teachers to be competent and meet high standards in teaching to promote deeper and active students' learning. There is need for developing teacher education curriculum framework capable of

improving teacher competence in teaching and pedagogical skills and strengthen their development professionally. It is expected that this will result in reasonable improvement of students' performance enabling students' to develop and acquire high-level skills, knowledge and attitudes favourable and needed for career development, national development, and for solving emerging national and global challenges.

The objective three of the study focused on the influence of assessment strategy on students' performance. It is recommended that government continuously review its education policy to support teachers in their teaching by underscoring the importance of administering assessments that gauge students' learning progress and performance. To ensure accuracy, reliability and validity, assessments should be subjected to constant quality checks based on the national examination policies, school assessment and evaluation policies to meet the students' learning objectives. As a pathway of learning, assessment should be design to assist teachers to be able to diagnose and evaluate students learning and improve on students' performance.

Despite the current debate on need to replace the current 8-4-4 secondary school curriculum, to reduce high-stakes competition in national examination, incorporate the necessary learning competences and incorporate new assessment methodologies, the debate has divided the stakeholders deep in the middle. The proposed basic education curriculum framework need to be subjected to further and deeper stakeholder engagement through public participation to refine, ensure its effectiveness, usefulness and their capability to meet student needs, national and global education standards.

The objective four of the study focused on the influence of resource-based instruction on students' performance. It is recommended that public secondary schools should work with Ministry of Education and other stakeholders to provide necessary and relevant resources that support and enables students to engage in quality and meaningful learning. Textbooks should be relevant and up to date while the school infrastructure should be provided, repaired and well maintained. Adequate teachers should be deployed to teach in public secondary schools. The resources provided involve appropriate application of information and communication technology in relevant subject areas. Schools should invest and align school resources to expected students' output to improved students' performance for sustainable future.

In summary, stakeholders including the County Director of Education, Principals, teachers and students should work together to develop policies aimed at improving teaching strategies and providing learning opportunities for all students. This is imperative in improvement of students' performance.

5.5.2 Recommendations relating to Practice

Based on objective one of the study, the recommendation originating from the findings of the study is that teachers from the public secondary school in Nandi County should use student centered instruction to promote active student engagement in learning, enforce classroom rules and regulations, communicate clear learning expectations, promote students based learning, support the development and nurturing of students talents while implementing learning activities that promote students social emotional learning.

Based on objective two of the study, the recommendation is that the Board of Management of public secondary schools in Nandi County should get reliable student data showing their

achievement, and use it to improve students performance. BOM need to plan and host an open forum for creating awareness to both teachers and students on the need for realising high education standards and high students' performance in their schools.

Based on objective three of the study, the recommendation is that there is urgent need to support and provide necessary resources to enhance monitoring of quality teaching in public secondary schools in Nandi County. The school learning and assessment policies should prioritise improvement of students' performance. Teachers should use feedback from assessments to improve on students future assessments, monitor and support students to improve on weak learning areas.

Based on objective four of the study, it is recommended that school BOM should ensure availability, efficiency and accountability in the use of teaching and learning resources. Teachers should improvise teaching and learning resources whenever there are shortages to promote learning. These include both print and non-print resources. Teachers should integrate technology resources to teaching to catalyze on teaching and learning and realize classroom objectives; and actively involve students' in resource based learning to improve on their performance. The public secondary schools should utilize the existing teacher resources effectively. Teachers Service Commission ought to recruit additional teachers to bridge the gap of teacher shortages in public secondary schools in Nandi County.

5.5.3 Suggestions for further Research

This study has provided conclusions and recommendations based on the findings of the study. The study mainly focused on; influence of teaching strategies on students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County, Kenya. The following are suggestions for further research;

- (i) Replicate the study in tertiary training institutions in selected counties in Kenya.
- (ii) to replicate the study in tertiary training institutions in selected counties in Kenya
- (iii) Investigate the extent to which students self concept and discipline development in public secondary schools in Kenya.
- (iv) Carry out the study on the influence of deliberate training of teachers and their contribution to students' performance in public secondary schools in Kenya.
- (v) Investigate the impact of government policy on students' performance in public secondary schools in Kenya.

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APPENDIX I
LETTER OF TRANSMITTAL

Dear Respondent,

Re: Research Instruments for the Study

This instruments administered by the researcher is meant for education research. You have been selected as one of the respondents for this study. The researcher is a PhD student at Kenyatta University and is conducting research on; *Influence of Teaching Strategies on Students' Performance in Public Secondary Schools in Nandi County, Kenya.*

You are therefore required to respond to questions honestly and correctly. Your responses and any information you give will only be used for this study and will be treated with utmost confidentiality.

Thank you for your time and support. I appreciate your co-operation in this important study.

Annah Jepketer

PhD Candidate, Kenyatta University

APPENDIX II

PRINCIPAL'S QUESTIONNAIRE

Part A: Background Information

1. County.....
2. District.....
3. School Category: National () County () District ()
4. School type: Boys day () Girls Day () Girls Boarding ()
 Boys Boarding () Mixed Day () Mixed Boarding ()
5. Tick (✓) where appropriate

a. Gender: Male () Female ()

Age (..... years)

b. How many years did you spent in your pre service training? Tick (✓) where appropriate

0-5 months	
1 year	
1-2 years	
2 years+	
None of the above	

6. How long have you been a head teacher?

Part B: Students Performance

7. a. State and rate the overall students Kenya Certificate of Secondary Education

Examination results from 2008 to 2012 for your school. Use the scale

Very poor	Poor	Neutral	Good	Very Good

b. Are students' actively engaged in co-curricular activities in public secondary schools in

Nandi County? Yes No

c. State the type of Co-curricular activities students are engaged in.

Part C: Student Centered Instruction Strategy and Students' Performance

8. For each of the following statements indicate the degree to which you agree or disagree on the influence of students centered instruction strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a	Classroom organisation enables teachers to establish clear classroom procedures and reflection on teaching					
b	Teachers management of time on tasks contribute to improved students' performance					
c	Enforcing students discipline control improves their performance					
d	Students management and regulation of their own behaviour enhances their performance					
e	Communicating clear teaching/learning objectives improves students' performance					
f	Giving students opportunities to develop clear classroom expectations contribute to improved performance					
g	Providing variety of learning activities support students to develop talents and improve their performance					
h	Promoting social emotional development of students improves their attitudes towards learning					
i	Putting in place counselling sessions increases students self awareness					
j	Promoting positive teacher-student relationship					

Part D: Teacher Centered Instruction Strategy and Students' Performance

9. For each of the following statements indicate the degree to which you agree or disagree on the influence of teacher centered instruction strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	Teacher dominates the teaching of the students in the classroom					
b.	Students are actively involved in undertaking the tasks while listening to teachers instruction					
c.	Class assignments are undertaken independently and silently by students					
d.	Lecture method improves performance of learners					
e.	Use of collaborative learning in groups enhances students' performance					
f.	Students comply with strict and well define expectations, rules and regulation in the classroom which enhances their performance					
g.	Receiving and memorization of learning information enhances students' performance					
h.	Use of demonstration method enhances students' performance					
i.	Use of drill and practice engages students in learning leading to better performance					
j.	There is more emphasis on mastery of learning and recall of information in the learning process					

Part E: Assessment Strategy and Students' Performance

10. For each of the following statements indicate the degree to which you agree or disagree on the influence of the assessment strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	Continuous assessment tests reinforces students' learning of materials in a systematic way					
b.	Continuous assessment tests augment students' learning enhancing retention of the materials					
c.	Giving continuous assessment tests enhances learners interaction connecting learning to the real world					
d.	Formative assessments enhances students active participation in answering questions					
e.	Formative assessments equips students with 'learning to learn' skills enhancing their performance					
f.	Providing timely feedback enhances students self assessment enables students to take responsibility for their own learning					
g.	Integrating assessments with teaching and learning influences students' performance					
h.	Summative assessment shows whether the learning goals have successfully been met					
i.	Summative assessments ensure that the sequence of instructional activities results in the intended learning outcomes.					
j.	Giving students assessments increases accountability to students performance					

Part F: Resource-based Instruction Strategy and Students' Performance

11. For each of the following statements indicate the degree to which you agree or disagree on the influence of resource-based instruction strategy and students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a	Utilising teacher resources effectively increases acquisition of multiple skills by students					
b	Providing high quality multiple learning materials both in print and non print enhances students' deep involvement in learning					
c	Providing class based learning facilities provide opportunities for developing independent learning skills and acquisition of knowledge					
d	Establishing library resources to enhance access of learning materials and research skills					
e	Providing physical learning environment enhances students active participation in their learning					
f	Providing Information and Communication Technology resources support learning					
g	Making appropriate selection and use of ICT resources increases in teaching and learning exposes students to global experiences improving their cognitive and affective skills					

Part G: Government Policy, Teaching Strategy and Students' Performance

12. a. Do government policy influences students' performance in academic achievement and co-curricular activities in public secondary schools in Nandi County. Yes No

b. For each of the following statements indicate the degree to which you agree or disagree on the mediating influence of government policy, on the relationship between teaching strategies and students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	There is a relationship between the implementation of curriculum delivery guidelines and improvement in students' performance					
b.	Implementation of curriculum delivery guidelines contributes to realisation of learning objectives					
c.	Effective implementation of teaching strategies improves students' performance					
d.	Government policy offers uniform education standards to be enforced					
e.	Government policy gives direction on the expected teaching threshold to be met by teachers					
f.	Specifying key result areas in students' performance enhances better approach to learning interventions					
g.	Specifying expected levels of student engagement increases probability of accounting for students' performance					
h.	Government policy emphasises increased accountability to student performance					
i.	Creating accountability climate among the key education players enhances increased teacher responsibility for students' performance					

Thank you for your participation

APPENDIX III

COUNTY DIRECTOR OF EDUCATION INTERVIEW SCHEDULE

A: Background Information

1. County.....
2. Tick(✓) where appropriate

Gender: Male ()

Female ()

B. Students' Performance

- a. To what extent do you think students' in public secondary schools have performed well in academic performance in your County? Elaborate.
- b. What method do you use to promote students' involvement in Co-Curricular Activities?
- c. Does your office keep the record of co-curricular activities? State the Co-Curricular activities

C. Student Centered Instruction Strategy and Students' Performance

3. What mechanisms have you put in place to enforce adherence of classroom procedures through student centered instruction strategy in your County? Please elaborate.
4. How do you ensure teachers use student centered instruction strategy to provide effective students behaviour management in the classroom in your County?
5. Highlight ways in which teachers can use student centered instruction strategy to shape personal growth of students in order to improve their performance in your County.

D. Teacher Centered Instruction Strategy and Students Performance

6. In your opinion what contributes to poor students' performance in public secondary schools in your County

7. In your opinion, do you think teacher centered instruction strategy influences improved students' performance in your County?
8. What teacher centered instruction strategies should teachers use to improve students' performance in your County?

E. Assessment Strategy and Students Performance

9. Which type of assessments does your office oversee in public secondary schools in your County?
10. Do you think assessments improve the students' performance? Elaborate
11. What assessment strategies can be put in place to improve students' performance in your County?

F. Resources Base Instruction Strategy and Students Performance

12. What can you say about the status of resources for teaching and learning in public secondary schools in your county?
13. In your opinion, do you think resource-based instruction contribute to improved students' performance in your County.
14. What measures can be put in place to ensure that resource-based learning for secondary schools in your county is promoted?

G. Government Policy and Students Performance

15. What curriculum delivery policies have you put in place to ensure improvement of students' performance in public secondary schools
16. How do you ensure education standards are followed in teaching?
17. What have you done to ensure increased accountability of students' performance?

Thank you for your participation

APPENDIX IV
TEACHER QUESTIONNAIRE

Part A: Background Information

1. County.....
2. District.....
3. School Category: National () County () District ()
4. School type: Boys day () Girls Day ()
 Girls Boarding () Boys Boarding ()
 Mixed Day () Mixed Boarding ()
5. Tick (✓) where appropriate
 - a. Gender: Male () Female ()
 - b. Age (..... years)
 - c. What are your academic qualifications?
 - d. How many years did you spent in your pre service training? Insert your answer in the appropriate box.

Part B: Students Performance

6. a. What is your teaching area?
- b. Rate the overall students performance for your school as provided in the observation schedule in *Appendix VI*. Use the scale provided.

1	2	3	4
Poor	Fair	Good	Very Good

- c. Are students' actively engaged in co-curricular activities in public secondary schools in Nandi County? Yes No

d. State the type of co-curricular activities students are engaged in your public secondary school.

Part C: Students Centered Instruction Strategy and Students' Performance

7. For each of the following statements indicate the degree to which you agree or disagree on the influence of the student centered instruction strategy on the students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	Classroom organisation enables teachers to establish clear classroom procedures and reflection on teaching					
b.	Teachers management of time on tasks contribute to improved students' performance					
c.	Enforcing students discipline control improves their performance					
d.	Students management and regulation of their own behaviour enhances their performance					
e.	Communicating clear teaching and learning objectives improves students' performance					
f.	Giving students opportunities to develop clear classroom expectations contribute to improved performance					
g.	Providing variety of learning activities support students to develop talents and improve their performance					
h.	Promoting social emotional development of students improves their attitudes towards learning					
i.	Putting in place counselling sessions increases students self awareness					
j.	Promoting positive teacher-student relationship contributes to improved students' learning and performance					

Part D: Teacher Centered Instruction and Students' Performance

8. a) To what extent are the following teacher centered instruction strategies frequently used to improved students' performance? Tick (✓) where appropriate.

Where; 1= Very Rarely, 2= Rarely, 3= Neutral, 4= Frequently, 5= Frequently

STATEMENT	Very Rarely	Rarely	Neutral	Freque ntly	Very Frequently
	1	2	3	4	5
Teacher centered methods					
Students centered methods					
Student engagement					
Assessments					

b) For each of the following statements indicate the degree to which you agree or disagree on the influence of teacher centered instruction strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	Teacher dominates the teaching of the students in the classroom					
b.	Students are actively involved in undertaking the tasks while listening to teachers instruction					
c.	Class assignments are undertaken independently and silently by students					
d.	Lecture method improves performance of learners					
e.	Use of collaborative learning in groups enhances students' performance					
f.	Students comply with strict and well define expectations, rules and regulation in the classroom which enhances their performance					
g.	Receiving and memorization of learning information enhances students' performance					
h.	Use of demonstration method enhances students' performance					
i.	Use of drill and practice engages students in learning leading to better performance					
j.	There is more emphasis on mastery of learning and recall of information in the learning process					

Part E: Assessment Strategy and Students' Performance

9. To what extent do you agree with the following statement The Extent to which Learners frequently undertake assessments in school? Tick (✓) where appropriate.

Where: (1) Very Poor (2) Poor (3) Neutral (4) Good (5) Very good

NO.	STATEMENT	Very Poor	Poor	Neutral	Good	Very good
		1	2	3	4	5
1.	Learners Assessments					

b) For each of the following statements indicate the degree to which you agree

or disagree on the influence of assessment strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	Continuous assessment tests reinforces students' learning of materials in a systematic way					
b.	Continuous assessment tests augment students' learning enhancing retention of the materials					
c.	Giving continuous assessment tests enhances learners interaction connecting learning to the real world					
d.	Formative assessments enhances students active participation in answering questions					
e.	Formative assessments equips students with 'learning to learn' skills enhancing their performance					
f.	Providing timely feedback enhances students self assessment enables students to take responsibility for their own learning					
g.	Integrating assessments with teaching and learning influences students' performance					
h.	Summative assessment shows whether the learning goals have successfully been met					
i.	Summative assessments ensure that the sequence of instructional activities results in the intended learning outcomes.					
j.	Giving students assessments increases accountability to students performance					

Part F: Resource-based Instruction Strategy and Students' Performance

10. a) To what extent do you think the following resource-based instruction are adequate for teachers to use for improve students' learning. Tick (✓) where appropriate.

Where; 1= Adequate 2= Inadequate

Resource-based Instruction	Inadequate	Adequate
	1	2
Class based learning materials		
Physical resources(classrooms, laboratories)		
ICT resources(hardware, software, and infrastructure		
Libraries and resource centres		
Staffing of Teacher resources		

b) For each of the following statements indicate the degree to which you agree or disagree on the influence of resource-based instruction strategy on the students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

	STATEMENT	1	2	3	4	5
a.	Utilising teacher resources effectively increases acquisition of multiple skills by students					
b.	Providing high quality multiple learning materials both in print and non print enhances students' deep involvement in learning					
c.	Providing class based learning facilities provide opportunities for developing independent learning skills and acquisition of knowledge					
d.	Establishing library resources to enhance access of learning materials and research skills					
e.	Providing physical learning environment enhances students active participation in their learning					
f.	Providing Information and Communication Technology resources support learning					
g.	Making appropriate selection and use of ICT resources increases in teaching and learning exposes students to global experiences improving their cognitive and affective skills					

Thank you for your participation

APPENDIX V

STUDENT QUESTIONNAIRE

Part A: Background Information

1. County.....
2. District.....
3. School Category: National () County () District ()
4. School type: Boys day () Girls Day () Girls Boarding ()
Boys Boarding () Mixed Day () Mixed Boarding ()
5. Tick (✓) where appropriate
Gender: Male () Female ()

Part B: Students' Performance

6. a. Are students' actively engaged in co-curricular activities in public secondary schools in Nandi County? Yes No

Student Centered Instruction Strategy and Students' Performance

7. a) To what extent do you think students' behavioural problems disrupt learning?
Tick (✓) where appropriate.

Classroom behavioural problems	Very great extent	Great Extent	Moderate Extent	Small extent	Very small extent
	1	2	3	4	5
Being late for class					
Being Inattentive					
Frequent loss of books					
Being violent					
Bullying					

b) For each of the following statements indicate the degree to which you agree or disagree on the influence of student centered instruction strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	My teacher organises our classroom clearly to promote effective teaching					
b.	My teacher manages time for doing classroom tasks to improve my performance					
c.	My teacher maintains discipline in class for me to perform better					
d.	My teacher manages my behaviour so that i can learn better					
e.	My teacher communicates clear teaching and learning objectives					
f.	My teacher provide opportunities on what is expected of learning to improve my performance					
g.	My teacher involves me in variety of learning activities offering support for development of my talents					
h.	My teachers promote my social emotional development to assist improve my attitude towards learning					
i.	My teacher provide counselling on what i should be aware about myself					
j.	My teacher guide me on how to relate well with both students and teachers					

Part C: Teacher Centered Instruction Strategy and Students' Performance

8. For each of the following statements indicate the degree to which you agree or disagree on the influence of teacher centered instruction strategy on students' performance. Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	My teacher is the only person who stands in class and teaches us					
b.	My teacher gives me learning tasks to do on my own and i listen					
c.	My teacher gives me class assignments to do independently and silently					
d.	My teacher instructs me on what to do during teaching and learning by giving me lots of subject information					
e.	My teacher places me in group to work with other students while teaching us in class					
f.	My teacher guide me to follow the set class rules and regulations and learning objectives during learning					
g.	My teacher teaches me how to memorize all the information i have learned to enhances my performance					
h.	My teacher demonstrates how to undertake classroom assignments					
i.	My teacher persistently shows me how to do and practice a learning task during the lesson					
j.	My teacher teaches me how to master and recall all the information i have learned in the classroom					

Part D: Assessment Strategy and Students' Performance

9. For each of the following statements indicate the degree to which you agree or disagree on the influence of assessment strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

NO.	STATEMENT	1	2	3	4	5
a.	My teacher gives continuous assessment tests that reinforces my commitment to learning					
b.	My teachers engages students in continuous assessment tests to improve my retention of the materials learned					
c.	My teacher gives me continuous assessment tests enabling interaction with other students enhancing connections of learning to the real world					
d.	My teacher involves me in formative assessments enhancing my active participation in answering questions					
e.	My teacher gives me formative assessments enabling me gain learning skills					
f.	My teacher engages me in learning activities and providing me feedback enabling our self assessment					
g.	My teacher gives me variety of assessments to gauge understanding of learning concepts					
h.	My teacher ensures my learning goals are met through assessments					
i.	My teacher plan many learning activities to achieve learning goals through assessments					
j.	My teacher engages me in summative assessments to ensure increased accountability to students performance					

Part E: Resources Base Instruction Strategy and Students' Performance

10. For each of the following statements indicate the degree to which you agree or disagree on the influence of resource-based instruction strategy on students' performance.

Where; 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

No.	STATEMENT	1	2	3	4	5
a.	My teacher uses resources in teaching me variety of learning skills					
b.	My teacher uses multiple learning materials both in print and non print to participate in learning					
c.	Providing class based learning facilities provide opportunities for developing independent learning skills and acquisition of knowledge					
d.	My teacher provides library resources to enhance access of learning materials and research skills					
e.	My teacher provides physical learning environment to increase my active participation in their learning					
f.	My teacher provides Information and Communication Technology resources support learning					
g.	My teacher uses ICT resources in teaching and learning to enable us acquire cognitive and affective skills					

Thank you for your participation

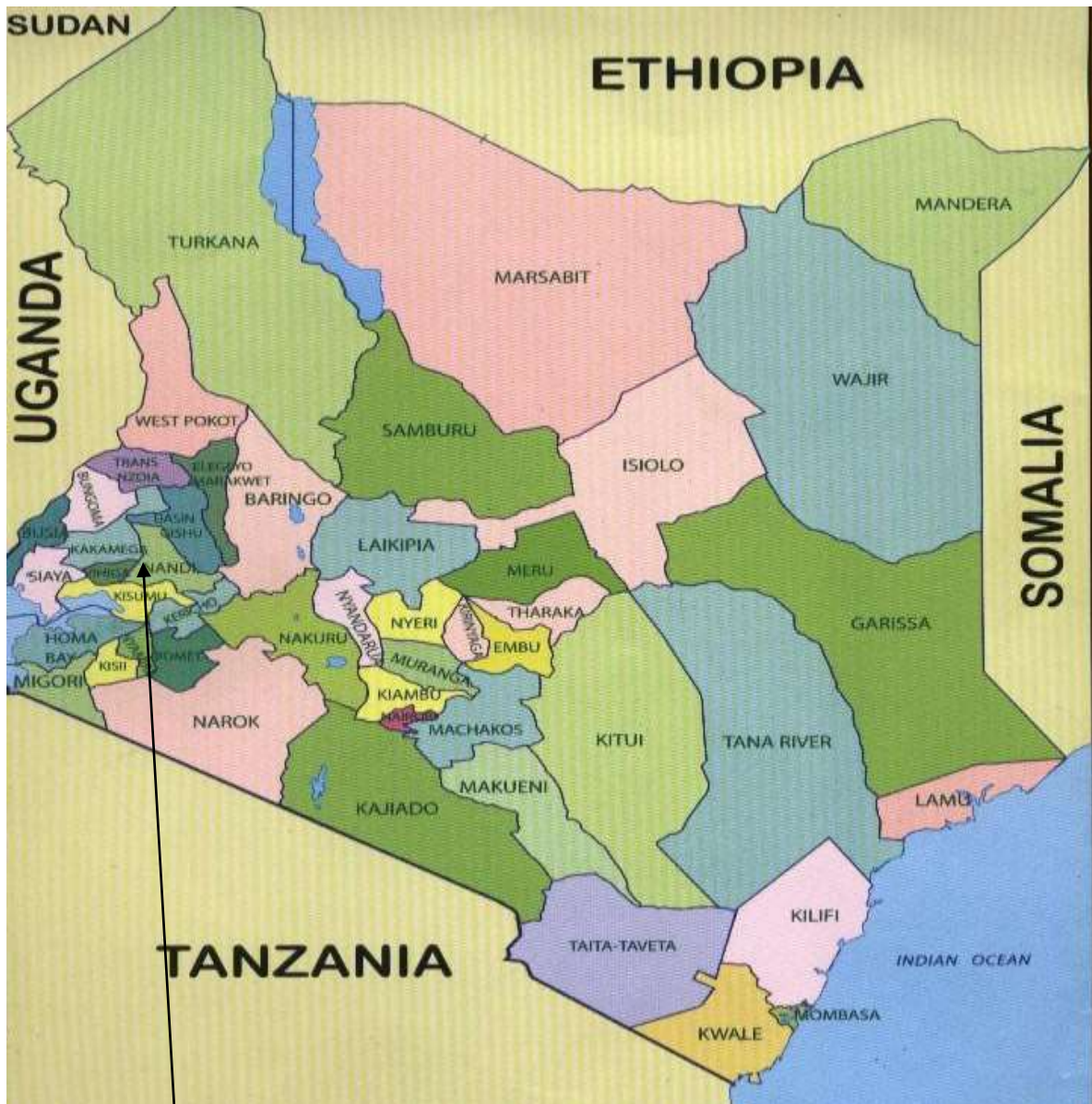
APPENDIX VI
OBSERVATION SCHEDULE

STUDENTS' PERFORMANCE SCALE

Statement	Very Poor	Poor	Fair	Good	Very Good
	1	2	3	4	5
Academic Achievement					
Use of class register to monitor students' attendance					
Use of progress records to monitor students academic performance					
Use of national examination measure students' performance					
Co-Curricular Activities					
Availability and diversity of co-curricular facilities (field, pools and equipments)					
Usage of co-curricular training facilities					
Adequacy of co-curricular trainers and personnel					

APPENDIX VII

MAP OF KENYA SHOWING NANDI COUNTY



Nandi County

Legend: The arrow points on Nandi County

Source: (Kenya Counties Map: 2013).

APPENDIX VIII
RESEARCH PERMIT

