INFLUENCE OF DISTRICT PLANNING COMMITTEE GOVERNANCE PRACTICES ON IMPLEMENTATION OF MATHEMATICS IN-SERVICE TRAINING IN MAKUENI COUNTY, KENYA.

Kamoya Damaris Mwende

A Research Project Report Submitted In Partial Fulfilment of the Requirement for the Award of the Degree of Master of Education in Corporate Governance

University of Nairobi

2014

DECLARATION

This research project report is my original work and has not been presented for the award of a degree in any other university.

Kamoya Damaris Mwende

E55/71942/2011

This research project report has been submitted for examination with my approval as the University Supervisor

---

Dr. Jeremiah M. Kalai

Lecturer

Department of Educational Administration and Planning

University of Nairobi

Dr. Caroline Ndirangu

Lecturer

Department of Educational Administration and Planning

University of Nairobi

DEDICATION

This work is dedicated to my late mother Rodah Kavini who gave me the inspiration and determination to progress academically to and my brother Hastings Mulandi who provided for college education.

ACKNOWLEDGEMENTS

My sincere appreciation goes to my supervisors Dr. Caroline Ndirangu and Dr. Jeremiah M. Kalai for their wise counsel, patience, and encouragement. You gave me constructive suggestions and with your help was able to accomplish this project. I also wish to sincerely thank the lecturers in the Department of Educational Administration and Planning for their initial direction on proposal writing during the research seminars that became an eye opener.

I also thank my college friends, Grace Wamukoya and Daniel Muthoka for their continuous encouragement and sincere desire that I complete my studies. My sincere appreciation also goes to my dear husband and friend, Timothy who encouraged me not to give up and kept the fire burning even when my spirit was waning. I also appreciate you my children Wilfred, Joel and Melody for your understanding during my absence.

Above all I thank God for his ever present help in times of need.

TABLE OF CONTENTS

Content **Page**

CHAPTER ONE

INTRODUCTION

CHAPTER TWO

LITERATURE REVIEW

CHAPTER THREE

RESEARCH METHODOLOGY

APPENDICES

LIST OF TABLES

Table **Page**

LIST OF FIGURES

Figure **Page**

ABBREVIATIONS AND ACRONYMS

CEMASTEA: Centre for Mathematics, Science and Technical Education in Africa

DEO: District Education Officer

DOI: Diffusion of Innovations

DPC: District Planning Committee

DQASO: District Quality Assurance and Standards Officer

GOK: Government of Kenya

HOD: Head of Department

HOS: Head of Subject

IBL: Inquiry Based Learning

ICT: Information Communication Technology

INSET: In-Service Education and Training.

JICA: Japan International Cooperation Agency.

KESSP: Kenya Education Sector Support Programme

KNEC: Kenya National Examination Council.

KUPPET: Kenya Union of Post-Primary Education Teachers.

MOE: Ministry of Education

MOEST: Ministry of Education, Science and Technology.

PRIMAS: Promoting Inquiry in Mathematics and Science

SAMF: Science and Mathematics Foundation

SMASSE: Strengthening of Mathematics and Science in Secondary Education

ABSTRACT

The in-service of teachers aims to impart new pedagogical skills to teachers in order to improve teaching and learning. It is in conformity with world-wide consensus that improving quality of education depends on improving quality of classroom practices. In education, effective governance promotes educational standards leading to efficiency in service delivery and improved student performance. The purpose of this study was to investigate the influence of governance practices on the implementation of mathematics In-Service Training (INSET) in Makueni County. The study sought to determine the extent to which the District Planning Committee (DPC) selection of district trainers, supervision of teachers, use of incentives, choice of training venue and timing of in-service training during school holidays influences implementation of mathematics in-service training. Rogerôs Diffusion of Innovations theory (DOI) guided the study as it emphasizes on what makes new ideas and practices to be accepted and implemented. A descriptive survey research design was used to carry out the study. The target population consisted of the 192 mathematics teachers in the óExtra Countyô category of schools in Makueni County, the 16 mathematics district trainers, the eight Quality Assurance and Standards Officers (DQASOs) and the four INSET centre principals. A stratified sampling of schools in reference to Strengthening of Mathematics and Science in Secondary Education (SMASSE) districts followed by random sampling was used to select 16 schools, four from each district. Four mathematics teachers with five and more years of service were purposively sampled from the selected schools. Four DQASOs, one from each district were sampled whereas all the four INSET centre principals were included in the sample. Data was collected using questionnaires for teachers (Appendix B), and trainers (Appendix C) and interviews for DQASOs (Appendix D) and INSET centre principals (Appendix E). The research instruments were piloted in two county schools. The questionnaires were then subjected to analysis and a reliability index of 0.79 and 0.81 was obtained for teachers and trainers respectively. The data was then analysed and presented in frequency tables and percentages. Descriptive statistics were used to summarise the findings. From the results, trainers selected were found to be lacking in ICT skills as indicated by 63.93 percent 87.50 percent of teachers and trainers respectively. Supervision of teachers during the INSET was lacking. Majority of teachers (86.88%) and trainers (94.75%) said that increase in supervision would improve implementation of INSET. Majority of the teachers (90.17%) and all the trainers (100%) were of the opinion that provision of training allowances could motivate teachers during the INSET. Teachers should be accommodated outside the INSET centre as was supported by 93.75 percent of the teachers and 96.72 percent of the trainers. Majority of the teachers (86.89%), trainers (68.75%) and all DQASOs said INSET should be conducted within the term to allow teachers attend professional courses and personal matters over the holidays. The study made the conclusion that lack of

supervision, lack of incentives; unsuitable accommodation and scheduling of in-service during holidays have contributed to the instability reported during INSETs. The study made recommendations that DQASOs should increase supervision level. CEMASTEA should reconsider its policy and provide training allowances to participating teachers. The study also suggested that similar studies should conducted in a different county for comparative purposes.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study.

In many educational systems serious concerns are raised about the status and the impact of mathematics education and the decrease of studentsô interest for its study (Euler, 2011). Over the past decades, there was a growing consensus among many developed nations that the uptake of mathematics science and technology related studies and professions by young people is not sufficient to keep up the pace of innovation and to react adequately to the economical, and social challenges of a rapidly changing world. As a consequence, a variety of educational programs and projects to improve the quality of mathematics have been created.

According to Klein and Sorra (2001), when organizations initiate intervention projects they expect them to improve organizational productivity and performance. Change facilitators often presume that once innovations have been disseminated they will be adopted and implemented. However, the adoption of innovations by institutions does not always ensure its implementation. Some of the projects have had little impact on the situation. Dylan (2007) says that successful innovation implementation depends upon its acceptance by the targeted end-users. Paine (1990) notes that many educational projects fail during the implementation phase and before the effectiveness of the programme can even be tested.

One of the educational projects that have been initiated is the Promotion of Inquiry in Mathematics and Science education (PRIMAS) across Europe (Euler, 2011). PRIMAS has carried out a large survey on inquiry-based learning and teaching (IBL) across European partner countries. The survey has shown that the benefits of inquiry-based learning discussed in theory do not transform easily to inquiry based teaching.

In 2004, the Association for Mathematics Education in South Africa (AMESA) and the South African Mathematical Society founded the South Africa Mathematical Foundation (SAMF). The non-profit organisation aims to advance mathematics development and education in children and young people through improving quality teaching and learning and through public awareness activities. SAMF serves as a national office for mathematics to promote the effective co-ordination and administration of mathematics activities. The quality of mathematics and science education in South Africa was however, ranked last in a survey of 65 countries by the World Economic Forum (Sunday Times, 2012).

The Strengthening of Mathematics and Science in Secondary Education (SMASSE) was introduced to improve performance in mathematics and science in Kenya in 1998. The project is a joint venture between the Kenya Government through the Ministry of Education (MOE) and the Government of Japan through the Japanese International Cooperation Agency (JICA). The INSET model is through the Cascade System where the national trainers train the district trainers who in turn train teachers in the whole country to implement what they learn at the

INSET in the classroom (Nui &Wahome, 2006).

Despite the governmentôs continued efforts to invest in quality education through In-Service Teacher Education and Training (INSET), performance of mathematics in national examinations has continued to be poor. The project was expected to have a great potential in making teaching and learning of mathematics more interesting, more participatory and more relevant and useful. During the release of the 2013 Kenya Certificate of Secondary Education (KCSE) results the education minister cited mathematics performance as still low (News24, March 4th, 2014).

A survey carried out for Japanese International Corporation Agency on the performance of SMASSE in Kenya by Sasaki and Muta (2008) noted that although classroom activities had become more learner-centred, performance in KCSE had not improved significantly. Some of the challenges cited by the report shifted the focus from attitude towards mathematics and science subjects to attitude towards management of SMASSE at the district level and specifically during the district INSET. Some of the specific problems highlighted by the survey and which will form the basis of the study include; mode of selection of district trainers, lack of incentives, training venues, supervision and timing of the INSET over the holidays.

Studies have shown the importance of choosing the skilled people if any project is to succeed. Locke (2007) noted that if the project management team do not have the skills needed to complete the project, people will be doing nothing. According

to the study the cheapest solution was to train them. Project management tips Rosenhead (2007) indicate that some thought should be given to who should be included in the team implementers of a project. Likewise in Kenya, results of the Ex-Post Evaluation Beneficially Survey by JICA (Sasaki & Muta, 2008) showed that only 37 percent of the respondents felt that the district trainers were adequately qualified in their subject matter. SMASSE gives the mandate of evaluating and selecting the district trainers to the District Planning Committee. The task should therefore be carried out with diligence since district trainers play an important role in achievement of SMASSE project objectives as agents of change that work directly with the teachers.

Fullan (1996) explains that it is necessary to first focus on how the teachers make sense of the mandates and policies because there will be no education reform until after teachers interpret the policies and make decisions based on their beliefs and attitude about the new demands. Rogers (2003) explains that opinion leaders too informally influence others to adopt an innovation and their impact during INSET should be taken into consideration. Likewise unless the district trainers understand and adopt the new practices and ideas advocated by SMASSE, they will not make an impact on the teachers they train.

Supervision is part of management support of a project. Schultz (1987), says that management support for projects, or indeed for any implementation is important in determining its ultimate success or failure. The Quality Assurance and Standards Officers (QASOs) are key in ensuring quality delivery of the curriculum.

According to Ngetuny (2013), their mandate has been expanded with the coming of SMASSE. They are expected to supervise implementation of SMASSE innovations during and after the INSET.

Many change agencies award incentives or subsidies to speed up the rate of adoption of innovations (Rogers, 2004). The SMASSE project policy does not provide financial incentives (daily allowances) for INSET participation with the consideration of the sustainability after the project completion. However this policy has created strong resistance to the program from both the teachers participating in the district INSET and the district trainers participating in the national INSET. Their dissatisfaction constitutes a potential hindrance to securing continuous INSET implementation.

According to Bunting (2004) the physical environment influences general attitudes of learning. SMASSE uses schools to implement INSET. The school provides the learning spaces, accommodation and meals to the participants. Although schools provide a suitable learning environment for students, they are demotivating to the teachers. Another issue raised by the teachers through their union was the scheduling of INSET over the school holidays when the non-mathematics and non-science teachers are on holiday. SMASSE guidelines permit the DPC to conduct INSET during the holidays only. Attendance registers at the DQASOôs office have shown some inconsistence in the way teachers attend INSET (SMASSE attendance report, Mbooni INSET). Some teachers prefer to attend other courses that will lead to increased pay and/or promotions.

1.2 Statement of the problem

Makueni was one of the pilot district for SMASSE and it is expected that the management should have improved with the 15 years of experience. In 2011 however, teachers boycotted INSETs in the district (The Standard Newspaper, April 2011). The paper said that at the centre of controversy are unclear management structures and poor accommodation and meals. At the district level governance issues should be addressed by the District Planning Committee. The Kenya Union of Post-Primary Education Teachers (KUPPET) urged teachers to boycott the INSET and JICA to suspend the training until governance issues were addressed. During the National INSETs, district trainers have voiced dissatisfaction with disparities in training allowances, lack of allowances during training, poor accommodation and meals and lack of support from the DPC (CEMASTEA, 2012).

Although studies have been conducted in the field of Mathematics INSET in Kenya, few have addressed management issues within the project. Ngetuny (2013) investigated how monitoring affects the success of SMASSE in Koibatek sub-county, Baringo County. He concluded that the monitoring of the implementation of SMASSE is minimal and recommended that the Ministry of Education provide adequate financial support to facilitate QASOs supervision. Ndirangu (2006) carried out a study to evaluate SMASSE in-service Project in biology in Kajiado district and concluded that district trainersô performance was below average. The study recommended that the DPC either retrain them or choose new ones. This study sought to determine how governance issues are perceived in by mathematics

teachers in Makueni County and to what extent they contribute to the low level of INSET implementation.

1.3 Purpose of the study

The purpose of this study was to investigate the influence of District Planning Committee governance practices on implementation of mathematics In-service training in Makueni County, Kenya.

1.4 Research objectives

The study addressed the following research objectives;

i) To determine the extent to which the District Planning Committeeôs selection criteria of district trainers influences implementation of mathematics in-service training in Makueni County.

ii) To establish the extent to which District Planning Committeeôs supervision of trainees influences implementation of mathematics in-service training in Makueni County.

iii) To determine the extent to which the District Planning Committeeôs use of incentives influences implementation of mathematics in-service training in Makueni County.

iv) To examine the influence of District Planning Committeeôs choice of training venue on implementation of mathematics in-service training in Makueni County.

v) To establish the influence of District Planning Committeeôs timing of in-

service training during school holidays on implementation of mathematics in-service training in Makueni County.

1.5 Research questions

Thestudy sought to answer the following research questions;

i) To what extent does District Planning Committeeôs selection of district trainers influence implementation of mathematics in-service training in Makueni County?

ii) To what extent does District Planning Committeeôs supervision of trainees influence implementation of mathematics in-service training in Makueni County?

iii) To what extent does the District Planning Committeeôs use of incentives on teachers influence implementation of mathematics in-service training in Makueni County?

iv) What influence does District Planning Committeeôs choice of training venue have on implementation of mathematics in-service training in Makueni County?

v) What influence does the District Planning Committeeôs timing of mathematics in-service training during school holidays have on its implementation in Makueni County?

1.6 Significance of the study

The findings of the study are intended to solve an important question of why, despite the fact that most mathematics teachers have attended SMASSE INSET,

they do not seem to have adopted the innovations disseminated. The data generated may be used to guide policies at Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA) in general and at the district education office in particular concerning their policies management of mathematics INSET.

Knowledge of how governance practices influence diffusion of new ideas and practices can assist the District Planning Committees in Makueni County to work on consolidating teachersô support for SMASSE and create an environment that encourages adoption and implementation of the learnt innovations. The District Planning Committee (DPC) is made aware of the teacher-related issues of concern during SMASSE INSET. The findings of the study also came with recommendations which form a basis for further study in the same area.

1.7 Limitations of the study

Limitations are those conditions beyond the control of the researcher that may place restrictions to the conclusion of the study and their application to other situations (Best & Kahn, 1998). The study was confined to mathematics teachers in Makueni county and should be applied to other counties with caution as governance practices differ from one county to another. Also the time lapse between the last INSET session and the time of responding to the questionnaire items was limiting due to memory lapses. The teachers sampled did not attend the last INSET as it targeted only teachers who had five and below years of experience. The study therefore did not capture any changes in INSET

management that may have been effected.

1.8 Delimitations of the study.

According to Orodho (2005), delimitations are those characteristics that limit the scope and define the boundaries of oneôs study. It covered only some of the governance practice namely; mode of selection of district trainers, supervision of teachers, use of incentives, training venue and timing of the INSET and not others such as communication channels and leadership styles and influence of teachersô unions.

1.9 Assumptions of the study

The study was based on the following assumptions;

i) All respondents cooperated and provided honest and informed responses to questions posed to them.

ii) All the DEOs and DQASOs in Makueni County were aware of the governance practices applied to in-service training.

1.10 Definition of significant terms

The definitions of significant terms used in the study are given below as follows;

District Planning Committee refers to District Education Officials mandated to manage SMASSE activities at the district level. In Makueni each DPC consists of eleven (11) members.

Governance practices refer to the system by which in-service of teachers is directed or controlled and specifies the rules and regulations for making decisions.

Implementation refers to full use or practice of the ideas and practices disseminated during SMASSE INSET.

Incentives refer to rewards (monetary or in kind) that would encourage mathematics teachers to implement new pedagogical ideas and practices.

Innovations refer to the Activity Student Experiment Improvisation/Plan Do See Improve practices advocated by SMASSE that are perceived as new by teachers.

In-Service Training refers to training given to practising mathematics teachers to disseminate new technologies, practices or ideas designed by SMASSE.

Selection refers to the entire process followed during recruitment and interviewing teachers to get suitable District Trainers for In-Service training of teachers.

SMASSE District refers to a regional unit whose Science and mathematics teachers share the same INSET centre. In Makueni County each is made up of two sub counties combined.

Supervision refers to the District Planning Committee making a follow-up to ensure that SMASSE practices are implemented by the In-serviced teachers.

Timing refers to appointed times or dates for carrying out in-service training.

Venue refers to the place where teachers meet for in-service education.

1.11 Organization of the study

Chapter One discusses the background to the study, statement of the problem, purpose of study, objectives and research questions, limitations, delimitations and assumptions of the study. Operational definition of terms and organization of the study were also discussed. Chapter Two includes a review of the literature related

to this study.

Chapter Three provides information about the methodology that was undertaken to answer the posited research questions. The Chapter contains information on the research design, target population, sample size and sampling procedures and research instruments. It also contains validity and reliability of the research instruments, data collection procedures and data analysis techniques. Chapter Four addresses the results arising from the empirical analysis of the data obtained while Chapter Five discusses the results emanating from the analysis of the data obtained in the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This Chapter presents a review of literature related to influence of governance practices on implementation of in-service training. The Chapter has sub-sections on studies done on governance of intervention projects related to the objectives of the study namely; the concept of mathematics teachers in-service training, governance and implementation of in-service training, selection of trainers, supervision, use of incentives, learning environment and timing of training. It also deals with Summary of literature review and theoretical and conceptual framework.

2.2 Concept of in-service training of mathematics teachers

UNESCO (2006) notes that INSET encompasses the whole range of activities by which serving teachers and other categories of educationists within the formal school system may extend and develop their competence and general understanding of the roles which they and their schools are expected to play in their changing societies. The goal of in-service training is to improve the knowledge, skills and commitment of teachers so that they are more effective in planning lessons using a variety of approaches in their teaching and monitoring students learning (Williamson & Clavenger, 2008).

In-service education and training is one of the approaches employed to upgrade teachersô skills and competence world over (Mutahi, 2008). It is in conformity

with world-wide consensus that improving quality of education depends on improving quality of classroom practices according to Kibe, Odhiambo and Ogwel (2008). According to Hammond and Bransford (2005) teachers and their teaching are now widely recognized as the most critical of many important factors that combine to create overall quality education.

The Promoting Inquiry in Mathematics and Science education (PRIMAS) project has been used across Europe to promote Inquiry Based Learning (IBL) in mathematics and science education by improving the quality of teachers handling these disciplines. In response to the challenges facing Science Technology Engineering and Mathematics education in the US, the government has facilitated a cohesive national strategy with new and repurposed funds to reorganize educational programmes in these subjects.

The Tanzanian Education Policy and Training Philosophy states that, in-service training and retraining shall be compulsory in order to ensure teacher quality and professionalism. The late president Julius Nyerere, an education icon of the philosophy and policy of óEducation for Self-Relianceô once said any education policy needs well trained professional cadres who are continuously updated for it to succeed (Nyerere, 1988).

2.3 Governance and implementation of in-service training

Governance describes the mechanisms an organization uses to ensure that its constituents follow its established processes and policies (Khan, 2014). Lipman

(2013) gives seven management practices that can improve employee productivity as; designing economic incentives for all employees, providing meaningful supervision and feedback and offering adequate training to management at all levels. In education effective governance promotes educational standards leading to efficiency in service delivery, improved student performance and reduced corruption (Leo, 2008). As Ellis (2004) puts it, in most cases those given the mandate of governing educational projects have no serious formal training on governance.

2.4 District Planning Committee Selection of district trainers and implementation of in-service training

The recruitment and selection process determines the quality of trainers and the attitude teachers have towards them and the INSET. According to UNEPôs Health and Education Training Manual, the success of training depends to a great extent on the abilities, skills and personal qualities of the trainer. Simms (2008) identifies some of the qualities a trainer should have as good communication, subject knowledge, training skills and organizational skill. In her study, ôTeachers Concerns in the Implementation of Strengthening of Mathematics and Science in Secondary Education (SMASSE) innovation, Ndirangu (2013) recommended that most of the teachersô concerns were traced to the INSET, and there is need to assess the training strategies of the trainers or even consider training a new crop of district trainers. This study aims to find out if the same perception recurs in Makueni County about mathematics trainers.

2.5 District Planning Committee Supervision of teachers and implementation of in-service training

Mahfroz and Hovde (2009) writing for World Bank define supervision as the regular or periodic oversight of individuals or entities which uses the results of evaluation to inform and direct action of those supervised. Adepoju (1998) defines school supervision as the process of bringing about improvement in instruction by working with people who are working with pupils. Teachers stress and burn out when principals are insensitive to school and teacher-related struggles and fail to support them (Jackson, Schwab & Schuler, 1986). Morris (2004) postulates that adoption of new ideas and practices are affected by strong principalôs leadership. During the pilot phase of the project the support of the head teachers and QASOs in supervising the implementation of the project was assumed. Later it was found necessary to hold workshops for the cadres of officers so as to capacity build them to play their roles effectively in the project activities.

As ministries officials, DQASOs are responsible for ensuring quality of education in the district and are therefore expected to monitor and ensure that teachers implement the skills gained from SMASSE INSET (SMASSE, 2002). Supervision of the use of ASEI/PDSI approaches in the teaching of mathematics at school can be done by the principal, deputy principal or heads of department (SMASSE, 2008). Through supervision, reasons for non-use of these approaches can be obtained with a view of overcoming the challenges experienced. The information generated from supervision enhances learning from experience and improves decision making

2.6 District Planning Committee use of incentives and implementation of in-service training

Many change agencies award incentives or subsidies to speed up the rate of adoption of innovations (Rogers, 2004). The main function of incentive for adoption is to increase the degree of relative advantage of the new idea. According to Rogers (2003) incentives may be paid either directly or indirectly to an adopter or to another individual to persuade the adopter. Offering incentives is one diffusion strategy that affects the perceived attributes of innovations especially relative advantage and thus an innovations rate of diffusion. According to Patrick (2006), poorly motivated staff can have a massive negative attitude towards new practices and ideas. Teachers who are less motivated will do much less work and at a poorer quality than highly motivated employees. They also take longer to complete tasks making the implementation of the in-service training less cost-effective.

2.7 Training venue and implementation of in-service training

According to Luthans (2011), if people work in a clean friendly environment they will find it easier to come to work. Earthman (2004) says that there is sufficient research to state without equivocation that the buildings in which learners spend a good deal learning does in fact influence how well they learn. According to Bunting (2004) the physical environment influences general attitudes of learning. Ellis (2005) adds that training venue for teachers are more than a place to inhabit. They can acquire an emotional significance by giving the learners identity and influencing cognitive and behavioural development. Baseline survey findings

identified poor working conditions that made teachers to have low esteem as one challenge facing the implementation of SMASSE (MOE, 2003). INSET centres are schools chosen in the district and supported by SMASSE budget to provide accommodation and learning facilities to teacher trainees. While the school may be ideal for secondary school students, they may not provide a motivating environment for teachers to learn and adopt.

2.8 Timing of INSET and implementation of in-service training

According to Ndirangu (2006), one of the concerns of teachers about SMASSE in-service training is the scheduling of training during school holidays. In response the Makueni County stated that it would be unfair to leave students untaught and urged teachers to sacrifice themselves (DQASOôs Report, 2009). In West Barkshire, the Guidance for Schools manual states that teachers can be paid for in-service training or attending courses outside the school where these occur at weekends, evenings or the school holidays. Raywid (1993) exploring the issue of finding more time for teacher professional development suggested altering staff utilization patterns. Watts and Castle (1993) identified in a survey of schools involved in National Education Association Initiative that teaching assistants, college interns and administrators can be used to cover classes.

2.9 Summary of literature review

It has emerged from the literature review that there is a strong positive correlation between implementation of SMASSE innovations and the management of INSETs. New technologies will be more accepted if the trainers are perceived to

know more than the trainers and are seen to practice what they disseminate. Ndirangu (2006) found that district trainers are inadequately prepared, a view which is supported by studies done by Chepkwony (2011) in Kericho district.

According to Rogers (2003) incentives increase the percentage of the population willing to readily take up the new technologies. He cautions that those who adopt innovations because of incentives are likely to discontinue once the incentives stop being used. Waititu (2008) agrees by saying that lack of monetary incentives in SMASSE was due to consideration of the effect once they are stopped.

The learning environment speaks much about the importance attached to the innovations by those who want them adopted. Innovations are perceived to be valuable if the owners are willing to spend more money and time in persuading people to adopt them. McGregor (2004) found that there was a direct correlation between architecture and the collaboration of teachers.

2.10 Theoretical framework

This study adopted Rogersô Diffusion of Innovations Theory (DOI). The theory is the most appropriate for investigating the adoption of technology in higher education and educational environments (Medlin, 2001). Ornstein and Hunkins (2009) have customised Rogersô model to education changes and innovations. Successful implementation of a curriculum, regardless of its design rests on implementation. According to Ornstein and Hunkins, implementation means getting educators to shift from the current programme to the new programme, a modification that can be met with great resistance.

Bagehot (1986), notes that one of the greatest pains to human nature is the pain of a new idea. It makes them think that after all, their favourite notions may be wrong and their firmest beliefs ill founded. Naturally, therefore, common men hate a new idea, and are disposed more or less to ill-treat the original man who brings it. For Rogers (2003) a technology is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome. Medlin (2001) says that Diffusion of Innovations seeks to explain how innovations are taken up in a population.

The theory offers three valuable insights into the process of social change: what qualities make an innovation to spread, the importance of peer-peer conversations and peer networks and understanding the needs of different end-users segments. Some of the attributes of innovations put forward by Rogers include Relative advantage, use of incentives and trialability. Using Rogerôs DOI theory, the managers of any project would be able to put in place governance policies that can enhance implementation of in-service training technologies. SMASSE should be modelled to make the attributes of the innovations advocated clear to the expected adopters. Rogers says innovations are only adopted if the users perceive them as having an advantage to the present practices.

Rogers (2003) says that to increase the rate of adoption and to increase relative advantage, more direct or indirect financial payment incentives may be used as support and motivational factors. SMASSE policies rule out financial support to the participants arguing that it may not sustain them after the program. Another

attribute that makes innovations to be adopted is trialability.Teachers should have the facilities required to try out during the INSET what they learn. During the implementation stage of the innovation there may be increased reinvention which increases the rate of adoption. In Makueni county most INSET centres do not have enough teaching/learning resources for teachers to try the innovations during the INSET. Any educational intervention project should consider trialability of its innovations by the targeted adopters.

2.11 Conceptual framework

For this study the independent variables are; selection of trainers, supervision of teachers, use of incentives, the learning environment and the timing of the INSET. The dependent variable is the level of adoption and implementation of mathematics INSET.

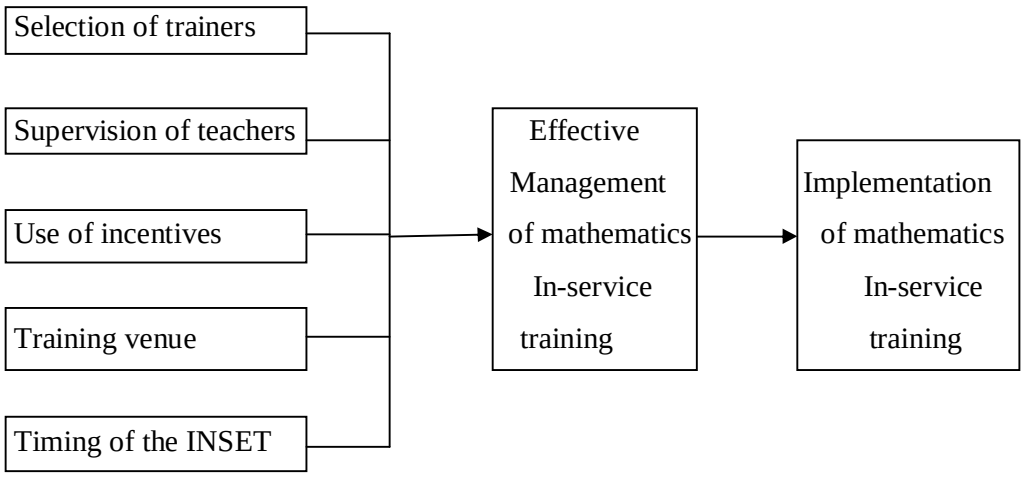


Figure 2.1 Conceptual framework showing relationship between governance practices and implementation of mathematics in-service training.

The above conceptual framework shows the relationship between governance practices and implementation of mathematics in-service training. The variables may have a positive or a negative effect on the dependent variable, implementation of in-service training, depending on how the teachers perceive them. Fair selection criteria of trainers, improved supervision of teachers, use of incentives will enhance implementation of the in-service programme attendance Likewise the choice of venue and timing of INSET will influence implementation of the INSET. Once the INSET has been successfully implemented, innovations disseminated will be adopted and implemented.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section describes the structure and methodology that guided this study. It presents major thematic areas that include; research design, target population, sample size and sampling procedure, research instruments, validity and reliability of research instruments, data collection procedures and data analysis techniques.

3.2 Research design

Research design refers to the arrangement of conditions for collecting and analysing data. This study was conducted using a descriptive survey design which is a method of collecting information by interviews or administering questionnaires to a sample of individuals. According to Orodho and Kombo (2002) the design can be used when collecting information about peoplesô attitude, opinions, habit or any variety of education or social issues. The design was appropriate in generating information about teachersô views or attitudes on the governance practices of the District Planning Committee in organizing and running.In-service training. It also gathered information on how the governance practices affect the adoption rate of SMASSE innovations. Survey method was also chosen for this study since it is considered the most efficient in terms of time and cost when the area of study is expansive.

3.3 Target population

Kombo and Tromp (2006) define target population as the entire group of

individuals, objects or items from which samples are taken for measurement. The study was taken in Makueni County, Kenya, which consists of four SMASSE sub-counties. Only the 53 schools with the ócounty level and aboveô status formed the target population since they were in existence by 1998 when SMASSE activities were launched in Makueni. All the 192 mathematics teachers formed part of the target population. Mathematics trainers, the eight DQASOs (2 from each SMASSE sub-county) and the four INSET centre principals provided information on the management and running of the District INSET and the challenges they face.

3.4 Sample size and sampling procedure

Sampling is the process of selecting a representative number of individuals or objects from a population (Orodho & Kombo, 2002). Mugenda and Mugenda (2003) advocates use of 10-30 percent to arrive at the sample sizes for each category of respondents as shown I the table 3.1 below.

Table 3.1 Target population and sample size of respondents

Category	Target population	Sample size	Percentage
Mathematics teachers	192	64	30
Mathematics trainers	16	16	100
DQASOs	8	4	50
INSET-centre principals	4	4	100
Total	**220**	**88**	**70**

Quota sampling in reference to SMASSE sub-county, followed by purposive sampling was done to select four schools from each so as to arrive at a sample size of 16 schools. Sixty four (64) mathematics teachers (four from each school) were randomly sampled from the 192 who had taught for five years an above. All mathematics trainers (four from each district) were sampled. Four DQASOs one from each SMASSE sub-county, were purposively then randomly sampled while all the four INSET centre principals were sampled.

3.5 Research instruments

No single instrument for collecting data is perfect. According to Mugenda and Mugenda (2003), it is necessary to use more than one instrument. This study used both questionnaires and interview schedules. The researcher used two sets of structured questionnaires (Appendices B and C) for mathematics teachers and for mathematics trainers. Questionnaires have an advantage of being able to gather data over large samples (Kombo & Tromp, 2006). The questionnaire consisted of six sections. Section A captured the background information on the teacher. Section B to F collected data on each of the research questions respectively.

Structured questionnaires involve subjecting every informant in a sample to open-ended questions (Kombo & Tromp, 2006). The reliability of the information gathered is high since the researcher can clarify issues. There were two sets of interview schedules (Appendices D and E) for DQASOs and for INSET centre principals. Section A captured background information of the respondents whereas sections B to F looked at mode of trainersô selection and supervision of

teachers, use of incentives, training venue and timing of INSET respectively.

3.6 Validity of research instruments.

Mugenda and Mugenda (2003) define validity as the degree to which an instrument measures what it purports to measure. It can therefore be taken as the appropriateness, meaningfulness and usefulness of the inferences made by the researcher on the data obtained by use of a tool. Williamson (2000) says that for a data collection instrument to be considered valid the content selected and included must be relevant to the need or gap established. To enhance validity a pilot study was carried out in two schools for content validity and clarity. Both the questionnaires and interview schedules were then appraised by the project supervisors.

3.7 Reliability of research instruments

Reliability is the degree to which a test consistently measures whatever it is measuring (Gay & Airasian, 2000). It refers to the consistency of the scores or answers from the administration of an instrument to another and from one set of test items to another. A reliability coefficient indicates the consistency of the scores produced. During the pilot testing of validity, the instruments were subjected to test-retest method where they were administered twice to the same group of respondents after an interval of two weeks. The two sets were scored and correlated for reliability by calculating the Pearson Product Moment Correlation coefficient using the formula shown below.

$$r_{(x,y)} = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Reliability helps to establish the extent to which the contents of the instruments were consistent in eliciting the same responses every time they were administered. The questionnaire for teachers scored 0.79 while with the trainers it scored 0.81. A score that is Ó7 makes the questionnaire reliable.

3.8 Data collection procedures

A research permit was obtained from the National Council of Science, Technology and Innovations (NACOSTI) through recommendation from the head, department of Educational Administration and Planning, University of Nairobi. Visits were then made to the selected schools to inform the Principal of the intended study and seek permission to administer the questionnaires. With the facilitation of the principal the questionnaires were administered and collected immediately after completion. Questionnaires for trainers were send to them through conduct persons and were brought back after a day. The researcher also made appointments with the DPC members sampled and conducted the interview schedules.

3.9 Data analysis techniques

According to Kombo and Tromp (2006) data analysis involves scrutinizing the acquired information and making inferences. The study yielded both qualitative and quantitative data which was continuously coded in the computer during the course of study. It was also edited to identify items wrongly responded to and spelling mistakes in the responses. The Statistical Package for Social Sciences (SPP) was used to analyse the data. Descriptive statistics were used to generate

frequency distribution tables, means, percentages, graphs and charts. Qualitative data from open ended questions was organized into themes by analysing the content. According to Mason (2002) qualitative analysis emphasizes how data fits together as a whole, bringing together the content and meaning. Inferential statistics was used to make generalization about the population based on findings from the sampled respondents.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents an analysis, presentation, interpretation and discussion of the data collectedfrom the field. It includes the questionnaire return rate and the respondentsôdemographic information that included gender, age, and level of education. It also includes length of service and attendance of in-service training. Other areas tackled are selection of district trainers, supervision of teachers, use of incentives on teachers, the training venue and timing of the training.

4.2 Questionnaire return rate

In order to accomplish the collection of data that would be analysed to answer the research questions, questionnaires were issued to all the 64 mathematics teachers, eightmathematics district trainers, four District Quality Assurance and Standards Officers and four INSET centre principals sampled. The questionnaire return rate is as shown below in table 4.1

Table 4.1 Questionnaire return rate

Respondents	**Sample**	**Returned**	**Percentage**
Mathematics teachers	64	61	95.31
Mathematics trainers	16	16	100.00
Total	**80**	**77**	**97.66**

Out of the total 64 teachers given questionnaires, 61 mathematics teachers (95.31percent) returned them. Mathematics trainers had 100 percent return rate.

The average questionnaire return rate was 97.66 percent. According to Mugenda and Mugenda (2003), it is high enough to provide the required information.

4.3 Demographic data of respondents

The respondents were asked to indicate their gender, age, highest professional qualifications, and length of service. They also responded to their responsibilities within the school and in-service attendance. This information will enable the researcher to understand the nature of the respondents involved in the study.

4.3.1 Demographic data of mathematics teachers.

Teachers were asked to indicate their age as an indication of maturity and genderand their responses are summarized in Table 4.2 below.

Table 4.2 Distribution of teachers' age and gender

Age of teachers	**Male**	**Female**	**Total**	**Percentage**
Below 36	15	8	23	37.70
36-44	11	7	18	29.51
45-54	15	4	19	31.14
Above 55	1	0	1	0.02
Total	**42**	**19**	**61**	**100.00**

From the findings, majority (68.85 percent) of the mathematics teachers were males while only 31.14 percent were females. This could be a reflection of the stereotype in the society that sciences are for males. Of the 63 teachers, 37.70

percent were below 36 years of age. This is an indication that they are likely to teach for a long time and should therefore be made effective change agents of in-service innovations. A majority 60.65 percent are of middle age and therefore expected to be knowledgeable in governance issues.

Teachers were asked to indicate their professional qualificationsand the findings are summarized in Table 4.3.

Table 4.3 Professional qualifications of mathematics teachers

Qualifications of teachers	**Frequency**	**Percentage**
M.Ed.	9	14.75
B.Ed.	43	70.49
M.SC & PGDE	3	4.92
Diploma	6	9.83
Total	**61**	**100.00**

From the findings 70.49 percent of the teachers had a B.Ed. degree while 14.75 percent had a M.Ed. degree. Only 9.83 percent of the teachers had a diploma. The findings indicate that majority of mathematics teachers are qualified and can therefore learn new pedagogical skills if they are involved. They have the ability to evaluate the performance of the trainers and the DPC as a whole.

Teachers were also asked to indicate their teaching experiences. Working experience is an indication of expertise in their fields. Their responses are shown in Table 4.4 below.

Table 4.4 Teaching experience of teachers.

Teaching experience of teachers	Frequency	Percentage
6-10	20	32.78
11-20	21	34.43
21-30	18	29.51
Above 30	2	3.28
Total	**61**	**100.00**

From the findings 32.79 percent have an experience of 6 to 10 years in teaching, 34-43 percent have 11 to 20 years whereas 25.51percent have worked for over 20-30 years while only 3.29 percent had served for over 30 years. Experience is an indication of the skills gained in the course of service.

Teachers were asked to state their responsibilities in school.This would enable the research to capture their experience in management issues. Table 4.5 summarises the findings.

Table 4.5 Distribution of responsibilities of teachers

Responsibility of teachers	**Frequency**	**Percentage**
Principal	4	6.56
Deputy Principal	11	18.03
Head of department	22	36.07
Head of subject	15	24.59
Class teacher	9	14.75
Total	**61**	**100.00**

Of the teachers who responded, 24.59 percent were either principals or deputy principals while 36.07 percent were HODs percent. Responsibilities given to teachers are an indication of the leadership abilities which can be reflected in the management of in-service training. They indicate the governance competencies among the teachers. Principals, Deputy Principals and Heads of department have supervisory roles and can be encouraged to assist in management during INSETs.

Teachers responded to their attendance of SMASSE and their responses are shown in Table 4.6

Table 4.6 Attendance of SMASSE by teachers.

Number of cycles attended	Frequency	Percentage (%)
4	51	83.61
3	4	6.56
2	5	8.20
1	1	1.64
Total	**61**	**100.00**

All teachers attended at least one cycle with 83.61 percent attending all. Only 1.64 percent had attended only one cycle. The respondents sampled have adequate exposure in in-service training.

4.3.2 Demographic data of mathematics trainers

Teachers were asked to respond to their age and gender and the findings are as shown in table 4.7

Table 4.7 Distribution of district trainers by age and gender

Age of trainers	Male	Female	Total	Percentage
36-44	1	0	1	6.25
45-54	11	2	13	81.25
Above 54	2	0	2	12.50
Total	**14**	**2**	**16**	**100.00**

According to the findings a relatively high percentage of mathematics trainers were male (87.50 percent) and only two of them (12.5 percent) were female. The trainers were clustered in the same age bracket of 45-54 years at 81.25 percent. This is likely to be contributed by the qualifications required for one to become a trainer. Only one (6.25 percent) was below 35years old.

The study also sought to establish the academic qualifications of the trainers and the responses are as shown in table 4.8 below.

Table 4.8 Academic qualifications of trainers

Qualifications Of trainers	Frequency	Percentage
Masters.	4	25.00
B.Ed.	12	75.00
Total	**14**	**100.00**

From the findings all the trainers have attained the first degree in education and four of them (25 percent) have a masterôs degree. They are therefore highly qualified to train if they are well managed and motivated. Trainers also responded to questions about their experience as trainers. A summary of their responses is summarized in table 4.9

Table 4.9 Teaching experience of trainers

Experience Of teachers	**Frequency**	**Percentage**
5-9	8	50.00
10-14	4	25.00
20-25	4	25.00
Total	**16**	**100.00**

The collected data shows that four (25 percent) of the trainers have an experience of over 20 years in training. Another four have served for 10-14 years while majority (50 percent) have served for 5-9 years. The trainersô selection follows the creation of new SMASSE INSETs to decentralise In-service training. It is necessary that the trainers are adequately prepared at the national training in order to implement INSETs successfully.

Trainers also indicated the responsibilities held in their schools. They responded as shown in table 4.10 below

Table 4.10 Responsibilities for trainers

Responsibility Of trainers	Frequency	Percentage
Principal	5	31.25
D/Principal	4	25.00
HOD	7	43.75
Total	**16**	**100.00**

Table 4.10 indicates that 31.25 percent were principals while 25 percent are deputy principals. The majority 43.75 percent were HODs. One of the qualifications for trainers set by CEMASTEA is that one should be an HOD in the subject of training. All the trainers therefore have administrative experience and given support by the DPC, they should implement in-service training.

4.3.3 Demographic data of District Quality Assurance and Standards Officers

DQASOs were asked to indicate their gender and age and responded as shown by Table 4.11

Table 4.11 Distributionof DQASOs by age and gender

Age of DQASOs	Male	Female	Total	Percentage
35-44	1	0	1	25.00
45-54	3	0	3	75.00
Total	**4**	**0**	**4**	**100.00**

Data findings show that all the DQASOs interviewed were males. Only one of them, 25 percent, was below 45 years in age. The majority 75 percent were between 45-54 years. This implies that they are likely to be working in the same capacity for an average of 10 years before retiring.

DQASOs also responded to questions about their academic qualifications and their responses are recorded in table 4.12

Table 4.12Academic qualifications of DQASOs

Qualifications of DQASOs	Frequency	Percentage
Masters	1	25.00
B.Ed.	3	75.00
Total	**4**	**100.00**

All the DQASOs interviewed had at least one degree. One of them (25 percent) had a masterôs degree. The findings indicate that they were sufficiently

qualified for their work. Regarding experience, the DQASOsô responses are shown below in table 4.1

Table 4.13 Experience of DQASOs (years)

Experience of DQASOs	**Frequency**	**Percentage**
5-9	1	25.00
10-14	2	50.00
15-19	1	25.00
Total	**4**	**100.00**

One (25 Percent) of the DQASOs had served for 5-9 years, two (50 percent) for 10-14 years and one (25 percent) for 15-19. This indicates that they have served long enough to understand the concerns of the teachers.

The DQASOs were also asked to indicate whether they have participated in the SMASSE workshops for DQASOs. All the DQASOs had attended at least one sensitization workshop on coordination of in-service training. They therefore have the necessary knowledge on how to implement INSETs and how to supervise the use of the innovations learned.

4.3.4 Demographic data on INSET centre principals

INSET centre principal were asked to indicate their age and gender and their responses are shown in Table 4.14 below

Table 4.14 Distribution of INSET centre principals by age and gender

Age of Principals	Males	Females	Total	Percentage
35-44	0	2	2	50.00
45-54	1	1	2	50.00
Total	1	3	4	100.00

Concerning gender, 75 percent of the principals were females while 25 percent were males. This is because 3 of the schools chosen as INSET centres are for girls and only one for boys. Two (50 percent) of the INSET centre principals were aged between 35-44 years while two (50 percent) were between 45-54 years of age. This indicates that they are mature enough to deal with implementation of in-service at the INSET centre.

They were also asked to state their academic qualifications and Table 4.15 shows a summary of their responses.

Table 4.15 Academic qualifications of INSET centre principals

Qualifications of centre principals	**Frequency**	**Percentage**
Masters	1	25.00
B.Ed.	3	75.00
Total	**4**	**100.00**

Data on qualifications of the Principals indicated that 3 (75 percent) had the first degree in education and while one (25 percent) had a masterôs degree in education. They were all academically qualified to manage activities going on in their schools during the INSET.

Principalsô responses on years of experience as INSET centre principals are as shown in table 4.16 below

Table 4.16 INSET-centre principals' experience

Experience of Principals	**Frequency**	**Percentage**
Below 6	2	50.00
6-10	1	25.00
10-15	1	25.00
Total	**4**	**100.00**

The table shows that two of the principals (50 percent) had served for less than six years and the other two, (50 percent) between six and fifteen years. Long experience in a certain capacity is an indication of competence. The DPC should assist new principals in managing the INSETs.

All the Principals who responded said that they had attended SMASSE workshops. It is expected that they are conversant with CEMASTEA policies on management of Sub-County INSETs.

4.4 Selection of trainers and mathematics in-service implementation

One of the objectives of the study was to determine the extent to which District Planning Committee selection criteria of District Trainers influences implementation of mathematics in-service training in Makueni County. The researcher sought to do this by asking trainees and trainers to respond to whether advertisement for trainers was done well, whether they feel the trainers were selected on merit, and whether trainers have adequate management ICT and communication skills. They also responded to the question about trainersô mastery of content and whether their presentation of lessons was learner-centred.

Teachersô responses on questions about selection of trainers are summarized in table 4.17. The figures in the boxes show the percentages of the respondents who gave that response. Given is the key for all the tables below

Key: SA-Strongly Agree, A-Agree, NS- Not Sure, D-Disagree, SD-Strongly Disagree

Table 4.17 Teachers' responses on selection of trainers

	Statement	SA	A	NS	D	SD
i	Post of district trainers was well-advertised	13.11	40.98	16.39	11.48	18.03
ii	Trainers have adequate ICT skills	6.56	16.39	13.11	18.03	45.90
iii	The trainers have adequate skills in management	8.20	47.54	9.84	31.15	6.56
iv	The trainers have good communication skills	6.56	67.21	21.31	4.92	0.00
v	Trainers have good mastery of content	4.92	70.49	24.59	0.00	0.00

N= 61

From table 4.17 above a majority 40.98 percent felt the post for trainers was well advertised, while 13.11strongly agreed. Majority of the teachers (45.90 percent) were of the opinion that district trainers were seriously lacking in ICT skills. Retraining is necessary since presentation of lessons uses PowerPoint. Trainers were rated by majority of the teachers (47.54 percent) as having good management skills while 29.69 percent felt they did not and 10.94 percent were not sure.

Trainers were especially supported on having good communication skills and mastery of content according to a total of 67.21 and 70.49 percent respectively. However 21.31 percent and 24.59 percent respectively said they were not sure. These finding agree with those of other researchers like Ngetuny (2013) who

recommended that qualified professional should be used to facilitate in-service education.

Findings from trainersô responses to selection of district trainers are given in table 4.18 shown below

Table 4.18 Mathematics trainers' responses on selection of trainers

	Statement	SA	A	NS	D	SD
i.	Post of district trainers was well-advertised	81.25	2.50	6.25	0.00	0.00
ii.	Trainers have adequate skills in ICT	0.00	12.50	0.00	62.50	25.00
iii.	Trainers have adequate skills in management	37.50	56.25	6.25	0.00	0.00
iv.	The trainers have good communication skills	75.00	25.00	0.00	0.00	0.00
v.	Trainers have good mastery of content	93.75	6.25	0.00	0.00	0.00

N=16

Table 4.18 indicates 81.25 percent of the trainers strongly agreed that the post of trainers was well advertised. Trainers lacked adequate skills in ICT according to 62.25 percent and 25.00 percent. Concerning management and communication skills, trainers agreed at 56.25 and 37.50 and 75.00 and 25.00 percent respectively. They were rated as very good at mastery of content by 93.75 percent of the trainers. As indicated above none of the trainers felt that

they were lacking in management skills, communication skills and mastery of content.

In an interview, DQASOs and INSET centre principals were asked to explain the procedure followed during recruitment and selection of district trainers. Their responses were similar probably because they both are members of the same committee that selects the trainers. All agreed that they follow the procedure and qualifications stipulated in the CEMASTEA Handbook on management of INSET at district level. The post is advertised and requirements stipulated on the advert.

One host principal however indicated that they faced a problem of having to choose trainers from candidates who did not meet all the requirements because only a few had applied. A few of the trainers for the newer INSET centres had not attended all the four SMASSE cycles as required and some were not HODs. When asked to comment, two DQASOs agreed on the shortage of qualified candidates but said they did not know the reason. One respondent said it could be due to a short time of advertisement.Three DQASOs said there was need to be allowed time to go through the applications and scrutinize the applicants qualifications before inviting them for interviews.This could be the reason Sasaki and Muta (2008) found that district trainers were not well prepared for their tasks.

4.5 Supervision of teachers and implementation of mathematics in-service training

Another objective of the study was to establish the extent to which DPC supervision of trainees influences implementation of in-service training. All the respondents were asked to respond to questions concerning supervision during the INSET. The specific questions are given with the responses.

Teachersô responses are summarised in table 4.19 below

Table 4.19 Teachers' responses on supervision

	Statement	SA	A	NS	D	SD
i	Attendance registers are used During the INSET	85.25	14.75	0.00	0.00	0.00
ii	Those who do not attend INSET are required to explain to the DPC	3.28	11.46	24.59	45.90	14.75
iii	Increased supervision would enhance Implementation of INSET	65.57	16.39	8.20	6.56	3.28
iv	CEMASTEA officials visit to observe INSET implementation	0.00	0.00	6.56	63.93	29.51
v	DPC officials observe lesson Presentation during INSET	13.11	18.03	13.11	44.26	11.47

N=61

Table 4.l9 shows that all trainees agreed that attendance registers were used during the INSET (85.25 percent). Majority of the trainees (45.90 percent) felt that those who do not attend the INSET are not required to explain to the DPC while 24.59 were not sure. According to 65.57 and 16.39 percent, increased supervision would enhance implementation of INSET. All trainees except 6.56

percent responded that CEMASTEA officials do not visit during the INSET as shown by 63.93 and 29.51. A majority 44.26 said that DPC official observe lesson presentation during INSET. Ngetuny (2013) also mentions lack of supervision as one of the impediments to implementation of SMASSE in Baringo County.

The responses of trainers to supervision of teachers are summarised in the table 4.20 below

Table 4.20 Responses of trainers on teachers' supervision

	Statement	SA	A	NS	D	SD
i	Attendance registers are kept During the INSET	93.75	6.25	0.00	0.00	0.00
ii	Those who do not attend INSET are required to explain to the DPC	37.50	43.75	12.50	0.00	6.25
iii	Increased supervision would enhance Implementation of INSET	68.75	25.00	6.25	0.00	0.00
iv	CEMASTEA officials visit to observe INSET implementation	0.00	6.25	0.00	83.75	0.00
v	DPC officials observe lesson Presentation during INSET	0.00	43.75	0.00	50.00	6.25

N=61

Table 4.20 indicates that attendance registers are maintained during INSET as shown 93.75 and 6.25 of the trainers. Majority 43.75 percent agreed that those who do not attend are required to get permission from the DPC while 37.50 strongly agreed. Increased supervision would enhance implementation of INSET as indicated by 68.75 and 25.00 percent. CEMASTEA officials do not

visit during the INSET according to 83.75 percent. A majority 56.25 percent said DPC official do not observe lessons during INSET while 43.75 agreed.

The DQASOs were asked to explain how they ensure that district trainers are prepared for the district INSET. All of them explained that district trainers are first taken for a national INSET where they are trained by national trainers on what they are supposed to cascade at the district level. On how they ensure that eligible teachers attend the INSET, the DQASOs also had similar answers. Two of them said that principals are given letters of invitation to address to the eligible teachers in their schools. The other two said that principals present the names to them and they write letters and send them through the principals. One DQASO said that sometimes the letters are send late when teachers have already made arrangements for the holiday.

Asked what happens to those teachers who do not attend SMASSE, they said that all teachers are aware that they should write letters seeking permission to be absent. None of the DPCs had taken any steps against a teacher since they always get the required 90 percent attendance. Asked how they ensure that teachers apply in-service innovations, two of the DQASOs said they make impromptu visits to school and observe lessons. On how they measure the competence of the trainers the DQASOs said they have known all of them as they have worked with them for years. One added that the make sure they listen to each one of them at least once as they present.

The principals were asked to state the policy of the DPC in ensuring that teachers implement what they learn. They said the DQASOs were supposed to make a follow up to ensure implementation. They also said that the HODs have been given the mandate to supervise ASEI/PDSI lessons. The principals have been sensitised on the SMASSE innovations during principalsô workshops and are also expected to superviseteachers.

4.6 Use of incentives and implementation of in-service training

Teachers and trainers were asked to respond to whether principals encourage teachers to attend in-service training, whether DPC provides adequate fares to and from INSET and whether DPC provides daily training allowances. They were also asked whether the certificates given after training have merit and whether allowances given to trainers are adequate.

Teachersô responses are summarised in table 4.21 below.

Table 4.21 Teachers' responses on use of incentives

	Statement	SA	A	NS	D	SD
i.	My principal encourages teachers to attend training	39.34	44.26	11.48	4.92	0.00
ii.	DPC provides adequate fares to and from training	0.00	59.02	3.28	29.51	8.20
iii.	DPC provides adequate daily training allowances	3.28	6.56	0.00	13.11	77.05
iv.	Certificates of completion give teachers merit	9.84	29.51	16.39	39.34	21.31
v.	Provision of allowances would improve INSET implementation	55.74	34.43	8.20	0.00	1.64

N= 61

According to table 4.21 most teachers who responded said that principals encourage teachers to attend training. Majority 44.26 percent agreed and 39.34 percent strongly agreed. Concerning fares, 59.02 percent said they were adequate while 29.51 percent disagreed.

On whether DPC provides daily training allowances 77.05 percent strongly disagreed. Of the respondents, 39.34 percent were of the opinion that the certificates given had no merit while 21.31 percent strongly disagreed. Majority of the teachers (55.74 percent) were of the opinion that provision of training allowance would enhance implementation of in-service training.

Trainers gave the responses summarised in table 4.22 below

Table 4.22 Response of trainers on use of incentives

Statement	SA	A	NS	D	SD
i. My principal encourages teachers to attend training	37.50	31.25.	12.50	18.75	0.00
ii. DPC provides adequate fares to and from training	12.50	12.50	0.00	56.25	18.75
iii Provision of allowances would Improve INSET implementation	75.00	25.00	0.00	00.00	0.00
iv Certificates of completion give teachers merit	0.00	37.50	18.75	37.50	6.25
v. Allowances given to trainers are adequate	0.00	0.00	0.00	12.5	87.50

N= 16

Table 4.22 shows that majority (37.50 and 31.25 percent) of the trainers said principals encourage teachers to attend training but 18.75 percent disagreed while 12.50 percent were neutral. A majority of 56.25 percent responded that fares provided were not enough. All trainers said there are no daily allowances given as shown by 75.00 and 25.00 percent who strongly agreed and agreed respectively. On the merit of certificates 37.50 percent agreed and an equal number said that they had no merit. All trainers were unanimous that allowances given to them were not adequate.

The DQASOs and INSET centre principals had similar answer when asked the criteria used to determine the amount of fares given to participants. Distance from the participantsô schools was the criteria used. When asked whether they feel INSET participants should be given training allowances all of them

responded that since last year (2013) they have given trainers allowances due to pressure from the teachers union KUPPET. The DPC is now providing a daily allowance to the teachers and that teachers are now comfortable during the INSET according to the DQASOs.Concerning certificates the DQASOs said that although they do not provide salary increments they are considered during interviews for promotion.

In response to how the DPC plans to increase motivation and participation of teachers during the INSET one host principal said the INSET centre plans to cooperate with nearby school so that they can share resources to allow trainees to have self-directed learning. Asked whether the teachers who attend the INSET are present and punctual for all the sessions there was a general agreement that some teachers attend SMASSE but boycott some sessions and their colleagues sign the attendance registers for them. One host principal said they had to deal with teachers resting outside when sessions were going on.

4.7 Choice of venue of training and implementation of in-service training

Teachers and trainers were asked questions concerning access to the INSET centre, accommodation facilities, meals, medical /first aid facilities and special diet. They also responded to questions about security, adequacy of training materials and state of the physical learning environment within the training venue.

Findings from the teachersô responses are given in table 4.23 below

Table 4.23 Teachers' responses on training venue issues

	Statement	SA	A	NS	D	SD
i.	Access to the centre is not a problem	32.79	18.03	3.29	29.51	16.39
ii.	Teachers should be accommodated outside the INSET school	75.41	21.31	3.28	0.00	0.00
iii.	Meals provided are satisfactory	34.43	47.54	0.00	18.03	0.00
iv.	Medical or first aid facilities are available	11.48	34.43	13.11	29.51	8.20
v.	There is adequate security in the training venue	36.07	37.50	19.67	3.29	1.64
vi.	Training material are adequate for the participants e.g. computers	9.84	21.31	9.84	37.50	19.67
vii.	The physical environment within the school motivates learning	49.18	19.67	14.75	13.11	3.29

N= 61

From table 4.23 above, 32.79 percent access to the centre was not a problem while 29.51 said it was. Almost all the teachers felt they should be accommodated outside the school during training (75.41 and 21.31 percent). Meals were satisfactory as indicated by 34.43 and 47.54 percent of the teachers. Medical or first aid facilities were available according to 34.43 percent and 11.48 who agreed and strongly agreed respectively. Security was available according to 36.07 and 37.50 percent of the teachers.. Training materials were not adequate as shown by 37.50 percent. The physical environment of the training venue was said to

motivate learning by 41.18 and 19.67 percent of the trainees. The findings agree with Sasaki and Muta (2009) on poor accommodation but disagree on quality of meals.

On issues touching the training venue trainers gave the responses summarized in table 4.24 below

Table 4.24 Trainers' responses on training venue concerns

	Statement	SA	A	NS	D	SD
i.	Access to the centre is not a problem	37.50	43.75	0.00	12.50	6.25
ii.	Teachers should be accommodated outside the school centre	62.50	31.25	6.25	0.00	0.00
iii.	Meal provided are satisfactory	37.50	31.25	0.00	31.25	0.00
iv.	Medical or first aid facilities are available	6.25	31.25	37.50	25.00	0.00
v.	There is adequate security in the training venue	12.50	31.25	37.50	12.50	6.25
vi.	Training material are adequate for participants e.g. computers	0.00	31.25	12.50	37.50	18.75
vii.	Physical environment within the school motivates learning	18.75	43.75	12.50	6.25	18.75

N=16

From table 4.24 above, 43.75 percent of the trainers agreed that access to the centre was not a problem while 37.50 strongly agreed. Majority 62.50 percent strongly felt that trainees should be accommodated outside the school while another 31.25 percent agreed. Response on meals shows that 37.50 percent

said the meals were satisfactory, 31.25 percent strongly agreed, but another 31.25 percent disagreed. A Majority (37.50 percent) were not sure about adequacy of security within the training venue while 31.25 percent felt it was. Majority 37.50 and 18.75 percent of the trainers said training materials were not adequate while 31.25 percent said they were adequate. Concerning the physical learning environment, majority (43.75 & 18.75 percent) responded that it motivates learning while 25 percent disagreed. From the findings on training venue questions, teachers are not satisfied with the management of INSET.

The DQASOs were asked to respond to who chooses the training venue. They responded that using schools for INSET centre was a policy from the Ministry of Education though CEMASTEA stipulated in the document ôWorkshop on Effective Operation and Management of SMASSE Project (2002)ô. A school with good facilities is identified by the DPC then upgraded using SMASSE funds to serve as an INSET centre. Concerning the question on who chooses the menu for the teachers DQASOs said CEMASTEA determines the amount of money to be spend on each participant and it is given to the entre Principal. According to them the funds are adequate for a good menu.

Concerning adequacy of materials the DQASOs said that the DPC acquires materials every financial year and so the numbers accumulate with time. One said some of the INSET centre principals are not cooperative and gave an example of their centre where the principal locked the computer rooms when

trainers were supposed to learn ICT integration in education because the DPC had not met her demands.

When asked who decides on the menu for the teachers the centre principals said CEMASTEA gives the guidelines and the funds. They however said that they get issues with the DPC not surrendering the money in early enough to allow for purchases. They also felt the money is not always enough to cater for even the staff. Due to pressure from the teachers union KUPPET, three principals said they no longer accommodate teachers in the school. One said that she still accommodates a section of them who cannot get to the centre daily due to the terrain of the area. Asked whether INSET centre schools are advantaged the centre principals said the school is usually upgraded with SMASSE funds.

4.8 Timing of in-service training and implementation of in-service training

Respondents were asked whether they agree that school holidays are best suited for the INSET. The INSET centre principals were specifically asked to say the effect this would have on their students. Those who disagreed were asked to suggest a more suitable time.Majority of the teachers (86.89 percent) said they did not support scheduling of INSET during the holiday. They suggested a week within the term. However a relatively small number (13.11 percent) said holidays were the best time. Majority of the trainers (68.75%) said that school holidays were not suitable for INSET and suggested first week of the term. A few did not specify the week. A significant 31.25 percent did

not mind attending SMASSE over the school holidays. Some of the teachers said holidays were meant for them to stay with their families. Similar findings were put forward by Ngesa (2013) in her study on Factors Influencing Teachers Perception of SMASSE in Westlands District, Kenya.

Respondingto the hesitation of teachers to attend INSET during the holidays three of the DQASOs said the complaints of the teachers were valid since some of them were actually attending school based academic programmes. They said that they and some trainers also had to miss INSET to attend college. They suggested that training can take place during the first or last week of the term. One of them said that trainers are forced to overwork when some of them go for studies.

On the other hand the INSET centre principals said that the resources in the school would not be adequate for both teachers and students. According to them, their schools would be expected to close early and this would affect syllabus coverage. Asked whether they would consider compensating the mathematics and science teachers for attending training when the others are on holiday both the DQASOs and principals sampled said it would not be a good idea since it may not be sustained or replicated to other in-service programs. These findings are in agreement with Ndirangu (2013) whose findings also showedthat teachers are opposed to holiday in-service.

CHAPTER FIVE

SUMMARY, CONCLUSSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the main findings of the study, conclusions and recommendations. It also gives suggestions for further research. The findings and conclusions are presented according to the research objectives.

5.2 Summary of the study

The study set out to investigate the influence of District Planning Committee governance practices on implementation of mathematics in-service training in Makueni County. It was necessitated by teachers concerns which culminated in boycotts of INSETs as teachers stormed out of INSET centres due to governance issues. The study sought to determine how selection of trainers, supervision of teachers , use of incentives, choice of training venue and timing of in-service training influences implementation of mathematics in-service at the district INSET. The researcher used a survey design to establish the views of the respondents towards the governance of in-service training at the district level. A total of 64 mathematics teachers, 16 mathematics trainers, four DQASOs and four INSET centre principals were used as respondents.

To choose the respondents a combination of quota, purposive and random sampling was used. Quota sampling enabled the researcher to choose schools from each SMASSE district in Makueni County. Foursets of questionnaires were administered, one to mathematics teachers and another to mathematics

trainers, DQASOs and INSET centre principals. All the research instruments had questions covering the five study objectives. The findings of the study were then analysed using excel and SPSS and then presented in tables, pie charts and percentages. The data was summarised using descriptive and inferential statistics.

5.3 Summary of findings

Analysis of the data enabled the researcher to come up with major findings which include the following; Trainers were rated as highly competent in management, communication and in mastery of content by majority of the teachers.Demographic information of trainers showed that most of them have over tenyearsô experience as trainers.Selection of trainers has not been common since those who were chosen when SMASSE started have are still in office. Most teachers may not be in a position to give an informed opinion on their selection. They were however rated as lacking in ICT skills. ICT development is a new field which the trainers may not have had a chance to experience unlike the young teachers. Secondly supervision of lesson delivery by principals, deputy principals and HOD is lacking. It was rated as low as less than 10 percent. The Quality Assurance Officers had a higher score of about 40 percent which is still below average.

Teachers are provided with adequate fare to the training venue although training allowances are not given. A majority of teachers (90.17%) responded that

provision of daily training allowances would motivate teachers to own the training.Teachers should be accommodated outside the training venue as indicated by97.72 percent of the teachers. Teaching and learning materials are not adequate at INSET centres for the numbers that attend SMASSE. There is need to decrease the learner: material ratio for training to be effective and ease governance of the INSET. Without enough teaching/learning materials, teachers may not be fully occupied during the INSET and this may encourage misconduct and boycotts. Teachers, DQASOS and trainers were of the opinion that In-service training should be conducted within the term since some of them attend professional studies over the holidays. Others said that they need time with their families

5.4 Conclusion of the study

From the findings of the study the following conclusions can be made; Trainers are selected as per the policy laid down by CEMASTEA and teachers had a high opinion of their performance except in ICT skills.The study also concluded that supervision of lessons by DPC officials is wanting both during the INSET and in schools. Both teachers and trainers were in agreement that teachers participating in in-service should be given daily allowances to motivate them and enhance running of the INSET. The same should apply to trainers when they attend the national INSET.

The training venue did not have enough teaching/learning materials but they enhanced learning. Teachers felt Accommodation should be delinked from

training venue as teachers are demotivated by sleeping in studentsô dorms. INSETs should be scheduled within the term to allow educational staff to attend professional courses during the holidays and also to attend to personal and family issues.

5.5 Recommendations

From the study findings and the conclusions made the following recommendations can be made;

i) During selection of trainers the DPC should emphasize on ICT skills since presentations are done using PowerPoint.

ii) The principals, deputy principals and HOD under the guidance of Quality assurance officers should be sensitized to increase levels of supervision during the INSET.

iii) The Ministry of Education should review use of incentives during in-service training of teachers

iv) The DPC should increase learning materials in the centre so that teachers can enhance their learning. CEMASTEA should inspect SMASSE centre to ensure DPCs have improved them and provided the necessary learning materials. Although it may be necessary that teachers train in school setting, accommodation can be provided outside the school so that they donôt feel reduced to the level of students.

v) The ministry should create time within the term to hold INSETs because some teachers and trainers attend other courses over the holidays.

5.6 Suggestions for further research

The study came up with the following suggestions for further research.

i) For generalization purposes another study should be carried out in a different area since this one was carried out in Makueni County only.

ii) A study should be carried out on other science subjects as this one involved only mathematics teachers and trainers.

iii) A comparative study should also be undertaken in primary schools to compare the management and implementation of the INSETs

iv) A repeat of this study should be carried out after sometime to see if there are any changes in management of SMASSE since the teachers involved in this study did not participate in this yearôs (2014) in-service training.

REFERENCES

Adepoju T.L (1998*). Fundamental of School Administration, Planning and Supervision in Nigeria.* Ibadana; Alafas Nigeria at Company**.**

Bagehot, W. (Sep 11, 1986). *The Collected works of Walter Bagehot, Vol. 15.* Cambridge. Britain.

Best, J.W. & Kahn, J. V. (1998). *Research in Education.* Allyn and Bacon. Boston.

Bunting, A. (2004). ó*Secondary schools Designed for a purpose: but which one?*ô

CEMASTEA, (2008). *Hand Book on Management of District SMASSE Programmes*. Nairobi

Dylan, W. (2007*). Changing Classroom Practice.* Educational Leadership, 65 (4), 36-42

Earthman, G. (2004).*'Prioritization of 31 Criteria for School Building Adequacy'*.

Ellis, J. (2005). *Place and Identity for children in Classroom and school*. Journal of the Canadian association for Curriculum Studies.Vol.3 No. 2.

Euler, M. (2011). *Survey report on Inquiry Based Learning and Teaching.* PRIMAS.

Fullan, M. (1996). *The New Meaning of Educational Change*. Toronto, OISE Press

Gay, L. & Airasian, P. (2000). *Educational Research: Competencies for Analysis and application*. Prentice Hall. New Jersey.

Hammond, D. L. & Bransford, J. (2005*). Preparing Teachers for a Changing World.* SanFrancisco. Jossey-Bass.

Jackson, S., Schwab, R. & Schuler, R. (1986). *Toward an Understanding of the Burnout Phenomenon.* Journal of applied Psychology, 71(4)

JICA, (2007). *Report on the Final Evaluation of Phase II of SMASSE Project*, Unpublished, CEMASTEA, Nairobi, Africa

Khan, M. A. (2014*). Eight Elements of Good Governance*. Pakistan

Kibe, S., Odhiambo, J.O. & Ogwel, J. (2008*). Impact of SMASSE INSET on Students' Capacity through Improved Teaching and Learning in the Classrooms*. SMASSE WECSA, Nairobi.

Klein, K. J., & Sorra, J. S. (1996*). The Challenge of Innovation Implementation*. The Academy of Management Review.

Kombo, D. & Tromp, L. (2006*). Proposal and Thesis writing.* Paulineôs publication Africa. Nairobi

Leo, T. (2008). *The Power of Data: Enhancing Transparency in the Education Sector in Sierra Leone.* U4 Brief 22, Bergen. Chr. Michelsen Institute.

Lipman, V. (2013). *7 management practices that can improve employee productivity.*

Locke, D. (2007). *Project Management (9th edition).* Gower Publishing Ltd. United Kingdom.

Luthans, (2011). *Organizational Behaviour: An Evidence Based Approach.* New Delhi

Mahfroz, S. & Havde, K. (2010*). Supervision of Primary and Secondary Education. A five Country Comparison. http://www.wordbank.org*

Makueni SMASSE, (2009). *Report on KCSE Performance in mathematics*. Unpublished.

Mason, J. (2002). *Qualitative Research.* Sage publications. London.

Medlin, B. D. (2001). *The Factors That May Influence A Faculty Member's Decision To Adopt Electronic Technologies In Instruction,* (Doctoral dissertation, Virginia Polytechnic Institute and State University).

Miheso, M. O. (2003). *Rationale for Creating New SMASSE INSET Centres*. Nairobi. SMASSE.

MoE, (2005). *Kenya Education Sector Support Programme (KESSP).*MoE, Nairobi.

MoEST, (2005). *Kenya Education Sector Support Programme 2005-2010. Delivering Quality Education to all Kenyans*. Nairobi.

Morris, P. (1985). *Teachers' Perceptions of the Barriers to the Implementation of a Pedagogic Innovation:* A South East Asian case study. International Review of Education, 31(1), 3-18.

Mugenda , O. & Mugenda, A. (2003). *Research Methods.* Acts Press. Nairobi.

Mutahi, K. (2008). *Increasing Effectiveness of South-South Cooperation: the Case of SMASSE Kenya and SMASE-WECSA,* Expo on 18 December 2008 at U.N. Headquarters/New York)

Ndirangu, C. W. (2013). *Factors Influencing Teachers Level of Implementation of Strengthening of Mathematics and Science Secondary Education (SMASSE) innovation in Nyeri County, Kenya*.Ph.D Thesis. Nairobi.

Ndirangu, C. W. (2006). *An Evaluation of SMASSE In-service Project in Biology in Kajiado District.* Masterôs in Education Project: Published. VDM.

Ngetuny, W. K. (2013). *Factors Affecting the Success of Strengthening of Mathematics and Science Education initiative in Secondary Schools in Koibatek Sub-County, Baringo County, Kenya*.Masters Project. JKUAT. Nairobi

Nui, N.W. & Wahome, A.N. (2006). *SMASSE Project*. *Tsukuba Journal of Educational Study in Mathematics*. Vol. 25. Japan.

Nyerere, J. K. (1988). *20 Years of Education for Self-Reliance*. Paper presented at the Chakiwata Symposium, Moshi, Tanzania.

Ornstein, A. C., & Hunkins, F. P. (2009). *Curriculum: Foundations, principles and issues.* Allan. Bacon.

Orodho, A. J. & Kombo, D. K (2002*). Research Methods.* Nairobi. Kenyatta university, institute of open learning.

Orodho, A. J. (2005*). Elements of Education and Social Science Research Methods*. Maseno, Kanezja publishers

Paine, L. W. (1990). "The Teacher as Virtuoso: A Chinese model for teaching" Teachers College Record 92, 49-81.

Patrick, F. (2006*). How to Motivate People (2nd Edition*). KoganPage. Limited.

Pinto, J. K. & Prescott, J. E. (1990). *Planning and Tactical Factors in the Project Implementation Process'*. J Management Studies.305 -325

Raywid, M. A. (1993). *Finding Time for Collaboration*. Education Leader. 51(1)

Rogers, E. (2003*). Diffusion of Innovations (5thed.).* New York: The Free Press.

Rogers, E. (2004). *A Prospective and Retrospective Tool at Diffusion Model.* Journal of Health Communication.

Rosenhead, R. (2008). *Project Management Teams- How Are Yours Selected*. www.projectagency.co.uk.

Sasaki, R. & Muta, H. (Sep.2008*). Statistical Analysis of data on SMASSE Project Impact Assessment Survey,* Unpublished, JICA, Tokyo, Japan

Simms, B. (2008). *Discover the 7 Hidden Qualities of an exceptional Trainer.* HubPages.

SMASSE, (1998*). The Baseline Studies for the SMASSE Project* (Unpublished)

SMASSE, (2002*). Effective Operation and Management of SMASSE project*. unpublished stakeholders report.

SMASSE, (2002).*'Effective Operation and Management of the SMASSE Project.'* Workshop at KSTC. Nairobi.

SMASSE, (2008). *Deputy Principals' workshop manual.* (Unpublished).

The Standard Newspaper, (Wednesday, 27th April 2011). *Teachers fault training programme'.*

UNESCO, (2006). *Teachers and Educational Quality: Monitoring Global Needs for 2015.* Montreal. Unpublished.

Waititu, M. (July 2008). *Sustainability of the Gains of SMASSE*. Unpublished paper presented at Nyeri Principalsô Workshop.

Watts, G. D. & Castle, S. (1993). *The Time Dilemma in School Restructuring*. PhiDelta. Kappas

Williamson, M. G. & Clevenger, B. M. (2008). *Rethinking Teacher Capacity.* New York. Routledge.

APPENDIX A

INTRODUCTION LETTER

Kamoya Damaris Mwende

University of Nairobi

P.O Box 30197-00100

NAIROBI.

The County Director

Makueni County

Dear Sir/Madam,

RE: REQUEST FOR RESEARCH DATA COLLECTION

I am a post-graduate student registered at the Department of Educational Administration and Planning, University of Nairobi. I am currently carrying out a research on Influence of Governance Practices on Mathematics In-Service Training Implementation in Makueni County, Kenya**.** I request to be allowed to carry out the study in the schools in your County.

Thank you in advance,

Yours Faithfully,

Kamoya Damaris Mwende

APPENDIX B

QUESTIONNAIRE FOR MATHEMATICS TEACHERS

This questionnaire is for the purpose of research only. Do not write your name anywhere. The respondentsô identity will be kept confidential. Please respond to all the questions with a tick (ã) in the appropriate bracket or fill in your honest response.

Section A. Background information

1. What is your gender? Male ( ) Female ( )

2. What is your age bracket in years?

Below 36 ( ) 36-44 ( ) 46-54 ( ) Above 54 ( )

3. What is your highest professional qualification?

Masters ( ) B.Ed ( ) BSc & PGDE ( ) Diploma ( )

Other (Specify)é é é ..

4. What is your teaching experience in years?

6-15 ( ) 11-15 ( ) 16-20 ( ) 21-25 ( ) 26-30 ( ) Above 30 ( )

5. How many SMASSE cycles have you attended?

Four ( ) Three ( ) Two ( ) One ( ) None ( )

6. What responsibilities do you hold in your school?

Principal ( ) D/Principal ( ) HOD ( ) HOS ( ) Class teacher ( )

Other (Specify)_____

Section B: Selection of district trainers

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA- Strongly Agree A- Agree NS- Not sure D- Disagree SD-Strongly disagree

	Statement	SA	A	NS	D	SD
i	Post of district trainers was well advertised					
ii	Trainers have adequate skills in ICT					
iii	The trainers have adequate skills in management					
iv	The trainers have good communication skills					
v	The trainers have mastery of content					

Section C: Supervision of teachers

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA- Strongly Agree A- Agree NS- Not sure D- Disagree SD-Strongly disagree

	Statement	SA	A	NS	D	SD
i	Attendance registers are kept During the INSET					
ii	Those who do not attend INSET are required to explain to the DPC					
iii	Increased supervision would enhance Implementation of INSET					
iv	CEMASTEA officials visit to observe INSET implementation					
v	DPC officials observe lesson Presentation during INSET					

Section D: Use of incentives

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA-Strongly Agree A-Agree NS-Not Sure D-Disagree SD-Strongly Disagre

	Statement	SA	A	NS	D	SD
i	My principal encourages teachers to attend training					
ii	DPC provides adequate fares to and from training					
iii	DPC provides adequate daily training allowances					
iv	Certificates of completion give teachers merit					
v	Would provision of incentives motivate Teachers to participate in INSET					

Section E: Training venue

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA-Strongly Agree A-Agree NS-Not Sure D-Disagree SD-Strongly Disagree

	Statement	SA	A	NS	D	SD
i	Access to the centre is not a problem					
ii	Accommodation facilities are satisfactory					
iii	Meals provided are satisfactory					
iv	Medical or first aid facilities are available					
v	There is adequate security in the training venue					
vi	Training materials are adequate e.g. computers					
vii	Teachers should be accommodated Outside the centre school					

Section F: Timing of in-service training

i. Do you feel that school holiday is the appropriate time for teacher in-service training?

Explainé é é é é é é é é é é é é é é é é é é

ii. If your answer for Q1 is NO suggest a more suitable time.

Thank you

APPENDIX C

QUESTIONNAIRE FOR INSET MATHEMATICS TRAINERS

This questionnaire is for the purpose of research only. Do not write your name anywhere. The respondentsô identity will be kept confidential. Please respond to all the questions with a tick (ã) in the appropriate bracket or fill in your honest response.

Section A: Background information

1. What is your gender? Male ( ) Female ( )

2. What is your age bracket in years?

Below 35 ( ) 35-44 ( ) 45-54 ( ) Above 54 ( )

3. What is your highest professional qualification?

Masters ( ) B.Ed ( ) BSc & PGDE ( ) Diploma ( )

Other (specify)é é é ..

4. What is your teaching experience?

6-10 ( ) 11-15 ( ) 16-20 ( ) 25-30 ( ) Above 30 ( )

5. For how many years have you been a trainer?

Below 5 ( ) 5-9 ( ) 10-14( ) 15-19 ( ) 20-25 ( )

6. What responsibilities do you hold in your school?

Principal ( ) D/Principal ( ) HOD ( ) Other (Specify)é é é é é é ..

Section B: Selection of district trainers

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA- Strongly Agree A- Agree NS- Not sure D- Disagree SD-Strongly

disagree

	Statement	SA	A	NS	D	SD
i	Post of district trainers was well advertised					
ii	Trainers have adequate skills in ICT					
iii	The trainers have adequate skills in management					
iv	The trainers have good communication skills					
v	The trainers have mastery of content					

Section C: Supervision of teachers

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA- Strongly Agree A- Agree NS- Not sure D- Disagree SD-Strongly disagree

	Statement	**SA**	**A**	**NS**	**D**	**SD**
i	Attendance registers are kept During the INSET					
ii	Those who do not attend INSET are required to explain to the DPC					
iii	Increased supervision would enhance Implementation of INSET					
iv	CEMASTEA officials visit to observe INSET implementation					
v	DPC officials observe lesson Presentation during INSET					

Section D: Use of incentives

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA-Strongly Agree A-Agree NS-Not Sure D-Disagree SD-Strongly Disagree

	Statement	SA	A	NS	D	SD
i	My principal encourages teachers to attend training					
ii	DPC provides adequate fares to and from training					
iii	Certificates of completion give teachers merit					
iv	Allowances given to trainers are adequate					
v	Provision of incentives would motivate trainers					

Section E: Training venue

Please consider the given statements and indicate your opinion by ticking in the appropriate column.

KEY: SA-Strongly Agree A-Agree NS-Not Sure D-Disagree SD-Strongly Disagree

	Statement	SA	A	NS	D	SD
i	Access to the centre is not a problem					
ii	Accommodation facilities are satisfactory					
iii	Meals provided are satisfactory					
iv	Medical or first aid facilities are available					
v	There is adequate security in the training venue					
vi	Training material are adequate for the Participants e.g. computers					
vii	The physical environment within the school Motivates learning					

Section F: Timing of in-service training

i) Do you feel that school holiday is the appropriate time for teacher in-service training?

Explainé é é é é é é é é é é é é é é

ii) If your answer for Q1 is NO suggest a more suitable time.

Thank you

APPENDIX D

INTERVIEW SCHEDULE FOR DISTRICT QUALITY ASSURANCE AND STANDARDS OFFICER

This interview schedule is for the purpose of research only. The respondentsô identity will be kept confidential. Please respond to all the questions honestly.

Section A: Background information

1. What is your age?

Below 35 ( ) 35-44 ( ) 45-54 ( ) Above 54 ( )

2. What are your highest academic/professional qualifications?

Masters ( ) B.Ed. ( ) B.Sc. & PGDE ( ) Diploma ( )

Other (Specify)é é é é é é

3. For how many years have you served as a DQASO?

Below 5 ( ) 5-9 ( ) 10-14 ( ) 15-19 ( ) Above 20 ( )

4. Have you participated in SMASSE workshops for QASOs?

Yes ( ) No ( )

Section B: Selection of trainers

5. What is the procedure followed in recruiting and selecting district trainers?

6. What qualities are required for one to qualify as a district trainer?

7. Do you always get all the qualities you require in the trainers who apply?

8. What improvements in recruitment and selection of trainers would you recommend to the DPC?

Section C: Supervision of teachers

9. How do you ensure that district trainers are prepared for the INSET?
10. How do you ensure that eligible teachers attend the INSET?
11. Are there consequences for teachers who do not attend? Explainé é é .
12. How do you ensure that teachers apply in-service innovations in their schools?
13. How do you measure competence of trainers in content delivery during the INSET? é é é é é é é é

Section D: Use of incentives

14. What determines the amount of fares given to participants?

15. What is your view on giving training allowances to in-service participants?

16. Are the certificates given to participants useful during promotions?

17. What is the plan of the DPC to increase motivation and participation of teachers during INSET?

18. Do the teachers who come for the INSET attend all sessions? Do they keep time? How do you ensure that?

Section E: Training venue

19. What is your response to the concerns of teachers about poor boarding facilities?

20. How do you rate the meals provided to the trainees at the INSET centre?

21. What is your opinion on preparedness of the centre in-charge staff on service to the trainee teachers?

22. What is the DPC doing to address teachers complains concerning poor meals and accommodationé é é é é é é é é é é é é é é é é .

Section F: Timing of In-service training

23. What is your response to teachersô hesitation to attend INSET during school holidays? .....

24. Are teachers compensated in any way for attending In-service training when other teachers are on holiday? .....

25. How would you respond to the suggestion that teachers should attend in-service training when schools are on-going?

Thank you.

APPENDIX E

INTERVIEW SCHEDULE FOR INSET CENTRE PRINCIPAL

This interview schedule is for the purpose of research only. The respondentsô identity will be kept confidential. Please respond to all the questions honestly.

Section A: Background information

1. What is your age?

Below 35 ( ) 35-44 ( ) 45-54 ( ) Above 54 ( )

2. What is your highest academic qualification?

Masters ( ) B.Ed. ( ) B.Sc. &PGDE ( ) Diploma ( )

Other (Specify)é é é é é é é é é .

3. For how many years have you served as a principal?

Below 5 ( ) 5-9 ( ) 10-14 ( ) 15-19 ( ) Above 20 ( )

4. Have you participated in the SMASSE workshops for principals?

Yes ( ) No ( )

5. For how many years have you served as SMASSE INSET centre principal?

Below 5 ( ) 5-9 ( ) 10-14 ( ) 15-19 ( ) Above 20 ( )

Section B: Selection of district trainers

6. What is the procedure followed by the DPC in recruiting and selecting district trainers?

7. What qualities are required for one to qualify as a district trainer?

8. Do you always get all the qualities you require in the trainers who apply?

9. What improvements in recruitment and selection of trainers would you

recommend to the DPC?

10. What extra qualities would you wish the DPC to consider in trainers as an INSET centre principal?

Section C: Supervision of teachers

11. What is the policy of the DPC in ensuring that teachers implement what they learn during in-service?

12. How often is supervision on implementation of SMASSE innovations done in your school? Who does it?

13. How often do Quality Assurance and Standards officers visit your school to observe teaching and learning?

14. Do your teachers readily accept and implement lesson study.

Section D: Use of incentives

14. What determines the amount of fares given to participants?

15. What is your view on giving monetary incentives to in-service participants?

16. Are the certificates given to participants useful during promotions?

17. How does the DPC intent to increase the motivation and participation of teachers during INSET?

18. Are the teachers who come for the INSET present and punctual in all the sessions? How do you ensure that?

Section E: Training venue

19. On what criteria was your school chose as the INSET centre?

20. Who makes decision on the menu for teachers during INSET?

21. Does the DPC provide enough funds for you to cater for teachersô accommodation comfortably?

22. What is your response to the concerns of teachers about poor boarding facilities?

23. Are there any benefits for a school being an INSET centre?

Section F: Timing of In-service training

24. What is your response to teachersô hesitation to attend INSET during school holidays? .....

25. Are teachers compensated in any way for attending In-service training when other teachers are on holiday? .....

26. How would you respond a suggestion that teachers SMASSE INSET should be scheduled during the school term?

Thank you

APPENDIX F

RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MS. DAMARIS MWENDE KAMUYA
of UNIVERSITY OF NAIROBI, 50-90125
KIKIMA,has been permitted to conduct
research in *Makueni County*

Permit No : NACOSTI/P/14/8804/2280
Date Of Issue : 30th June,2014
Fee Recieved :Ksh 1,000

on the topic: *INFLUENCE OF DISTRICT PLANNING COMMITTEE GOVERNANCE PRACTICES ON IMPLEMENTATION OF MATHEMATICS IN-SERVICE TRAINING IN MAKUENI COUNTY, KENYA*

for the period ending:
30th July,2014

.....
Applicant's Signature

.....
Secretary
National Commission for Science, Technology & Innovation

CONDITIONS

1. **You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit**
2. **Government Officers will not be interviewed without prior appointment.**
3. **No questionnaire will be used unless it has been approved.**
4. **Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**
5. **You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.**
6. **The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice**

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

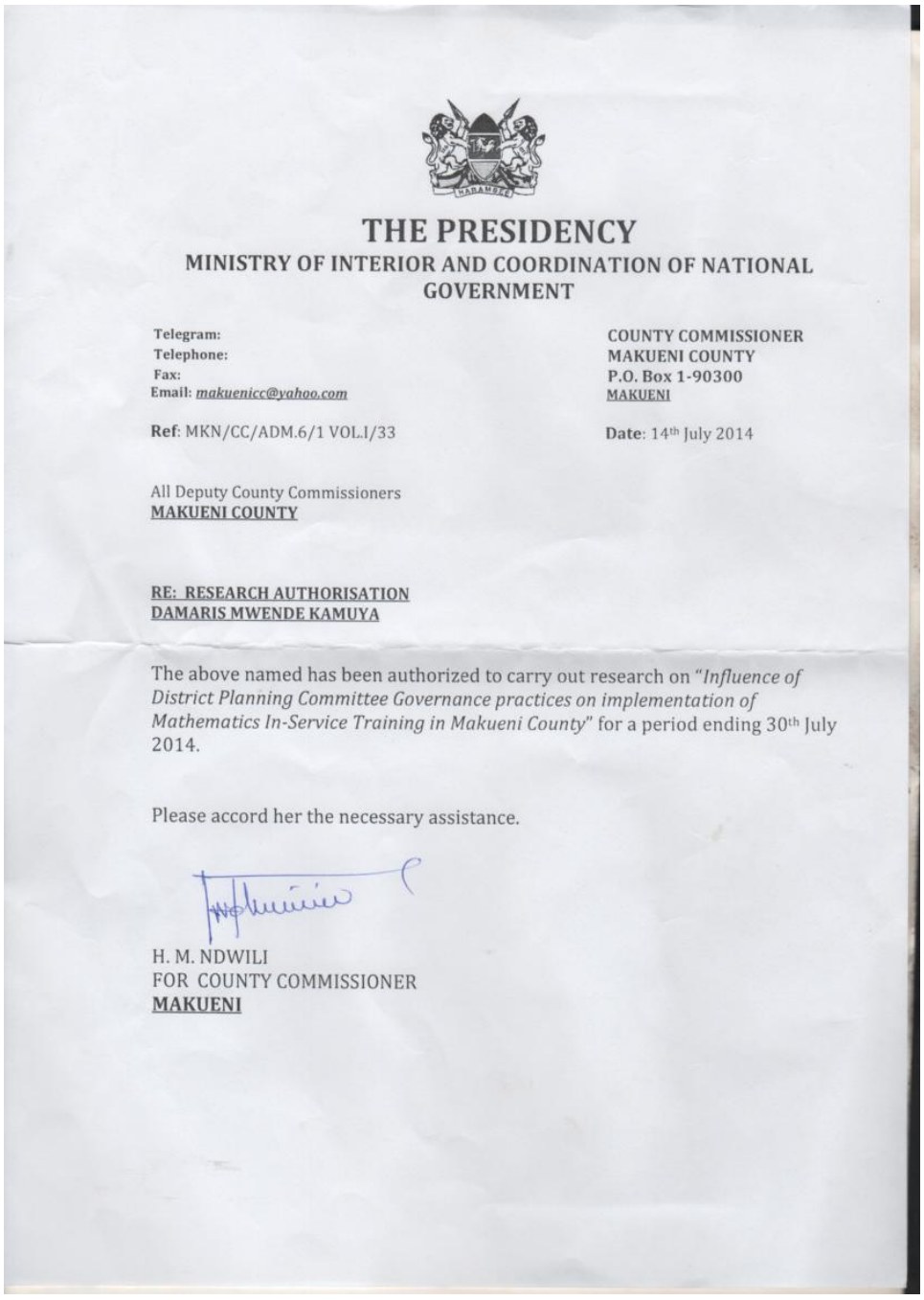
RESEARCH CLEARANCE PERMIT

Serial No. A 2092

CONDITIONS: see back page

APPENDIX G

LETTER OF AUTHORIZATION



THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegram:
Telephone:
Fax:
Email: *makuenicc@yahoo.com*

COUNTY COMMISSIONER
MAKUENI COUNTY
P.O. Box 1-90300
MAKUENI

Ref: MKN/CC/ADM.6/1 VOL.I/33

Date: 14th July 2014

All Deputy County Commissioners
MAKUENI COUNTY

RE: RESEARCH AUTHORISATION
DAMARIS MWENDE KAMUYA

The above named has been authorized to carry out research on "*Influence of District Planning Committee Governance practices on implementation of Mathematics In-Service Training in Makueni County*" for a period ending 30th July 2014.

Please accord her the necessary assistance.

H. M. NDWILI
FOR COUNTY COMMISSIONER
MAKUENI