

**EFFECT OF INNOVATIVE TEACHING STRATEGIES ON THE  
PERFORMANCE OF PUBLIC SECONDARY SCHOOLS IN KILIFI  
COUNTY, KENYA**

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**DECLARATION**

This Research Project is my original work and has not been submitted for examination to any other University or College for the award of degree, diploma or certificate.

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This Research Project has been submitted for examination with my approval as the University supervisor.

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## **DEDICATION**

I dedicate this research project to my parents Leonard and Irene, my true friend and husband Yaa and my children Mangale and Mkundya who have shared with me the pain that comes with patience in pursuit of higher education.

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## **ABBREVIATION AND ACRONYMS**

<b>BOM</b>	Board of Management
<b>CBC</b>	Competence Based Curriculum
<b>CTL</b>	Contextualized Teaching and Learning
<b>DI</b>	Direct Institutional Strategy
<b>ESP</b>	Education Support Program
<b>HODs</b>	Heads of Department
<b>ICT</b>	Information Communication Technology
<b>JiT</b>	Just-in-Time Teaching
<b>KCSE</b>	Kenya Certificate of Secondary Education
<b>KICD</b>	Kenya Institute of Curriculum Development
<b>MOE</b>	Ministry of Education
<b>NCST</b>	National Council of Science and Technology
<b>OERS</b>	Open Educational Resources
<b>PBL</b>	Project-based Learning
<b>QAS</b>	Quality Assurance and Standards
<b>SBCD</b>	School Based Curriculum Development
<b>SCP</b>	Structure-Conduct-Performance
<b>STI</b>	Science and Technology Instruction
<b>US</b>	United States

## **ABSTRACT**

Kilifi County public secondary schools have been registering unimpressive results in the national examinations for quite some time now. However, innovative teaching strategies are expected to be vital in ensuring that education levels are uplifted in the county. This study assessed the Effect of Innovative Teaching Strategies on the Performance of schools in Kilifi County, Kenya. The study was anchored on; The Constructivism theory, The McClelland's Need Achievement theory, The Knowledge Conversion Theory and The Social Learning theory. The study adopted a cross-sectional research design to facilitate obtaining of information that provided reasons for the low grades attained in KCSE examinations in Public Secondary Schools in Kilifi County. A sample of 105 respondents was used for data collection and eventual generalization of findings. All the targeted respondents were issued with questionnaires with 90 being returned satisfactorily filled. The ANOVA test were carried out to establish the relationship between the independent variables and dependent variable and both Descriptive and Inferential statistics were used for data analysis and presentation. The findings indicated that, Just-in-Time Teaching Strategy, Project-based Learning Strategy, Contextualization Teaching Strategy and Learners' Growth affected the results of students in the Kenya Certificate of Secondary Education examinations in Kilifi County. The study expects the findings to play a significant role in policy formulation of relevant plans in the Ministry of Education of Kilifi County and the country as a whole. The findings are expected to significantly contribute to the future scholarly work in the education sector.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Innovative teaching strategies ensure that teachers interact with learners in order to exploit the strengths that link both the content taught according to the syllabus and issues that affect learners in their lives with an aim of providing learners with real and involving opportunities for learning. Learning is a lifetime process that draws on strategies in a number of settings, with the target of supporting learners in recalling, synthesizing, analyzing and applying what is learnt for purposes of good performance in exams and in their lives (TeachThought Staff, 2018). The performance of students is improved if modern learning/ innovative teaching strategies are used (Khurshid and Ansari, 2012).

This study was anchored on constructivism theory, Mc Clelland's need achievement theory, Knowledge Conversion theory and Social learning theory. The constructivism theory is established on the correlation or ground that people learn more from understanding what is taught and applying it in their own experience (Hein, 1991); (Cashman *et al.*, 2008). It concludes that learning occurs only when the learner creatively comes up with new ideas through doing (Kalender, 2007). According to Harris (2003); Baker, Hope and Karandjeff (2009), Mc Clelland's need achievement theory acknowledges that people feel more successful by making personal achievements rather than by receiving rewards for achievements made (Saif *et al.*, 2012); (Baduri 2017). Students' motivation is increase when they are involved in discovering knowledge through experimentation and making their own decisions in the learning process. The social learning theory, assumes that learning is a natural

activity achieved through interaction of individuals (Gerlach, 1994; Baker, Hope and Karandjeff 2009). These theories are important to the study because proper learning needs a conducive social environment that enables the learner to set clear goals, have options, and be able to provide constant and meaningful feedback probably through use of experimentation, where applicable, which are essential roles for the learner.

Education in secondary schools in Kilifi County has been a topic of discussion every time results of national examinations are released. However, there seems to be no concrete research carried out on modalities on how to improve or tackle the problem that bedevils the county. According to Kwena *et al.*, (2017), practical subjects like Chemistry should be taught using practical lessons, like in the laboratories, to produce better results in national examinations. Makeo (2013) in his research about: Student and Teacher perceptions of factors affecting performance in Mathematics in Tana River, Lamu and Kilifi Counties recommended that to improve performance, guidance and counseling, activity-oriented teaching, resource improvisation and monitoring of students work by teachers and teachers work by HoDs or head teachers should be implemented. The findings in Ndungu (2018) whose objective was to establish the link between the leadership styles of secondary schools administrators in Kilifi county and academic performance were that there was need for improvement by head teachers in their leadership styles.

### **1.1.1 Innovative teaching strategy**

Innovative teaching is the employment of teaching strategies capable of challenging and engaging students. According to Davis (2017), education should engage the student. This means that the student should be attentive, curious, optimistic, interested to learn and passionate while being taught. This in turn increases the students'

performance in education. An innovative strategy, on the other hand, is a plan made to encourage advancements in technology or services and guides on allocation of resources to meet the set objectives for innovation, deliver value and build competitive advantage.

Learner-centered approaches need to replace teacher-centered approaches in learning. All the participants in the education sector which include the government are required to review the curriculum and put in place the necessary infrastructure in secondary school which will enable educators to incorporate innovative strategies in teaching. Students should access new technology and advancement in ICT such as internet and social media which exposes them to diverse information (Cisco, 2011). In Maier (1971) article; Innovation in Education, complete involvement of students in a large class can still be obtained while minimizing educational costs by allowing students to learn from one another. Students have different abilities hence some students can be trainers of other students. The article also concludes that grouping students enables them to cultivate collaboration skills. Students can listen and read individually but cannot share ideas, brain storm and come up with the best solutions to conflicts by themselves. It further argues that participatory learning and training leads to the development of interpersonal skills.

### **1.1.2 School Performance**

Irungu (2016) stated that the ambiguity of the concept of performance in an education will be addressed by defining performance in the context of observed results in co-curricular activities, scores in both formative and summative evaluation, productivity of the human resource and value for money among other measurable variables. If these indicators are observed and empirically proven, then the institution will be

enjoying a competitive advantage over its rivals. Besides referring to it as behavior, Landy and Conte (2007) as quoted by Wambani (2016), continued by including in the concept of performance, specific actions and behaviors that are relevant and applicable to organizational goals. Performance in this case, therefore, refers to gathering and evaluating data on the performance of a student, a group of students, a whole school or an entire county (Upadhya, Munir, and Blount, 2014).

An institution needs to keep on monitoring how it performs, in comparison to other schools, to ensure that it is not deviating from the set immediate and future goals. Efficiency in performance largely depends on those entitled with the duty of bringing about performance (Irungu, 2016). Paraphrasing Irungu (2016), teachers satisfied with their job will be committed and hence extend more effort to job performance geared towards result oriented performance and particularly student and overall school performance in the final national examinations.

### **1.1.3 Public Secondary School Sector**

In the Kenyan education sector, schools are identified by how their candidates perform in final examinations. This is because the ministry of education ranks the schools according to student performance from the schools' mean score. To effectively support school innovative teaching strategies, stakeholders need to formulate and implement strategies that enable the teacher to employ innovative teaching strategies in learning in order to achieve the desired results/performance (paraphrased; Sears, 2003; Irungu, 2016). There is therefore need for the stakeholders to brainstorm and ensure that public secondary school performances improve and start putting the county results among the top in the country.

Kilifi is County number 003 in Kenya and is located on the northern part of the Kenyan coastal strip. Government sponsored schools in Kilifi County have been recording worrying and varying results after every examination series. There is therefore need to achieve improvement and keep posting good results in the years to follow. To achieve improvement, it is necessary to first and foremost define quality performance (Irungu 2016). Irungu (2016) further states that it is crucial to recognize the important elements that contribute to any performance. There is an old adage that says, what is doable is measurable. This study therefore set out to establish the effects of innovative teaching strategies on performance.

## **1.2 Research Problem**

Kilifi County has posted low grades in Government sponsored schools for quite a long time now, according to the MoE KCSE results through the years. This poor performance in the county has been a sensitive issue that has led to this study that seeks to assess the innovative teaching strategies that can be adopted in order to reverse this negative performance in the county. An innovative strategy is a theory of how an organization operating in an industry or a market can attain high levels of performance (Barney 2007; Ekaliyo 2017). The ultimate goal of an education system should be the acquisition of applied and implicit knowledge from a well build involvement level of the students/learners. This can be achieved through innovative teaching strategies which provide students' centered learning techniques. This in turn will make the learning process participatory hence interesting, motivating and understandable to the learners so as to improve the performance accordingly. Innovative teaching strategies, from previous studies, improve performance of the students and have more positives to the students' future life after school.



Evaluation of performance in Kilifi County reveals that most of the goals of education which include, relevance and effectiveness of education have not been achieved. Kilifi is listed as one of the counties that have the lowest performance in KCSE. Most schools in Kilifi perform below most schools in the same category across the country. In 2018, there was no grade A across all the public schools in the county. There are major challenges which include inadequate learning materials, lack of individual attention due to large classes. Most school in Kilifi have poor infrastructure. They do not have libraries and laboratories where students can be equipped properly. Due to these challenges, teachers use teacher centered approaches in teaching instead of pedagogical teaching approaches.

Yator (2003) conducted a study to establish the causes of poor performance in Kabartonjo division found that inadequacy of teaching /learning facilities hinders effective teaching and learning. Ng'ang'a (2010) did a research on factors contributing to attainment of low grades in KCSE mathematics in Kiambu district and found that the methodology used in school was problem solving and not student centered while according to Wachanga and Mwangi (2004); Kibet and Kathuri(2005); Orora, Wachina and Keraro (2005); Esra, Ijlal and Ocak (2009) as quoted by Chrilukovian, Mondoh and Namasaka(2017) teaching methodology is a crucial factor in determining academic performance of students in whichever system of education. Studies on innovative teaching strategies are scarce. More so, they are carried out in regions away from the scope of this study. These studies were also carried out majorly in a single subject or in a region whose conditions and parameters greatly differ from those found in Kilifi County and the scope of this study. In Kilifi

County, the students' performance in (KCSE) has continued posting varied results. That is why this study sought to answer the question: what is the effect of innovative teaching strategies on the performance of public secondary schools in Kilifi County of Kenya?

### **1.3 Research Objective**

To establish the effect of innovative teaching strategies on the performance of public secondary schools in Kilifi County, Kenya.

### **1.4 Value of the Study**

Kilifi County has more than a hundred public Secondary schools, as per Appendix II, some of which have been in existence since the missionary days. Education has been and is still going on in the county although proper adjustments are necessary in line with the changing times and needs. Therefore this research intends to benefit the education sector in the county. It will bring out the value of innovation in teaching in the entire education sector. It is presumed that the findings of this study will be implemented in order for the county to experience improved performance.

More so, this research will be paramount to the policy makers while formulating laws and regulations governing the education sector, particularly on innovative teaching and how they can influence the improvement in the performance of public secondary schools in the country, especially at this moment in time when the MoE is rolling out a new system duped CBC. Through the study findings, the MoE personnel will obtain important insight into how to plan for the sector in relation to the challenges faced by both learners and teachers in the County. This will assist in drawing up of appropriate plans that will aim to improve growth and performance in the public secondary school education sector.

Since the County has been lagging behind in the national performance compared to other regions in the Country, this study aims to suggest innovative teaching strategies to be adopted by the public secondary schools so as to uplift the student performance and hence the county performance compared to other regions in the Country. The study document innovative teaching strategies that would be helpful to the policy formulators and to the Education institutions nationwide.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviewed the literature related to the study, theoretical framework, conceptual framework, and review of variables, summary and the research gap.

#### **2.2 Theoretical Foundations of the Study**

The study is guided by the following theories: Constructivism theory, The McClelland's Need Achievement theory, Knowledge Conversion Theory and Social Learning theory as dealt with below.

##### **2.2.1 Constructivism Theory**

Adom, Yeboah, and Ankrah (2016) in their research extracted this theory verbatim; "The constructivism paradigm is an approach that affirms that people learn by building up knowledge from life experiences and reflecting on those experiences. Experience helps people to construct or form much of what they learn. To constructivists, learning is brought about by students constructing concepts not like in the traditional concept of learning where by the focus is on the teacher. The student is exclusively expected to learn by listening to the teacher and recalling what is learnt in classroom. Learning is measured by achievement of high grades in national examinations.

The constructivists portray the opinion that teaching and learning is more effective when it is learner centered. In the traditional approach, the teacher is expected to stand in front of the students and give knowledge while the work of the student is to listen. Learning happens when student conceive knowledge through experimentation and doing. (Kalender, 2007). According to constructivist, the student should be exposed to

environments that allow them to invent and discover knowledge. As the student interacts with others and is fully engaged in the learning process, learning occurs. Therefore, this theory is very important in the study.

### **2.2.2 McClelland's Need Achievement Theory**

According to Saif *et al.*, (2012) and Badubi (2017), this theory postulates that some people work so hard towards success as motivated by the satisfaction achieved from personal achievement rather than rewards. The McClelland's need achievement theory can conveniently applied to teaching-learning environments to explain why some teachers achieve highly under very difficult conditions that they operate in: these teachers set high goals for themselves and are therefore driven by achieving these high goals. In the process, they will be helping the students learn, if the required strategies are well employed by these very teachers, then the student will be the ultimate beneficiary and hence the expected performance.

Harris, (2003); Baker, Hope and Karandjeff (2009), acknowledge that the learner is intrinsically motivated. In this paradigm, the learner is driven by internal rewards that are satisfying to himself/ herself hence the learner actively participates in the learning process. According to Harris (2003, p.38) the learner is always ready to learn from life experiences, is self-directed, task oriented and seeks to solve problems individually. The learning process is therefore a process that students' are eager to discover new information from life experiences and apply the information in solving the problems they face.

Mezirow (2000) indicated that it is necessary for the learners to discern and make use of their own assumption and expectations and those of fellow learners to come up

with relevant interpretations. This thought highlights the importance of the learners' experiences and capabilities, to success and motivation of especially adult learners. Svinicki (2004). Motivation is a central component in the learning process which makes this theory very important for this study.

### **2.2.3 Social Learning Theory**

This theory suggests that learning is a natural act. It is based on the idea of collaborative learning which argues that learning is facilitated by interaction between the learner with his/her peers (Gerlach, 1994; Baker, Hope and Karandjeff 2009). This model assumes that students create their own learning peer groups where they interact and learn together rather than depending on listening to the teacher. Students develop communication skills and collaborative skills hence the tutor and the student have defined parts to play in the teaching/learning activities. The tutor's role is to direct and train the learner while the learner is to understand the knowledge given and use it to generate new discoveries.

According to Baker, Hope and Karandjeff (2009) quote, Bosworth (1994) affirms that students should be trained by their teachers to learn relevant skills, emulate and exhibit the learnt skills as proof that learning has taken place. This theory is especially important to inspire the students to learn from their peers rather than compete for grades like in the traditional approach. Social learning theory concurs that learning is enhanced through experience. This theory also concurs that feedback encourages learning. The theory concludes that learning occurs by observing and emulating people hence it is also referred to as observational learning.

Observational learning involves the following stages: attention, retention, production, and motivation. In the attention stage, the learner must be alert to learn from the actions of the model. The students for example may subsequently make their own perspective of how to write after observing a teacher write. In the retention stage, the student stores the actions of the model in their memory and retrieves them in future. Realistic, memorable and cleared demonstrations will enhance students' retention. In the production stage the student produces the actions of the model-

Finally, in the motivation stage the students should be motivated to exhibit the actions of the model. Observational learning can be encouraged by reinforcements. For example the tutor may use words such as “work well done”, “excellent work” to reward a students work hence positively reinforce the student. Such reinforcement may encourage other student to work even harder after simply seeing their peer being rewarded for demonstrating a certain behavior. This will in turn cause most of the students to display that particular behavior (Papalia, Olds and Feldman 2007).

#### **2.2.4 Knowledge Conversion Theory**

According to Suanpang (2012), Knowledge conversion process was introduced by Nonaka and Takeuchi (1995) which they labelled the ‘SECI’ model. The scholars opined that when the diverse information combine and relate clearly, knowledge becomes a continuous process moving from simple concepts to more complex concepts (Zhuang, Xu, Hu, and Tian, 2011). Dubberly and Evenson (2011) stated further that the SECI model consist of four dimensions namely; Socialization (tacit to tacit): being the process that involves changing new implicit knowhow intended to cause sharing experiences through discussions, brainstorming and social interactions.

The second dimension is, Externalization (tacit to explicit): is the process involving conversion of implicit knowledge to accurate knowledge through publication and articulation of knowledge where it is necessary for the learners to embrace group work. The third dimension is, Internalization (explicit to tacit) as that which involves converting definite knowledge to implicit knowledge to enable an individual to understand and internalize information. The fourth and last dimension is, Combination. This involves conversion of explicit to explicit by knowledge organization and integration. It was from these dimensions that the model was named SECI. The SECI model is modeled on the opinion that social interaction achieves and completes learning growth and creation of knowledge (Edmond, 1999; Guerriero, 2018). This study aims at employing this theory in bringing out the contextualized learning strategy, project-based learning and learners' growth as study variables. When learners meet in class, they can develop a community of practice (CoP) which a group of people/learners whose interest & target and discuss and communicate issues of common concern for purposes of promoting knowledge sharing and knowledge transmission (Barth, 2003; Guerriero, 2018).

## **2.3 Innovative Teaching Strategies**

The study focused on the following strategies; Just in Time Teaching strategy, Project-based learning strategy, Contextualized Teaching and Learning strategy and Learners growth.

### **2.3.1 Just in Time Teaching Strategy**

Just in Time Teaching strategy (JiTT) is a pedagogical technique that emerged in the 1990s. It was first implemented in a physics course where the instructor wanted to



find a different way to meet students' learning needs (Novak, 2007; Cupita 2016). Cupita (2016) states that during that time there was a concern among professors related to students' mastery of key concepts, thus professors began to evaluate the quality of the pedagogical techniques used in the classroom and started to explore new strategies to be implemented in the lessons. According to Cupita (2016), some new learner-centered strategies emerged to replace traditional lectures; one of those strategies was JiTT which was designed based on the constructivism theory.

Constructivism states that all learners generate new information from already attained knowledge. The initiators of JiTT considered the students' already attained knowledge extremely crucial in developing information to be learned in a particular field of study (Guertin, Zappe, and Kim, 2007; Cupita 2016). JiTT strategy takes into account the fact that a learning process is facilitated when there is active student participation. The authors suggested that students should be involved in class discussions and be motivated inside and outside class time. The learner should be aware of the content to be learnt in a particular field of study. Likewise, according to Cupita (2016), the authors of this strategy used web-based technology in order to foster communication between students and teachers when they were not in class hours. This type of communication could provide teachers valuable information related to students' performances and concerns about classroom topics.

Böttcher, Kämper, and Thurner (2015) analyzed the effectiveness of JiTT method. Most precisely, they analyzed whether the results from students' achievement on their final exams correlated to the fact that they had engaged in the JiTT-activity. In addition, the authors evaluated the students' opinions on JiTT and found out that they

were satisfied with the teaching technique. However the analysis showed that the authors could not prove that there exist a significant correlation between being a participant in JiTT and outcomes on exams. However, students manifested their interest in working with the JiTT approach in future classes (Cupita 2016).

### **2.3.2 Project-based learning Strategy**

Larmer and Mergendoller (2010) express project-based learning as a process whereby students team up to search for knowledge and learn through credible conflict oriented activities incorporated in the curriculum. Dudhagundi (2016) defined Project-based learning (PBL) as a pedagogical method in which learners are given a chance to display the knowledge they have learnt through creating an artifact or artifacts. In Simply terms Project-based learning is a pedagogical strategy in which learners create a product that is relevant to the topic of study. In this case, Classes accommodate students with diverse abilities and moulds them for further studies.

Dudhagundi (2016) continued by saying that the created artifacts comprise of a range of media which include art, videos, writings, drawings, photography and presentations done using new and advanced technology. In his article, he opines that the basis of PBL is manifested in reliable and accurate application of research findings in real life situations as a substitute to learning that is teacher centered through listening and recalling what was taught in the classroom. Project-based learning is a strategy with numerous benefits if implemented; including an outstanding ability to articulate concepts by students in the classrooms, adequate information on subjects, advanced communications skill and collaborative skills, enhanced leadership skills, increased resourcefulness and improved ability to express oneself on paper. Daif-Allah and

Alsamani (2015) in their research on Introduction of Project-based instruction to Saudi ESP-classroom, quoted Markham (2011), who admits that project-based learning, consolidates learning and implementing through deviating the attention in education from the curriculum to the learner. Markham further added that project-based learning enables learners to gain collaborative skills which are acquired through experience rather than what is taught from the set curriculum.

### **2.3.3 Contextualization of learning strategy**

Contextualized Teaching and Learning (CTL), is spell out as a group of teaching strategies constructed to associate the learning of important knowledge of curriculum content to real life application in specific situations that is of great significance to the learner (Mazzeo, 2008; Medrich, Calderon, and Hoachlander, 2003; Oertle and Kalchik 2010). From “Basic Skills as a Foundation for Student Success in California Community Colleges,” p. 58, Contextualized Teaching and Learning (CTL) helps students to generate interpretations out of the information learnt by involving the student actively in the learning process. During learning, contextualized instruction links background information with curriculum content by putting a lot of attention on teaching and learning through real life situations that is interesting to the learner.

Oertle and Kalchik (2010), in their article on the connection between study programs and career and application of contextualized teaching and learning said CTL is constructed on the believe that some learners understand better when teaching takes place in a context of real life experiences instead of a classroom environment where the teacher is expected to deliver the curriculum content. CTL is characterized by focusing on learning of significance skills needed in life and in career development; it

merges academic learning with work place applications, concentrates on individual learners, clarifies abstract ideas through demonstrates hence clearly brings out the usefulness of information as opposed to traditional methods where students should take the knowledge as presented by the teacher or as outlined in book (Bond 2004; Oertle and Kalchik 2010).

### **2.3.4 Learners' growth**

In the United States, a conception of growth (to the student) has been part of the philosophy of education since late 19<sup>th</sup> century. Blum (2017) in his research on revitalization of educational conception of growth in the 21st century in Nebraska, quoted Dewey's expressions of professional growth, student growth, and growth mindset as being recurrent within districts, schools, and classrooms. Blum (2017) argues that Dewey's far reaching interpretation of growth is meaningful in present day education but disagrees with today's prevailing educational growth conceptions, hence the emphasis that they must be revitalized. There is need to revitalize conception of growth in education today in order to re- examine and re envision how students experience school.

(Dewey,1916/1944, p.41). For Dewey, growth was an action and process which was inclusive of a person's intellectual, moral, and physical development (p. 36). A child was not meant to sit passively and absorb information from an adult in a school. He was to be active, as every child has the capacity, ability, and power (1916/1944, p. 41)3 to develop in multiple ways. Garrison (2014) explains that growth occurs in feeling, action, and happiness, and not just thought, but that schools ignore emotional

intelligence, physical ability, sociability, creative talent, a sense of adventure, and moral character (p. 93).

## **2.4 Empirical literature review**

Yator (2003) in her research on factors that contributed to students poor grades in KCSE in Kabartonjo division had the findings that inadequate teaching/learning materials in 84% of the schools was an obstacle to effective teaching /learning process hence largely contributing to poor performance. However, this study only focused on a division which is only a small region and also far away from Kilifi County.

Ng'ang'a (2010) conducted a study to establish the factors contributing to students' low marks in mathematics in KCSE examination in Kiambu district public secondary schools in Kenya. The study concluded that the teaching methodology used was problem-solving and not student-centered approaches thereby causing low grades in mathematics in national examinations. Again, the study was narrowed down to a region away from the coastal region of the country where this study aims to focus on.

Farah, Naz, Murad (2017) conducted a study to establish the influence innovative teaching has on performance of diverse students of university students in Pakistan. The findings were that students are diverse in financial status, social class, age, family background and their previous experiences in education. Therefore, it is necessary for tutors to implement innovative strategies and also modify them according to the students' diverse needs. However, this study was conducted on university student. Nikita (2002) in the study whose objective was to distinguish among contextualizing, conceptualizing, and problem-solving , concluded that in the hands of a good

instructor, several interdisciplinary strategies could be used together for mutual advantage.

Ningsih (2011) studying the effectiveness of Generating Interaction between Schemata and Text (GIST) in Turkey focused on two teaching strategies (GIST) and Direct Instructional strategy (DI). The findings were that the teaching strategies used on the students' achievement depend on the level of student intelligence and that the use of GIST is more effective than DI in teaching. These three researches however, focused on developed economies, Australia, Turkey and the US, which are far much developed compared to the developing countries where the scope of this study is targeting.

Finally, Khamala, Mondoh and Kwena (2017) in their study that aimed at bringing out the link between teaching chemistry in the laboratory and students' performance in chemistry in Kilifi North Constituency, Kenya. The research found out that there was a definite link between students' academic performance and teaching chemistry using practicals. The research only focused on a single subject and a smaller area of study and can therefore be said not to be representative enough.

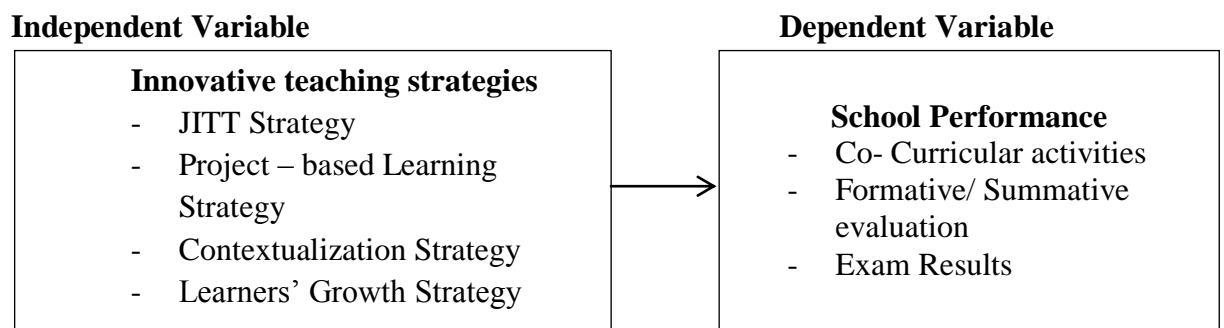
## **2.5 Summary of the literature and Knowledge gap**

Literature review gives a connection between the innovative teaching strategies and performance in schools, in this case: public secondary school performance. Several relevant studies conducted tried to link availability or adequacy of facilities, reasons for poor performance teaching strategies and performance in schools. However, some studies found that explicit effects of innovations on performance are almost insignificant and there are no or minimal advantages of innovations on performance.

More so, majority of the studies were carried out were in developed countries or in regions that do not share geographical or other challenges with the coastal region of Kenya, particularly Kilifi County. Due to this gap, this study set to examine the effect of innovative teaching strategies on the performance of public secondary schools in Kilifi County, Kenya which is in a developing country.

## 2.6 Conceptual framework

The conceptual framework (figure 2.1) depicts the link between innovative teaching strategies (independent variables) and the school performance (dependent variables).



Source: Primary Data 2019

Fig 2.1 Conceptual framework

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the research design, target population, sample design, data collection, questionnaire and data analysis of the study.

#### **3.2 Research Design**

Namusonge (2009) defines a research design as the guideline that a researcher uses to generate explanations of the research problem at different phases of the research. The study adopted a cross-sectional research design. A cross-sectional research design involves analyzing data of a population at one specific point in time (Wekesa 2016; Kendra, 2019). The information from the data analysis was used to make conclusions of the study.

#### **3.3 Target Population**

The target population of the study was public secondary schools in Kilifi County as per appendix II. There were two target population categories; curricular and co-curricular categories. The first category comprised deputy principals and the DOS while the second category were the teachers' in-charge of co-curricular activities.

#### **3.4 Sample design**

The study used cluster sampling since the schools were already in clusters according to their categories. The sample size was picked from the 106 schools in the county at 30% of the population according to Mugenda and Mugenda (2003). 30% of 106 schools gave approximately 35 schools. From the list of schools in the county, only two were national schools, because of their small number, both were included in the sample size and this also applied to extra-county which were also two (2) in the county, while fifteen were in the county schools category of which 30% gave five (5)



schools, the remaining eighty seven (87) were sub-county schools whose 30% gave 26 schools.

**Table 3.1: Sample Size for the study**

<b>Type of School</b>	<b>No. of Schools</b>	<b>Percentage used</b>	<b>Sample Selected</b>	<b>Respondents</b>
National	2	100	2	6
Extra-County	2	100	2	6
County	15	30	5	15
Sub-County	87	30	26	78
<b>TOTAL</b>	<b>106</b>			<b>105</b>

The respondents' column comprised; the School quality assurance officer ( deputy principal); senior masters i.e. DOS and in-charge of Co-curricular activities, totaling to three per school in Kilifi County. This totaled to a hundred and five (105) respondents for the study. Data was analyzed by comparing schools in the same category.

### **3.5 Data Collection**

The study used primary data which was collected using questionnaires designed to capture the measures relevant to research objectives. The instrument was prepared in the form of Likert-Scale type that showed respondents' agreement or disagreement with the questions/statements put across, it was constructed on a five point scale with the lowest scale representing strongly disagree and the highest scale representing strongly agree (Likert, 1932: Wekesa, 2016). The questionnaire was further organized into two parts; with the first part designed to collect demographic data while the

second part was for data relating to the variables of the study. The researcher agreed with the respondents on a drop and pick mode to enable them have ample time to fill in the questionnaires.

### 3.6 Data Analysis

Data analysis refers to examination of data which has been compiled in a survey, experiment or a case study and drawing conclusions and interpretations (Kombo and Tromp 2006; Wekesa 2016). The filled questionnaires were checked for completeness with a view to determining the response rate. The data was analyzed using the descriptive statistics such as mean, and standard deviation of different categories of data after which findings were presented in frequency tables and graphs. Data was then analyzed and the link between the variables presented using the multiple linear regression models which took the form;

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon_i$$

- Where;
- Y        The Performance of public secondary schools
  - $\beta_0$      Constant
  - $\beta_j$      Beta coefficients for  $j = 1,2,3$  per unit change in the dependent variable as the independent variable changes by one unit.
  - $X_1$      JITT strategy
  - $X_2$      Project based learning strategy
  - $X_3$      Contextualization strategy
  - $X_4$      Learners growth
  - $\epsilon_i$      Error term for  $i = 1,2,3...n$

## CHAPTER FOUR

### DATA ANALYSIS, FINDINGS AND DISCUSSION

#### 4.1 Introduction

This chapter gives the research findings and discussions together with presentation of the collected data. Data is analyzed using the descriptive and inferential statistics. It also constitutes the response rate from the questionnaires administered for data collection purposes, the reliability analysis, the results from the correlation and regression analysis.

#### 4.2 Background information

This contains the response rate, the respondent school category, respondent position in school, education level of respondent, age of respondent, period of service and the department in which the respondent serves in the school.

##### 4.2.1 Response rate

The study targeted 105 respondents who agreed to fill the questionnaire in two days. Ninety (90) questionnaires were eventually collected after the agreed period, fully filled, and three (3) questionnaires were returned but not filled satisfactorily. Twelve (12) questionnaires were not returned. This represented 86% response rate. The study findings were therefore based on this response rate. The research adopted a level of significant at 5% for purposes of data. The response rate was summarised in Table 4.1

**Table 4.1: Response Rate**

	<b>Frequency</b>	<b>Percent</b>
Returned Questionnaires	90	86

Retuned but Unsatisfactorily filled	3	3
Not Returned	12	11
<b>TOTAL</b>	<b>105</b>	<b>100</b>

**Source: Primary data 2019**

#### **4.2.2 Respondents School Category**

The respondents were required to indicate the category of the school where the respondent worked. The response is tabulated in Table 4.2.

**Table 4.2: Respondents' Category of Schools**

School	No. of Respondents
National	6
Extra County	6
County	15
Sub-County	63
<b>TOTAL</b>	<b>90</b>

**Source: Primary Data 2019**

#### **4.2.3 Respondents' Position in School**

The respondents were required to indicate their position in the school. The study targeted the Deputy Principals as quality assurance officers, Director of Studies and Heads of Departments in charge of co-curricular activities. The response is tabulated in Table 4.3

**Table 4.3: Respondents' Position in the School**

Position	No. of Respondents
Deputy Principal	29
Director of Studies	31
H.O.D Co-Curricular Activities	30
<b>TOTAL</b>	<b>90</b>

**Source: Primary Data 2019**

#### **4.2.4 Respondents Education Level**

The respondents were required to indicate their education qualifications since performance can be impacted by the qualifications of the teachers. The findings are tabulated and in Table 4.4

**Table 4.4: Respondents Education Level**

<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
Diploma	9	10
Undergraduate	58	64
Postgraduate	23	26
<b>Total</b>	<b>90</b>	<b>100</b>

**Source: Primary Data 2019**

#### **4.2.5 Age of Respondents**

The respondents were required to indicate their age. Findings are tabulated in Table 4.5.

**Table 4.5: Age of Respondents**

<b>Age bracket (Years)</b>	<b>Frequency</b>	<b>Percent</b>
18 – 25	2	2
26 – 30	14	16
31 – 35	22	24
36 - 40	18	20
41 - 45	19	22
46 - 50	11	12
51 and Above	4	4
<b>Total</b>	<b>90</b>	<b>100</b>

**Source: Primary Data 2019**

Table 4.5 depicts that respondents aged between 31 and 35 years old constituted the majority at 24%, between 41 and 45 years old were 22% of the respondents, those between 36 and 40 years old were 20%, between 26 and 30 years old at 16%, 46-50 years old constituted 12%, 51 year olds and above were 4% while those who constituted the lowest were 18-25 year olds at 2%. Most of the Deputy Principals were aged between 36 and 50 years old while the younger age brackets comprised of those in charge of Co-curricular activities.

The pie chart representing the above findings is as shown in Figure 4.1

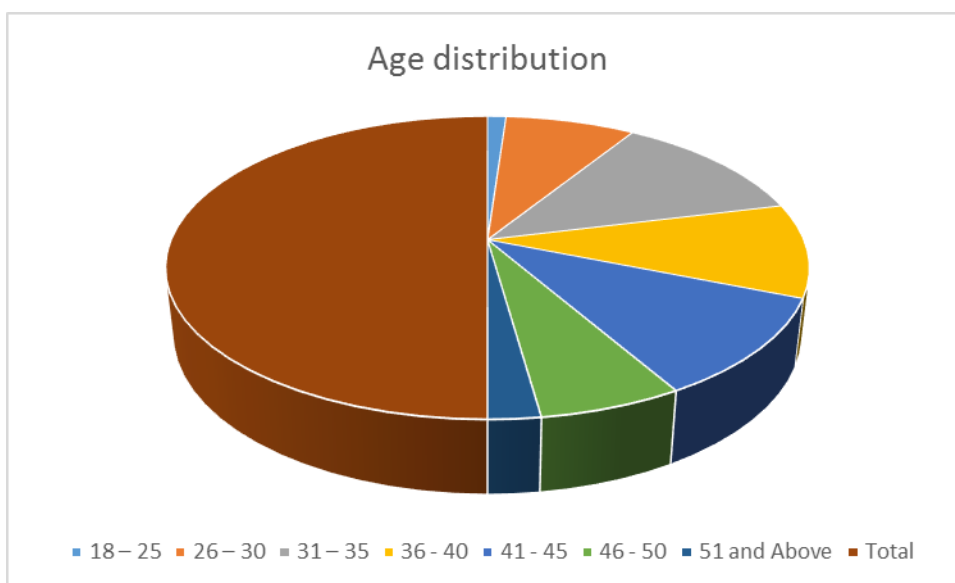


Figure 4.1: Respondents' Age

Source: Primary Data 2019

#### 4.2.6 Respondents' Period of Service

The respondent were required to indicate the number of years they have worked in Kilifi County. The response is tabulated in Table 4.6

Table 4.6: Respondents' Period of Service

Period in Years	Frequency	Percent
< 1	0	0
1 ~ 2	11	12
3 ~ 5	28	31
5 ~ 6	16	18

> 6	35	39
-----	----	----

**Source: Primary Data 2019**

Table 4.6 above depicted the period (in years) the respondents have been working within Kilifi County Public Secondary Schools either in their respective positions/departments or other positions but within the county. Period of service was considered important because the respondents' work experience is a key component towards influencing performance. Most of the respondents (39%) had served in the County Public Secondary schools for over 6 years, 31% had served for between 3 and 5 years, 18% of the respondents for between 5 and 6 years while 12% represented respondents who had served for between 1 and 2 years with none below 1 year of service.

#### **4.2.7 Department of the respondent**

The respondent was required to indicate their department. The response is tabulated in Table 4.7

**Table 4.7 Department of service of respondent**

<b>Department</b>	<b>Frequency</b>	<b>Percent</b>
Mathematics	11	12
Science	15	17
Languages	24	27
Humanities	23	25
Technical and applied Science	17	19
Total	90	100

**Source: Primary Data 2019**

### 4.3 Reliability and Validity of the instrument

The study sought to establish how reliable the data collection instrument was. Cronbach's alpha coefficient was computed for each variable. The pertinent results are tabulated in Table 4.8

**Table 4.8: Cronbach Alpha Co-efficients**

<b>Variables</b>	<b>Number of items</b>	<b>Cronbach alpha</b>
Just-in-Time Teaching Strategy	5	0.701
Project-based Learning Strategy	5	0.821
Contextualization Teaching Strategy	5	0.876
Learners' Growth	5	0.797
Performance	5	0.8892
Average Cronbach Alpha		0.8174

**Source: Primary Data 2019**

### 4.4 Innovative Teaching Strategies

The study sought to establish the effect of Innovative Teaching Strategies on the performance of schools in Kilifi County. The respondents were therefore required to indicate the extent to which they agreed with the attributes associated with each of the innovative Strategies and to rank their level of rating along a number of constants.

The study used a rating scale ranging from SD (1) to SA (5).

#### 4.4.1 Just in Time Teaching Strategy

The respondents' results are presented in Table 4.9

**Table 4.9: Respondents Score on Just in Time Teaching**



<b>Just-in-Time Teaching Strategy (N=90)</b>	<b>Mean</b>	<b>Std. Deviation</b>
Students are usually engaged and prepared for class discussions	3.5237	1.6043
Public Secondary schools have put in place the initiatives needed to keep students motivated both in and outside class.	2.1970	1.7742
The schools train students in ICT and use web-based technology to keep teachers and students in touch while away from class/school.	1.4926	1.9841
Students are curious about the course content and how it is delivered in class	2.7372	1.3260
Average score	2.4876	1.67215

**Source: Primary data 2019**

Results in table 4.9 depict that, the respondents agreed that learners are usually engaged and prepared for class discussions, hence affecting performance positively ( $\mu = 3.5237$ ,  $\delta = 1.6043$ ). However, on whether Public Secondary schools have put in place the initiatives needed to keep students motivated both in and outside class. Respondents returned varied responses, particularly those from sub-county schools who felt that this was not the case ( $\mu = 2.1970$ ,  $\delta = 1.7742$ ).

As regards to whether the schools train students in ICT and use web-based technology to keep teachers and students in touch while away from class/school (at  $\mu = 1.4926$ ,  $\delta = 1.9841$ ), there was a huge gap between the school categories with only national schools and some extra county schools sounding positive. County and sub-county schools indicated that there was no internet connection to required levels, and none in

the schools to facilitate ICT training and utilization web-based technology to keeping teachers and students in touch while away from school. The economy of the county is also not capable of supporting this noble initiative.

When required to respond on whether Students are curious about the course content and how it is delivered in class, (at  $\mu = 2.1970$ ,  $\delta = 1.7742$ ), national schools and extra county categories agreed that indeed the students are curious, county and sub-county schools returned varied feedbacks noting that some students come from very discouraging background in the county that cannot allow the students to be curious about education.

#### 4.4.2 Project-Based Learning Strategy.

The findings are presented in the Table 4.10

**Table 4.10: Project-Based Learning Strategy .**

<b>Project-Based Strategy (N=90)</b>	<b>Mean</b>	<b>Std. Deviation</b>
Learning is collaborative and intends to search for knowledge through practicals that are relevant to the curriculum.	3.0523	1.6478
School lessons include artifacts-Drawings, technology-based presentations and Videos	1.0913	1.7860
Teaching is done using teaching methods which are student centered.	3.4949	1.2234
High school graduates are well trained such that they are confident, can solve problems, can make decision and work together with peers.	2.0374	1.6065
Average Score	2.4190	1.566

### Source: Primary Data 2019

The respondents (at  $\mu = 3.0523$ ,  $\delta = 1.6478$ ) disagreed as to whether Learning is collaborative and intends to search for knowledge through practicals that are relevant to the curriculum because most sub-county schools don't even have laboratories required for the practicals. At ( $\mu = 1.0913$ ,  $\delta = 1.5860$ ), only national and extra county school reckoned that school lessons include artifacts-Drawings, technology-based presentations and Videos, this was again due to schools being ill equipped to support technology based learning.

As to whether teaching is done using teaching methods which are student centered, most of the respondents indicated that indeed teachers are striving to deliver on this front ( $\mu = 3.4949$ ,  $\delta = 1.2234$ ). However, a lot needs to be done since a number of factors come into play for them to deliver as required. At ( $\mu = 2.0374$ ,  $\delta = 1.6065$ ) the respondents, especially from the lower school categories, remained non-committal as to whether high school graduates are well trained such that they are confident, can solve problems, can make decision and work together with peers. This is because their performance in national examinations cannot well be said to be like their peers in other parts of the country.

#### 4.4.3 Contextualization Teaching Strategy

The findings are analyzed and tabulated in the Table 4.11

**Table 4.11: Contextualization Teaching Strategy**

Contextualization Teaching Strategy	N	Mean	Std. Deviation
My school ensures that teachers' bench mark from other schools that perform better	90	4.1308	1.2357

Top management is commitment to implementation of ICT and new technologies in the teaching-learning process	90	4.2129	0.7134
The top management is concerned with ensuring that our school continues to improve and perform better than other schools in the region.	90	3.7106	1.3648
There is a conducive working environment at our school.	90	3.6678	1.4269
Average score	90	3.9305	1.1852

**Source: Primary data 2019**

The findings depicted in table 4.11 represented the respondents' views on the variable contextualization teaching strategy. The response received on whether the schools ensure that teachers' bench mark to learn from other better performing schools, the respondents agreed that benchmarking is done at ( $\mu = 4.1308$ ,  $\delta = 1.2570$ ). Whether top management is commitment to implementation of ICT and new technologies in the teaching- learning process, there was total agreement ( $\mu = 4.2129$ ,  $\delta = 0.7134$ ) although with disclaimers in relation to availability of facilities and other related resources.

At ( $\mu = 4.7106$ ,  $\delta = 1.4648$ ), the responses were overwhelmingly in agreement that top management in Kilifi County schools are concerned with ensuring that the schools continue to improve and perform better than other schools in the region. National schools were said to be striving to be among their peers nationally. At ( $\mu = 2.6678$ ,  $\delta = 1.4269$ ), lower category of school were non-committal or even out rightly in disagreement as concerns conducive working environment at Kilifi County public Secondary schools although this also weighted heavily on lower categories.

#### 4.4.4 Learners' Growth Strategy

The findings are analyzed and presented in the Table 4.12

**Table 4.12: Learners' Growth**

<b>Learners' Growth</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Our school nurtures student emotional intelligence, physical ability, sociability, creative talent, sense of adventure and moral character.	90	2.5628	1.1141
Students sit in class passively and absorb information from teachers	90	2.6127	1.1607
We partner with top performers for fast student improvement and school overall performance.	90	2.5471	1.2359
Students are well equipped for their college enrolment after secondary school life.	90	2.8961	1.2132
Average Score	90	2.6547	1.1810

**Source: Primary data 2019**

Table 4.12 indicate that Kilifi county public secondary schools work very hard to ensure that at ( $\mu = 2.5628$ ,  $\delta = 1.1141$ ), schools nurture student emotional intelligence, physical ability, sociability, creative talent, sense of adventure and moral character albeit under difficult circumstances. There was also a unanimous agreement on whether students sit in class passively and absorb information from teachers ( $\mu = 2.6127$ ,  $\delta = 1.1607$ ). This indicated that despite all shortcomings, the students are willing to learn.

As to whether schools partner with top performers for fast student improvement and school overall performance, the respondents affirmed that this was true ( $\mu = 2.5471$ ,  $\delta = 1.2132$ ). That they partner with other schools outside Kilifi County, mostly with other well performing schools in both neighboring Mombasa.. Given the lack of the required facilities for student learning purposes, most respondents remained noncommittal as to whether students are well equipped for their college enrolment after secondary school life ( $\mu = 1.8961$ ,  $\delta = 1.6132$ ).

## 4.5 Analysis of Performance in Public Secondary Schools

### 4.5.1 Performance of National Schools

The findings on Performance of the two National Schools are tabulated in Table 4.13

**Table 4.13: Performance of National Schools in National Examinations**

Year	School X	School Y
2015	6.50	7.11
2016	6.69	7.06
2017	5.55	6.81
2018	6.30	6.40
<b>Average</b>	<b>6.26</b>	<b>6.85</b>

Source: Primary Data 2019

Given that the two schools are both national category schools, the performance of Y has been consistently better than that of X. The findings of Performance variables are tabulated in Table 4.14

**Table 4.14: Performance in Public National Schools**

	Y		X	
	Mean	Std. Deviation	Mean	Std. Deviation
Student performance is measured through competitive regional exams	4.3333	0.3143	1.3333	0.3143

Evaluation is carried out on teaching staff periodically using evaluation forms (Questionnaires) to measure their performance.	4.3333	0.3143	3.3333	0.3143
The schools have forums in which improvement strategies are discussed.	3.3333	0.6285	4.0000	0.0000
Students have channels through which they can raise complaints about issues they feel dissatisfied with, and the issues are acted upon without victimization.	4.3333	0.3143	3.6667	0.7857

**Source: Primary Data 2019**

#### **4.5.2 Performance of Extra-County Schools**

The findings on Performance of the two Extra-County Schools are presented in Table 4.15

**Table 4.15: Performance of Extra County Schools in National Examinations**

	<b>A</b>	<b>B</b>
2015	4.2790	7.4900
2016	3.9870	4.6500
2017	3.7832	5.5500
2018	4.3333	5.5900
<b>Average</b>	<b>4.0956</b>	<b>5.8200</b>

**Source: Primary Data 2019**

In the Extra-County category, the performance of A was consistently below the performance of B in the national examinations. The findings of Performance variables is tabulated in Table 4.16

**Table 4.16: Performance in Extra-County Public Secondary Schools**

	A		B	
	Mean	Std. Deviation	Mean	Std. Deviation
Student performance is measured through competitive regional exams	3.3333	0.3143	2.6667	0.6285
Evaluation is carried out on teaching staff periodically using evaluation forms (Questionnaires) to measure their performance.	3.6667	0.3928	3.0000	0.4714
The schools have forums in which improvement strategies are discussed.	3.3333	0.3143	3.6667	0.3143
Students have channels through which they can raise complaints about issues they feel dissatisfied with, and the issues are acted upon without victimization.	3.3333	0.6285	3.6667	0.3143

**Source: Primary Data 2019**

### 4.5.3 Performance of County Schools

The findings on Performance of the County Schools is presented in Table 4.17

Year	Average Mean
2015	5.9405
2016	4.2014
2017	3.8900
2018	4.4356
<b>Average</b>	<b>4.6200</b>

**Source: Primary Data 2019**



This performance is extremely on the lower side. The population of students joining university and other tertiary institutions from this kind of performance is very low.

The findings on variable of Performance are tabulated in Table 4.18

**Table 4.18: Performance in County Public Secondary Schools**

	<b>Mean</b>	<b>Std. Deviation</b>
Student performance is measured through competitive regional exams	2.8667	0.5029
Evaluation is carried out on teaching staff periodically using evaluation forms (Questionnaires) to measure their performance.	3.4000	0.6346
The schools have forums in which improvement strategies are discussed.	4.2667	0.3771
Students have channels through which they can raise complaints about issues they feel dissatisfied with, and the issues are acted upon without victimization.	4.400	0.3143

**Source: Primary Data 2019**

#### **4.4.4 Performance of Sub-County Schools**

The findings on Performance of the Sub-County Schools are presented in Table 4.19

<b>Year</b>	<b>Average Mean</b>
2015	5.367
2016	4.2014
2017	3.7891
2018	4.2200
<b>Average</b>	<b>4.6200</b>

**Source: Primary Data 2019**

This performance is extremely on the lower side. The population of students joining university and other tertiary institutions from this kind of performance is very low.

The findings of Performance variables is tabulated in Table 4.20

**Table 4.20: Performance in Sub-County Schools**

	<b>Mean</b>	<b>Std. Deviation</b>
Student performance is measured through competitive regional exams	2.5561	0.5385
Evaluation is carried out on teaching staff periodically using evaluation forms (Questionnaires) to measure their performance.	2.5513	0.7435
The schools have forums in which improvement strategies are discussed.	3.1333	0.4010
Students have channels through which they can raise complaints about issues they feel dissatisfied with, and the issues are acted upon without victimization.	2.641	0.4213

**Source: Primary Data 2019**

#### **4.6 Assessment of Multi-Collinearity**

According to Wekesa (2016), Multi-collinearity and strong correlation jointly occur among the independent variables when the value of the coefficient of correlation,  $r$ , is greater than 0.800. The study used Variance Inflation Factor (VIF) and Tolerance Rate in determining collinearity while the tolerance value ranging between 0 and 1 (where values closer to 1 depict lower collinearity and vice versa) and the VIF, falling under the rule of thumb, value range between 1 and 10 (values closer to ten indicate more collinearity and vice versa). Therefore, the VIF and Tolerance results of this study indicated that collinearity assumptions were met and therefore implying that the multilinear regression testing can be applied.

**Table 4.21: Collinearity Statistics**

	<b>Tolerance</b>	<b>VIF</b>
Just-in-Time Teaching Strategy	.238	2.561
Project-based learning Strategy	.306	2.124
Contextualization Teaching Strategy	.230	3.271
Learners' Growth	.105	1.580
Performance	.432	1.414

**Source: Primary Data 2019**

#### **4.7 Correlation Analysis**

The analysis of the findings on the correlation analysis between the Performance of Public Secondary Schools and innovative teaching strategies is tabulated in Table 4.22

**Table 4.22: Correlation Matrix**

	<b>JiTT Strategy</b>	<b>PBL Strategy</b>	<b>CT Strategy</b>	<b>Learners' Growth</b>	<b>Performance</b>
JiTT Strategy	1.000	.340	.284	.378	.206
PBL Strategy	.540	1.000	.669	.516	.602
CT Strategy	.384	.669	1.000	.448	.778
Learners' Growth	.478	.516	.548	1.000	.565
Performance	.606	.202	.078	.465	1.000

\* Correlation is significant at the 0.05 level (2-tailed).

**Source: Primary Data , 2019**

Table 4.22 above summarizes the test of linear relationship between variables. A Pearson Correlation matrix, significant at  $p < .000$ , was used to test the linear relationship between the innovative teaching strategies and performance.

## 4.8 Multiple Regressions Analysis

**Table 4.22: ANOVA Table**

ANOVA <sup>a</sup>					
Model	Sum of Squares	DF	Mean Square	F	Sig.
Regression	99.36	4	24.84	10.8947	.0000 <sup>b</sup>
1 Residual	195.78	86	2.28		
Total	296.14	90			

a. Dependent Variable: Performance

b. Predictors: (Constant), JiTT Strategy, Project-Based Learning Strategy, Contextualization Teaching Strategy and Learners' Growth

**Source: Primary Data 2019**

The ANOVA table depicted the F-test from the analysis which indicates the existence of associations between innovative teaching strategies and performance. The table indicates that specific variables had significant relation with the dependent variable as shown by  $F = 10.8947$ ,  $p < 0.001$ .

**Table 4.24: Model summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.894 <sup>a</sup>	.799	.803	.134

a. JiTT Strategy, Project-Based Learning Strategy, Contextualization Teaching Strategy and Learners' Growth

**Source: Primary Data 2019**

The contribution of the innovative teaching strategies to performance is 79.9% ( $R^2 = 0.799$ ) of the variations in Performance according to table 4.24 above, with the difference (20.1% to 100%) representing other variables not part of this study. Samuel *et al*, (2016) as quoted by Mrangu (2018) had regression results that agreed with this test by concluding that his regression model was significant and therefore indicated a positive relation between the variables.

## 4.9 Regression Analysis Results

The analysed results of regression analysis are presented where JiTT predicted 24.5%, Project-based Learning Strategy 67.3%, Contextualization Teaching Strategy 74.6% and Learners' Growth 63.6% of the Performance.

**Table 4.25: Regression coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.471	.097		.420	.5327
	JiTT	.245	.025	.111	1.231	.059
	PBLS	.673	.151	.281	1.343	.056
	CTS	.746	.143	.312	2.517	.092
	LG	.636	.236	.136	1.361	.455

a. Dependent Variable: Performance

Source: Primary Data 2019

The table above of regression results is used to obtain multilinear regression model;

$$Y = 0.471 + 0.245 X_1 + 0.673X_2 + 0.746X_3 + 0.636X_4$$

The conclusion drawn from the table above was that predictor variables significantly and positive impacted Performance of Public Secondary Schools in Kilifi County in national examinations. The regression analysis indicate that JiTT strategy had the least effect on Performance at 24.5% followed by learners' Growth at 63.6%, Project-based Learning Strategy at 67.3%, and finally, with the highest impact on performance was Contextualized Teaching Strategy at 74.6%.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter present the analysis and discussion of findings according to the study objectives: Effect of Just-in-Time Teaching Strategy, Effect of Project-based Learning Strategy, Effect of Contextualization Teaching Strategy and finally, the Effect of Learners' Growth on Performance in National examinations.

#### 5.2 Summary of findings

##### 5.2.1. Effects of Just-in-Time Strategy on Performance

The study found out that most of the lower category schools in Kilifi County were not in a position to implement the Just-in-Time Teaching Strategy due to a myriad of challenges experienced in the county including; lack of network coverage, required facilities in the schools among others. The national and extra-county schools are in the process of fully implementing technology I their operations. On putting initiatives in place that are needed to keep students motivated, the response was similar since there is a big gap between the national and sub-county schools in the county. The correlation analysis pointed at the positive effect JiTT Strategy has on Performance at ( $r=.206$ ,  $P<.05$  significance level) implying that JiTT Strategy contribute 20.6% to Performance at an overall average of  $\mu = 2.4876$ ,  $\delta=1.6722$ .

##### 5.2.2. Effects of Project-based Learning Strategy on Performance

The study findings established that the Project-based Learning Strategy positively affects performance of schools in national examinations. Schools that are well equipped concurred that they employ collaborative learning through practicals

relevant to the curriculum. This was however not the case in the lower category schools. Seemingly the trend in the county gravitates around lack of required facilities. The correlation analysis pointed at the positive effect Project-based Learning Strategy has on Performance at ( $r=.602$ ,  $P<.05$  significance level) implying that Project-based Learning Strategy contribute 60.2% to Performance at an overall average of  $\mu =2.4190$ ,  $\delta=1.5659$ .

### **5.2.3. Effects of Contextualization Teaching Strategy on Performance**

The findings established Contextualization Teaching Strategy on Performance positively affects performance of public secondary schools in Kilifi County. The unanimous agreement was that schools benchmark or would wish to benchmark ones resources are available. The national and extra-county schools agreed that they do bench mark. However a large number of county and sub-county schools would wish to but resources don't allow them. The top management of the schools in Kilifi County were said to be working towards improving education standards in the county. From the Correlation results, Contextualization Teaching Strategy positively affected Performance at ( $r=.778$ ,  $P<.05$  significance level) implying that Contextualization Teaching Strategy contribute 77.8% to Performance at an overall average of  $\mu =3.9305$ ,  $\delta=1.2155$ .

### **5.2.4. Effects of Learners' Growth on Performance.**

The findings established that learners' Growth is a key component of education that positively affected Performance in Kilifi County Public Secondary Schools. For purposes of learners' growth, the schools agreed that they nurture student emotional intelligence, physical ability, sociability, creative talent, sense of adventure and student moral character.

The correlation analysis results indicated that learners' growth significantly affects Performance at ( $r=.565$ ,  $P<.05$  significance level) implying that Learners' growth contribute 56.5% to Performance at an overall average of  $\mu =2.4047$ ,  $\delta=1.2810$ .

### **5.3 Conclusion of study**

The following conclusions were arrived at according to the findings: That JiTT Strategy was positively correlated to performance, although with the lowest influence in comparison to other variables in the study. Project-based Learning Strategy was also positively correlated to Performance as the second highest of the variables behind Contextualization Teaching Strategy. Contextualization Teaching Strategy was also positively significant on Performance, with the highest effect compared to the other three study variables. Finally, Learners' Growth variable significantly and positively affected Performance.

In relation to the JiTT Strategy variable, schools need to train students in ICT and use web-based technology to keep teachers and students in touch while away from class/school with emphasis on both County and sub-county schools where the researcher noted that there was no internet connections or even connection to the national electric power supply. The economy of the county is also not capable of supporting this noble initiative.

On the Project-based Learning Strategy, Learning was only collaborative in well-equipped schools where practicals relevant to the curriculum take place, however, because most sub-county schools don't have laboratories required for the practicals, it has been a struggle to match others. Teaching in Kilifi County Public Secondary Schools is carried out using teaching methods which are student centered or at least as



per most of the respondents who indicated that indeed teachers are striving to deliver on this front. However, a lot needs to be done since a number of factors come into play for them to deliver as required.

The schools in the county ensure that teachers' bench mark to learn from other schools that are performing better albeit limited resources, this has been made possible by the top schools managements' commitment together with implementation of ICT and new technologies in the teaching/learning process although under strained availability of facilities and other related resources. For the learners' growth, Kilifi county public secondary schools strive to produce secondary school graduates who are prepared all-round; socially, morally, academically, emotionally among others. The study established that despite all shortcomings, the students were ready and willing to learn.

#### **5.4 Recommendations for policy and practice**

The study recommends the following from the findings and conclusions for purposes of ensuring that the performance of Public Secondary Schools in Kilifi County are also counted among the top performers in the county and be able to produce responsible and productive citizens; That the Ministry of Education should do that is possible to mix the teachers in Kilifi County Secondary School teachers in terms of age and experience. This was evident where most of the respondents had served in the county for more than 6 years yet those who have served for less than 3 years were very few. Too much familiarity may also lead to lack of new initiatives to change the situation. It was also discovered that much of the benchmarking at most schools was just within the County or at most in the neighbouring coastal county schools which

overall do not also perform well. There is therefore need to cast the net wide for purposes of achieving better results.

The local leadership should also spare time and financial resources for the education sector in the county especially from the NG-CDF kitty. This will be of great importance when it comes to improving the levels of academic facilities since secondary schools are not among devolved functions but are still the responsibility of the national government. The mentality that “we don’t have and that’s why we don’t perform well” is so spread in the county that efforts should be encouraged to wipe out this negative trend that only serves to erode education levels and success levels in the county.

## **5.5 Suggestions for further Research**

It is not possible to draw up conclusions of any topic in a single research/study especially wide areas like in the education field. The researcher, therefore decided that since the study had only covered a single county out the 47 counties in Kenya, it is imperative for related studies to be conducted in other counties, more so those that don’t perform well in national examinations, and conclusions compared with those from this study to aid policy formulators in straightening issues in the education sector in the Country.

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## APPENDICES

### APPENDIX I: QUESTIONNAIRE

The questionnaire is for academic research purpose only. Please write your response in the spaces or tick (√) against the boxes provided without indicating your name or contacts.

#### SECTION A: BACKGROUND INFORMATION

1. Please tick your School Category: National  Extra-County   
County  Sub-County

2. Your Position

Deputy Principal  DOS  H.O.D co-curriculum

3. Academic Qualification:

Diploma  Degree  Post Graduate  Student

4. Please tick your age category.

18-25 yrs  26-30 yrs  31-35 yrs  36-40 yrs   
41-45 yrs  46-50 yrs  over 51 yrs

5. For how long have you served in Kilifi North sub County, Kilifi County?

Below 1 year  between 1 – 2 years   
between 3 – 5 Years  between 5 – 6 Years   
Over 6 Years

6. Please indicate your department

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#### SECTION B: INNOVATIVE TEACHING STRATEGIES

##### 1. Effect of Just-in-Time teaching strategy on performance

This section examines the Effect of Just-in-Time teaching strategy on performance. Kindly answer the questions below. Please tick (√) or cross mark (×) basing on a scale of 1-5

JiTT Strategy	SD	D	N	A	SA
Students are usually engaged and prepared					



for class discussions					
Schools have put in place the initiatives needed to keep students motivated both in and outside class.					
The schools train students in ICT and use web-based technology to keep teachers and students in touch while away from class/school.					
Students are curious about the course content and how it is delivered in class					

## 2. Effect of Project-based learning strategy on performance

This section examines the effect of Project-based learning strategy on performance.

Kindly give the response by ticking (√) or cross mark (×) basing on a scale of 1-5

<b>Project-based learning strategy</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
Teaching/Learning is collaborative and intends to search for knowledge through practicals that are relevant to the curriculum.					
School lessons include artifacts-Drawings, technology-based presentations and Videos					
Teaching is done using teaching methods which are student centered.					
High school graduates are well trained such that they are confident, can solve problems, can make decision and work together with peers.					

## 3. Effect of Contextualization teaching strategy on performance.

This section examines the effect of Contextualization teaching strategy on performance. Kindly give your response by ticking (√) or cross mark (×) basing on a scale of 1-5

<b>Contextualization teaching strategy</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
My school ensures that teachers' benchmark to learn from other better performing schools.					
Top management is commitment to implementation of ICT					

The top management is concerned with ensuring that our school continues to improve and perform better than other schools in the region.					
There is a favorable working environment in our school.					

#### 4. Effect of Learners' growth on performance.

This section examines the effect of learners' growth on performance. Kindly give your response by ticking (√) or cross mark (×) basing on a scale of 1-5

Learners' growth		SD	D	N	A	SA
1.	Our school nurtures student emotional intelligence, physical ability, sociability, creative talent, sense of adventure and moral character.					
2.	Students sit in class passively and absorb information from teachers.					
3.	We partner with top performers for fast student improvement and school overall performance.					
4.	Students are well equipped for their college enrolment after secondary school life.					

#### SECTION C: PERFORMANCE IN PUBLIC SECONDARY SCHOOLS

This section examines the Performance in public secondary schools in Kilifi County.

Kindly give your response by ticking (√) or cross mark (×) basing on a scale of 1-5

Employee performance		SD	DA	N	A	SA
1.	Student performance is measured through competitive regional exams					
2.	Evaluation is carried out on teaching staff periodically using evaluation forms (Questionnaires) to measure their performance.					
3.	The schools have forums in which improvement strategies are discussed.					
4.	Students have channels through which they can raise complaints about issues they feel dissatisfied with, and the issues are acted upon without victimization.					

State any other performance measurements practices employed by your school?

.....

K.C.S.E MEAN GRADE

2015	2016	2017	2018

Thank you

Sincere appreciation for finding time to respond to the questionnaire

## APPENDIX II: LIST OF SCHOOLS IN KILIFI COUNTY

	NAME OF SCHOOL	CATEGORY
1.	RIBE BOYS	NATIONAL
2.	BAHARI GIRLS	NATIONAL
3.	MALINDI HIGH SCHOOL	EXTRA-COUNTY
4.	NGALA MEMORIAL GIRLS' SEC. SCH.	EXTRA-COUNTY
5.	KILIFI TOWNSHIP	COUNTY
6.	CHUMANI MIXED SCHOOL	COUNTY
7.	LUTSANGANI SECONDARY SCHOOL	COUNTY
8.	ST.GEORGE'S HIGH SCHOOL	COUNTY
9.	ST. JOHNS GIRLS	COUNTY
10.	MARIAKANI BOYS	COUNTY
11.	MOI KADZONZO GIRLS SECONDARY SCH.	COUNTY
12.	GANZE BOYS SECONDARY SCHOOL	COUNTY
13.	JARIBUNI SECONDARY SCHOOL	COUNTY
14.	GANZE GIRLS	COUNTY
15.	GODOMA MIXED	COUNTY
16.	SOKOKE MIXED	COUNTY
17.	DR. KRAPF MEMORIAL SECONDARY SCH.	COUNTY
18.	KOMBENI GIRLS	COUNTY
19.	RIBE GIRLS	COUNTY
20.	KATANA NGALA SECONDARY SCHOOL	S-COUNTY
21.	MAJAONI MIXED SCHOOL	S-COUNTY
22.	ROKA SEC. SCH.	S-COUNTY
23.	NGERENYA MIXED	S-COUNTY
24.	ST. THOMAS GIRLS'	S-COUNTY
25.	UYOMBO GIRLS'	S-COUNTY
26.	PWANI SEC/VOCATIONAL SCH. FOR THE DEAF	S-COUNTY
27.	MDZONGOLONI	S-COUNTY
28.	MUSUMARINI SEC.	S-COUNTY
29.	TAKAUNGU MIXED	S-COUNTY
30.	SHARIANI MIXED	S-COUNTY
31.	K.P. SENIOR SEC.	S-COUNTY
32.	JUNJU SEC. SCH.	S-COUNTY
33.	MNARANI MIXED	S-COUNTY
34.	ST JOSEPH HOUSE OF HOPE SEC.	S-COUNTY
35.	ST. TERESA'S SEC:	S-COUNTY
36.	DZITSONI SEC.	S-COUNTY
37.	PAUL HARRIS HIGH SCHOOL	S-COUNTY
38.	CHASIMBA MIXED	S-COUNTY
39.	DINDIRI SEC.	S-COUNTY
40.	BUNDACHO SEC.	S-COUNTY
41.	MWARAKAYA SEC.	S-COUNTY
42.	KATIKIRIENI SEC.	S-COUNTY
43.	GEDE BOYS' SEC:	S-COUNTY
44.	JILORE HIGH SCHOOL	S-COUNTY

45.	BARANI MIXED	S/COUNTY
46.	KAKONENI GIRLS SEC.	S/COUNTY
47.	KAKUYUNI BOYS	S/COUNTY
48.	ACK CANON MWERI MEMORIAL SEC SCH.	S/COUNTY
49.	F B TUVA MEMORIAL SEC. SCHOOL	S/COUNTY
50.	MEKATILILI MEMORIAL	S/COUNTY
51.	KIBOKONI SEC.	S/COUNTY
52.	LANGOBAYA SEC.	S/COUNTY
53.	MENYHART SEC.	S/COUNTY
54.	MUYEYE SEC.	S/COUNTY
55.	MBARAKACHEMBE SEC.	S/COUNTY
56.	KIJIWETANGA SEC.	S/COUNTY
57.	GANDA MIXED	S/COUNTY
58.	MIDA SEC.	S/COUNTY
59.	MIYANI SEC.	S/COUNTY
60.	KINANI SEC.	S/COUNTY
61.	MAANDANI SEC.	S/COUNTY
62.	CHANAGANDE SEC.	S/COUNTY
63.	KIZURINI SEC.	S/COUNTY
64.	NGALA MEMORIAL GIRLS'	S/COUNTY
65.	TSANGATSINI MIXED DAY SEC.	S/COUNTY
66.	KINARANI SEC.	S/COUNTY
67.	TSAGWA SEC.	S/COUNTY
68.	MWARENI SEC.	S/COUNTY
69.	MWIJO SEC.	S/COUNTY
70.	PALAKUMI SEC.	S/COUNTY
71.	MAYOWE SEC.	S/COUNTY
72.	VYAMBANI SEC.	S/COUNTY
73.	PETANGUO SEC.	S/COUNTY
74.	MITANGANI SEC.	S/COUNTY
75.	JILA SEC.	S/COUNTY
76.	BANDARI SEC.	S/COUNTY
77.	VITENGENI BAPTIST SEC.	S/COUNTY
78.	MWANGEA GIRLS' SEC.	S/COUNTY
79.	BALE SEC.	S/COUNTY
80.	KACHORORONI SEC.	S/COUNTY
81.	SHANGWENI SEC.	S/COUNTY
82.	MAGOGONI SEC.	S/COUNTY
83.	GALANA SEC.	S/COUNTY
84.	MAPIMO GIRLS SEC.	S/COUNTY
85.	MARERENI SEC.	S/COUNTY
86.	MAJENJENI SEC.	S/COUNTY
87.	NGOMENI SEC.	S/COUNTY
88.	FUNDU - ISSA SEC.	S/COUNTY
89.	MAGARINI HILL SEC.	S/COUNTY
90.	MARAFI SEC.	S/COUNTY
91.	MAGARINI SEC.	S/COUNTY
92.	ADU SEC. SCH.	S/COUNTY
93.	SHUJAA MEKATILILI SEC:	S/COUNTY

94.	GARASHI SEC.	S/COUNTY
95.	RAMADA MIXED SEC.	S/COUNTY
96.	KASIDI SEC.	S/COUNTY
97.	KAMBE SEC.	S/COUNTY
98.	RABAI SEC.	S/COUNTY
99.	CHANG'OMBE SEC.	S/COUNTY
100.	BOFU SEC.	S/COUNTY
101.	KAJIWE SEC.	S/COUNTY
102.	MIKAHANI SEC.	S/COUNTY
103.	JIMBA SEC.	S/COUNTY
104.	REV CANON KURI MEMORIAL SEC. SCH.	S/COUNTY
105.	MBARARANI SEC. SCH.	S/COUNTY
106.	DR. KRAPF MEMORIAL SEC. SCH.	S/COUNTY

Source: [www.education.go.ke](http://www.education.go.ke)