

**ASSESSMENT OF THE ROLE OF CONTINUOUS
TRAINING AND DEVELOPMENT OF
SECONDARY SCHOOLS' TEACHERS.**

A CASE OF MERU SOUTH DISTRICT.

PRESENTED BY:

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DECLARATION

This project is my original work. The project has not been presented in any university for the award of degree.

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ABSTRACT

The purpose of this study was to assess the impact of continuous training and development of teachers in secondary schools' performance. Continuous training is the whole range of activities through which teachers can extend their personal education, develop their professional competence and improve their understanding of educational principle and techniques. The study explored the role of this continuous training and development.

A total of ninety six (96) teachers teaching in public secondary schools were interviewed. This was about half of the total population of sciences and mathematics teachers in secondary schools in the district hence produced a good representation of the total population whose results were generalized in the entire country.

The methods which were used to obtain the data were questionnaires comprised of closed-ended questions with minimal open-ended type of questions.

Data was analyzed using frequency tables and presented using bar graphs, pie charts and line-graphs.

DEDICATION

This study is dedicated to my wife Lucy Kainyu. She took the burden of taking care of our children while I was busy studying. Our children Doreen Mugure, Eunice Njeri, Esther Muthoni and Sammy Gitonga. Thank you for the support and understanding during the days I left you behind with mummy; it was during this studying period that Gitonga got sick. I was away during this trying moment for our only son. It was from you all, that I drew courage and strength to always face a new day, every time my own energy waned.

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DEFINITION OF TERMS

- Development:*** A form of personal improvement that usually consists of enhancing knowledge and skills of complex and unstructured nature.
- Education:*** Refers to the activities which aim at developing the knowledge, skills, moral values and understanding required in all aspects of life rather than knowledge and skill related to only a limited field of activity.
- In-Service:*** An activity which teachers undertake after they have began teaching that concerns their professional improvement. It covers all forms of training and development designed to help practicing teachers become more effective in their work.
- Training:*** A planned process to modify attitudes, knowledge or skill behavior through learning experience, effective program in an activity or range of activities.

ABBREVIATIONS

INSET	(In-service Education Training) the whole range of activities which teachers can extend their education, develop their professional competence and improve their understanding of educational principles and techniques.
J.I.C.A	Japan International Co-operation Agency
K.C.P.E	Kenya Certificate of Primary Education
K.C.S.E	Kenya Certificate of Secondary Education
S.M.A.S.S.E	Strengthening Mathematics and Sciences in Secondary Education
U.K	United Kingdom
U.N.E.S.C.O	United Nations Education Scientific and Cultural Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Training according to manpower service commission (1981) is a planned process to modify attitude, knowledge or skill behavior through training experience to achieve effective performance in a range of activities. Its purpose in the work situation is to develop the ability of the individual and to satisfy the current needs of the organization.

Development is a form of personal improvement that consists of enhancing knowledge and skills of a complex and unstructured nature (Andrew 2003). Hence development is concerned with preparing the employee so that they move with the organization as it grows.

Development is the skilful provision and organization of learning experiences in the workplace so that performance can be improved (Harrison 1982). Hence employee development must be a part of a wider strategy for the business aligned with the organization's corporate mission and goals.

In all countries of the world, it's extremely necessary to give teachers continuous opportunities of learning. With the ever-changing technology in the society, teachers will require continuous learning to keep pace with the change.

East African standard of June 10th 2000 reported that Kenya claims to have the least percentage of untrained teachers in sub Saharan Africa. As at the year 1999 January, out of the 186, 612 primary school teachers 6, 448 were untrained. Among these 82% had completed O level while the rest had a minimum of two years in secondary school education.

At secondary school level, out of the 40, 781 teachers, only 1, 359 were untrained; even then all untrained teachers in the country were either university graduates or holders of diplomas in technical disciplines.

Few countries in the sub-Sahara region could boast having less than 35% of their basic education teachers being untrained, but for Kenya, the current situation is that almost 97% of the primary and secondary school teachers in the country are trained.

Under such circumstances, one would expect Kenya to have a superior primary and secondary education system in comparison with most countries in the region. But so far, there is no linkage between the trained teachers and the performance in the national examination.

And whereas the Ministry of Education would like to boast of high number of trained teachers in the country the truth of the matter is that most of the teachers in both primary and secondary schools in Kenya today are not equally distributed in the country. The prevailing problem of poor teaching in mathematics and sciences started in the mid-eighties, when the government introduced the award policy of teachers working in their homes. Teachers were posted to their homes haphazardly creating positions that were filled with untrained teachers. Another cause of this problem was poor recruitment and actual training of schoolteachers. Most of the teachers joining primary colleges had scored D grade in KCSE. Such students are likely that, they obtained weak marks in languages and science subjects.

Because of poor preparation in primary schools, most students have come to hate mathematics and pure sciences in secondary School. This problem of students scoring poor

grades in mathematics and sciences is being felt in some district, where it is hard to get trainees for diploma in physics and mathematics combination.

The prevailing scenario also exists in public universities where 33% of all undergraduates study for Education arts degree. Sources at Kenyatta University said only less than 25 students graduate with physics and mathematics Bachelor of Education combination each year.

Consequently low enrolment in pure sciences is widespread in the country, a factor that attests the inability of teachers to handle science subjects. These factors have called to continuous training of science teachers in secondary schools to find out the responsibility of reversing the scenario.

The study is therefore designed to identify the impact of this training in solving some of these dismal performances in schools.

The project entitled Strengthening Mathematics and Sciences in Secondary Education (SMASSE) is the latest intervention to address the dismal performance in sciences and mathematics. The project aims at building the capacity of science teachers through continuous training while they are going on with their jobs for the next three years.

Through field surveys, the ministry of education and the Japan International Cooperation Agency (JICA) officials has identified attitude, poor teaching methods, inadequate assignments, lack of interaction among teachers and inadequate inspection as major reasons for poor performance in the subjects.

In Canada, the 1975 conference on teacher education Vancouver, British Columbia came to explain what forms continuing education should take once all teachers hold degrees. It was observed that performance of mathematics and science oriented subjects was wanting; hence

INSET programs were put in force to control the challenge. After a period of four years, assessment on the impact of this program was done and it was realized that tremendous improvement on students was being realized.

The parent commission in Quebec, the committee on teacher Education of the University of Prince Edward Island and the Alberta commission on Education planning all emphasized that assessment on the impact of continuous education should be carried out regularly. Where need for improvement is found wanting, quick measures should be taken.

In Britain, the James report and Faure report –*Learning to Be* also emphasized continuous teacher's education on both the teacher and the student. Impact was being assessed with the view of checking on how much change in attitude was being achieved in learners especially in science oriented subjects. After the assessments, statistics showed improved performance and positive change in attitude.

In England and Wales, there has been considerable variation in the amount, quality and efficiency on INSET that has been provided. This variation has resulted from continuous assessment of the previously provided in-service training programs. What has become clear over the years in many countries including the U.K and the United States is that once, in-service training has taken place, there is need to assess its role in order to justify its worthiness.

Teachers in Meru South District have undertaken four cycles of SMASSE INSET. There was need to identify the role of this program on performance of these subjects in secondary schools in the district.

1.2 STATEMENT OF THE PROBLEM

Performance in mathematics and sciences in Kenya has been wanting for a long period of time. This poor performance has slowly undermined the aims of Kenyan government to build an industrialized economy by the year 2020.

Teacher shortage and lack of laboratory equipment are to blame for poor performance in these subjects. In addition, teachers do not give regular assignments in mathematics owing to the large number of students in classes.

According to statistics from the Ministry of Education at Jogoo House; Nairobi, some schools in Kenya have a minimum of fifty students in a class. Giving 10 assignments a day means marking 50 books with 500 answers. This is too much for a teacher.

Although most primary school pupils do well in Kenya Certificate of Primary Education (KCPE) in Mathematics, upon joining secondary schools they are discouraged by senior students who have labeled the subjects as tough and boring.

It is equally true that good performance in these subjects depends with the teacher. Sometimes the teacher has to improvise some of the equipment, as the school is not in a position to buy. By improvising, the teacher uses some items alone hence students do not learn anything by doing practice. It is the teacher who does everything while the students are bystanders when they should be the ones conducting the experiment.

It is after all these problems and considerations that the government of Kenya embarked on improving the performance of mathematics and sciences. Its efforts have been dubbed as strengthening of mathematics and sciences in secondary education otherwise known as SMASSE.

The first phase of SMASSE project commenced in July 1998; following a request by the government of Kenya to upgrade the capability of young Kenyans in mathematics and sciences. SMASSE is a joint venture between the ministry of education, science and technology and JICA.

In order to reverse the trend, the project has recognized the need to enhance the quality of teaching in terms of attitude, teaching methodology, mastery methodology, mastery content assessment, resource mobilization and utilization through In-Service Education Training (INSET).

In Meru South District SMASSE INSET cycles have taken place for the last four years. There is need to evaluate the impact of these cycles among students, teachers, head-teachers and performance of these subjects in the secondary schools. This study was designed to focus on the role of SMASSE INSET cycles on performance of these subjects in Meru South district.

1.3 OBJECTIVES OF THE STUDY.

The specific objectives are;

- i) To assess the methods used by teachers in learning/teaching of mathematics and sciences.
- ii) To find out how often in-service training and development courses are offered to teachers in secondary schools in Meru South.
- iii) To evaluate the effects of continuous training and development courses in performance of teachers in Meru South.

1.4 RESEARCH QUESTIONS

In conducting the study, the researcher will seek to answer the following questions:

- a) Are appropriate methods being used by teachers teaching mathematics and sciences in secondary schools?
- b) How often are in-service training and development courses offered to teachers in the district?
- c) How does in-service training and development affect performance and discipline in schools?
- d) What are the reactions of the teachers and the secondary school heads towards the courses and programs of in-service training and development?

With these questions the researcher aimed to establish the need for assessing the role of in-service training in science and mathematics for secondary school teachers. This role will justify the much resources invested in the INSET courses. The research then came up with various recommendations on the need to identify and improve in-service training and development for secondary school teachers.

1.5 SIGNIFICANCE OF THE STUDY

The researcher set out to examine the role of in-service courses in performance of secondary school teachers. By studying these roles the researcher has documented the strengths and weaknesses of the program. The following interest groups could benefit from the research.

- i) ***The Ministry of Education;*** The research will help the ministry of education realize the need of assessing the role of continuous education of teachers on

performance in secondary schools and provide the necessary tools and devices for provision of training and development.

- ii) **Researchers and Training institutions;** The study can form the basis for further research in this area as further gaps have been identified at the end of the study.
- iii) **Teachers;** This study will help them recognize the effectiveness of continuous training and desire for more courses to be better equipped to meet emerging issues in the society.

1.6 SCOPE OF THE STUDY

The study was mainly conducted in secondary schools in Meru South District to sciences, mathematics, and head teachers as they play the key role in functioning of the schools. They helped come up with data on:

- i) Role of continuous training and development on performance especially in mathematics and sciences.
- ii) Recommendations on how to review SMASSE INSET courses.
- iii) To advise on the need of strengthening, training and development as a result of rapid changes in the society and continuous poor performance of mathematics and sciences in secondary schools.

The target area was Meru south District but the findings maybe generalized to all other parts of the country.

1.7 LIMITATIONS OF THE STUDY

There was limited literature on implications of continuous training and development of teachers in secondary schools in Meru South. Very little documentation had been done on this because of limited research carried out. Besides, the study limited itself to only one district in the whole country. For a more conclusive report all schools in the country should have been studied. However, this was not possible due to financial and time factors.

The study did not cover the opinion of all stakeholders in education since this would require considerable time and resources. The study was also limited to students and teachers in public secondary schools because of their easy accessibility. Private schools which may not be sampled may also provide important data which will be left out. Students may also be receiving tuition from other teachers who are not their main stream teachers. Such teachers may influence their performance and they may not be sampled as respondents because getting them will require considerable time, resources and logistics.

CHAPTER TWO

2.0 LITERATURE REVIEW.

2.1.0 INTRODUCTION

The performance of students in Mathematics and Sciences in K.C.S.E has continued to pose a major challenge to all concerned with Education in Kenya. The performance of these subjects in Meru South in the last six years for the period 2000 to 2005 is shown in the table below.

Table 1

Performance statistics in the K.C.S.E. in sciences and mathematics 2000 to 2005 in Meru South district

MEAN SCORES (PER YEAR)				
YEAR	PHYSICS	CHEMISTRY	BIOLOGY	MATHEMATICS
2000	4.7 (C-)	5.7 (C)	5.6 (C)	2.52 (D)
2001	3.9 (D+)	3.1 (D)	4.9 (C-)	2.92 (D)
2002	4.3 (D+)	3.9 (D+)	5.0 (C-)	3.165 (D)
2003	4.4 (D+)	4.4 (D+)	5.2 (C-)	3.181 (D)
2004	4.46 (D+)	5.8 (C)	4.8 (C-)	3.06 (D)
2005	4.6 (C-)	5.9 (C)	5.0 (C-)	3.18 (D)

Source: D.E.O's Office Meru South District

The following can be deduced from the above table.

The mean score for mathematics and sciences has gradually continued to rise.

Performance in these subjects is still low. Hence need to put effort in the performance of these subjects. Mathematics is showing the worst performance.

Gradual improvement in performance of these subjects could be attributed to continuous training and development courses which sciences and mathematics teachers have been undergoing since 1998 -2004. There is need to asses the validity of this argument. This study is designed to assess this validity.

2.1.1 An over view of forms of training and development.

Training is the process of providing junior employees with specific knowledge and skills in order to enable them to perform specific work tasks.

Development is the process of providing senior employees with conceptual skills for performing general duties.

Training provides employees with specific skills for specific duties while development provides conceptual skills for general duties. For example, employees may be trained on the new techniques of stimulus variation in the classroom or on the methods of managing discussion groups. Employees on the other hand may be given development courses on the concepts of human resource development (Pratt K. J, et al. 1989).

There are two main forms of training. These are

- (i) On - the job training
- (ii) Off – the job training.

2.1.2 On-the job training (In-service training)

This training according to Robbins S. P. (1989) new employees learns various aspects of his or her job while at the same time actually performing these tasks.

For this training to be successful, the trainers must be well qualified on instructional methodologies. Employees are able to translate their theoretical work skills better into practice during their actual performance if educational managers provide them with the conditions, which promote on-the-job training.

Some of the on-the-job training methods include apprenticeship, job rotation, mentoring or coaching and understudy.

2.1.3 Understudy

In this method, one employee is specifically designated the role of the heir apparent. Here a trainee learns from his or her superior with the aim of taking over the responsibility in the future.

2.1.4 The apprenticeship system

An apprentice obtains practical experience by working in the company and learns theoretical concepts in a vocational school. Professor Garry of University of Chicago suggests that the German approach of vocational training may be useful for reducing the number of high school dropouts in the United States. It is suggested that some young people would prefer to be in a training-employment program rather than continue their studies in high school.

Apprenticeship programs play a vital role in preparing future managers for their job. These programs supplemented by additional education provide the foundation for the development of first-line supervisors in Germany.

Young people who choose the 3-year apprenticeship training work 3 to 4 days a week and spend 1 or 2 days a week in the vocational school.

2.1.5 Job Rotation

This involves lateral transfer of employees to work on different job assignment.

This method helps in broadening the background of workers and helps them see the inter-relatedness among the various aspects of an education organization. Trainees rotate through:

- I. Non supervisory work
- II. Observation assignment (observing what manager does, rather than managing themselves)
- III. Various managerial training positions
- IV. Middle level assistant positions
- V. Unspecified rotation to various managerial positions in different departments such as production, sales and finance.

Job rotation programs participants according to, Heinz Wehrich and Harold Koontz (1993) do not have managerial authority. They observe or assist line managers but they do not have the responsibility they would have if they were actually managing.

2.1.6 Coaching or mentoring

A good example of on-the-job training is athletics coaching. To be effective, coaching must be done in a climate of confidence and trust between the superior and the trainees. Patience and wisdom are required of superiors who must be able to delegate authority and give recognition and praise for jobs well done.

Effective coaches will develop the strengths and potentials of subordinates and help them overcome their weaknesses.

2.1.7 Off-the job training

These are training methods, which workers undergo outside their work environments. These include special courses or classes, role-playing, sensitivity training, simulation, vestibule training, conference training and special meetings.

Special courses: These can be designed by an educational organization itself or they can be developed by a college or university.

Role-playing: Employees are trained to perform specific work roles like that of an instructional supervisor. Many sales training courses include role-playing of customers. By asking someone to play a role other than their own, it is possible to help them see the world from a different perspective.

Case studies: These may be real or fictitious written or in video. Case studies describe a company or a sequence of events.

Questions on the case may revolve around how the situation arose or could have been avoided and what should be done about it now.

Vestibule training: This is a method whereby employees learn their jobs on the same equipment, which they will be using in their specific jobs. Attempts are made in vestibule training to duplicate the work conditions as much as possible (Pigors P, et. Al 1973).

2.1.8 Sensitivity training

It is also called T-group (T stands for training). One general characteristic of this training is that people interact and then receive feedback on their behavior from their trainees and other group members who express their opinions freely and openly.

Their benefits of sensitivity training must be balanced against the criticism of approach. For example, some people may be psychologically harmed because they simply cannot cope with the concurrent invasions of privacy. Owing to the group pressure, and group dynamics participants may reveal more about themselves than they actually intended to. There is also concern that some trainers may not be qualified to conduct sessions that become highly emotional.

Despite the concerns of the researcher and observer, certain companies use

T-groups in the training and development. The following guidelines could be helpful:

- i. Participation in T-groups should be voluntary.
- ii. Participants should be screened, and those who could be harmed (for example highly defensive people) should be excluded from this experience.
- iii. Trainers should be carefully evaluated and their competence clearly established about the goals and process before they commit themselves to sensitivity training.
- iv. Before using sensitivity training, organizations should clearly identify development and training needs and objectives. Given these needs and objectives, other methods should be considered.

2.1.9 Conference Programs

These could be used in internal or external training. During conference programs, trainees are exposed to the ideals of speakers who are experts in their fields. Within the company, people may be instructed in the history of the firm and its purposes, policies and relationships with customers, consumers and other groups.

These programs can be valuable if they satisfy a training need and are thoughtfully planned. A careful selection of topics and speakers will increase the effectiveness of this training. Conferences can be made more successful if discussions; two-way communication allows participants to ask for clarification of specific topics that are particularly relevant to them.

2.1.10 Readings, Television and Video Instructions

Another approach to development is planned reading of relevant and current management literature. A trainee may be aided by the training department, which often develops a reading

list of valuable books. This learning experience can be enhanced through discussion of articles with other employees and the superiors.

Increasingly, management and other topics are featured in television programs, videotapes on a variety of subject are available for use in the university or company classroom.

In China for example, a program for educating Chinese managers has been undertaken by the University of San Francisco (USF). China resources, a Chinese trading company located in Hong Kong China and other places, recognized the need for developing its managers. Consequently, an agreement was reached with USF to offer a manager development program.

2.1.11 Business Simulation, Experimental Exercises, and Expert Systems

Business games and experimental exercises have been used for some time but the introduction of microcomputers has made these approaches to training and development even more popular.

The approaches range from behavioral exercises dealing for example with attitudes and values to simulations in courses such as marketing, accounting decision support systems, business policy, and strategic management.

Recently, expert systems have received a great deal of attention. They are a subset of artificial intelligence (AI) which involves the use of computers to duplicate the functioning of the brain. Researchers at Stanford developed a knowledge-based system to serve as an “intelligent consultant” to help in the diagnosis and treatment of specific diseases. Similar systems are now being developed to assist managers in making decisions. For example, systems are used, for checking sales orders, for oil drilling, for monitoring steam turbines at

Westinghouse, for credit authorization at American Express, for tax accounting decisions at coopers and Lybrand, for pricing system bids at IBM and capital investment at Texas Instrument.

Expert systems are a new frontier for training and developments though a great deal of research is going on to validate the systems especially for those unstructured decisions such as strategic management.

2.2.0 EXISTING LITERATURE.

2.2.1 Impact of training and development on performance.

Training and development activities according to Thomas S. Batemans, et. al (1990), improves people's knowledge, skills and abilities. This improvement has a further effect of causing better achievement of goals and objectives in a firm.

Unfortunately, in most businesses things are less clear-cut. Attributing a specific sales or profit gain to training and development can be very dubious. So many other internal factors, changes of systems, procedures and personnel have a bearing. Equally, external factors such as economic climate, competitor activity, and market trend will affect the performance trends in a business.

In Meru South District, in-service training has been going on since 1999 with the introduction of strengthening of mathematics and sciences in secondary education (SMASSE) project. This project was started on realizing poor performance in mathematics and sciences in secondary schools. This poor performance is reflected by the data below.

Table 2

Mean score in sciences and mathematics 1994-1998

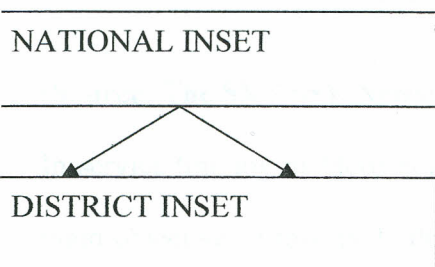
YEARS	1994	1995	1996	1997	1998
Mathematics	1.981	1.730	1.842	1.773	1.924
physics	2.603	2.742	3.012	2.946	2.667
Chemistry	3.294	3.367	3.401	3.209	3.112
Biology	4.01	4.012	3.976	4.130	4.77

Source: District Education Office (Meru South)

The above data on performance at Kenya certificate of secondary education shows very dismal performance in mathematics and sciences. This triggered the need of selecting Meru south district as a pilot district to in-service science and mathematics teachers in the district.

2.2.2 Levels of training

There are two levels of training; at national level and the other at the District level. At the national level, the national trainers train district (Key) trainers. At the district level, the district trainers train teachers in their respective districts. This is summarized in the figure below.



District trainers trained by national trainers

All teachers trained by district trainers

The attendee's of INSET cycles each of ten working days for two levels is shown in the tables below;

NATIONAL IN-SERVICE TRAINING

CYCLE	PERIOD	PARTICIPANTS
1 st	August 1999	134
2 nd	August 2000	190
3 rd	April & August 2001	104 & 117
4 th	April 2002	183
5 th	April 2003	201
6 th and final	April 2004	140

(Source: The SMASSE Newsletters June 2002, 2003, and 2004)

DISTRICT IN-SERVICE TRAINING PROGRAM (MERU SOUTH)

CYCLE	PERIOD	PARTICIPANTS
1 st	April 2000	219
2 nd	April 2001	217
3 rd	April 2002	205
4 th	April 2003	208
5 th	April 2004	360

(Source: The SMASSE Newsletters June 2002, 2003, and 2004)

In-service training in Meru South in 2002 began on 15th April and ended on 26th April. The main objective of this cycle three of training was 'Actualization of ASEI (Activity, student centered, experiment and improvisation).

A lot of time was spent on peer teaching and teaching practice in which the participants did actual teaching in secondary schools.

According to the SMASSE Newsletter of June 2002, among the impact of the program was the increased participation by the learners. It was reported that teachers showed more enthusiasm in their teaching.

The instruments administered in teaching were well received by both teachers and learners. Both teachers and students expressed their appreciation of both quality and effectiveness of the instruments, though informally.

SMASSE Newsletter of May 2003 highlighted that 208 trainees participated in the training. During the training, the main theme was “Impact transfers”. Participants during the training had the opportunity to demonstrate lessons in a real classroom situation while their colleagues observed. This was followed by very fruitful discussions on how the lessons could be improved. The improved lessons were taught in different parallel classes and participants were challenged to apply the concept of improved ASEI lessons when they go back to their respective schools.

According to the Newsletter, the in-service training project had the following impact in the district as at that time:

- i. Increased quality of teaching and learning Mathematics and Sciences. This has been achieved by encouraging student centered teaching/learning approach as opposed to teacher centered teaching/learning which has been the practice as was found during the SMASSE baseline survey carried out in 1998.
- ii. Increased participation of students during lessons as observed by SMASSE trained teachers.
- iii. Increased focusing of learners’ attention on tasks at hand through the following ways:
 - Setting goals for them or helping them set their own goals.

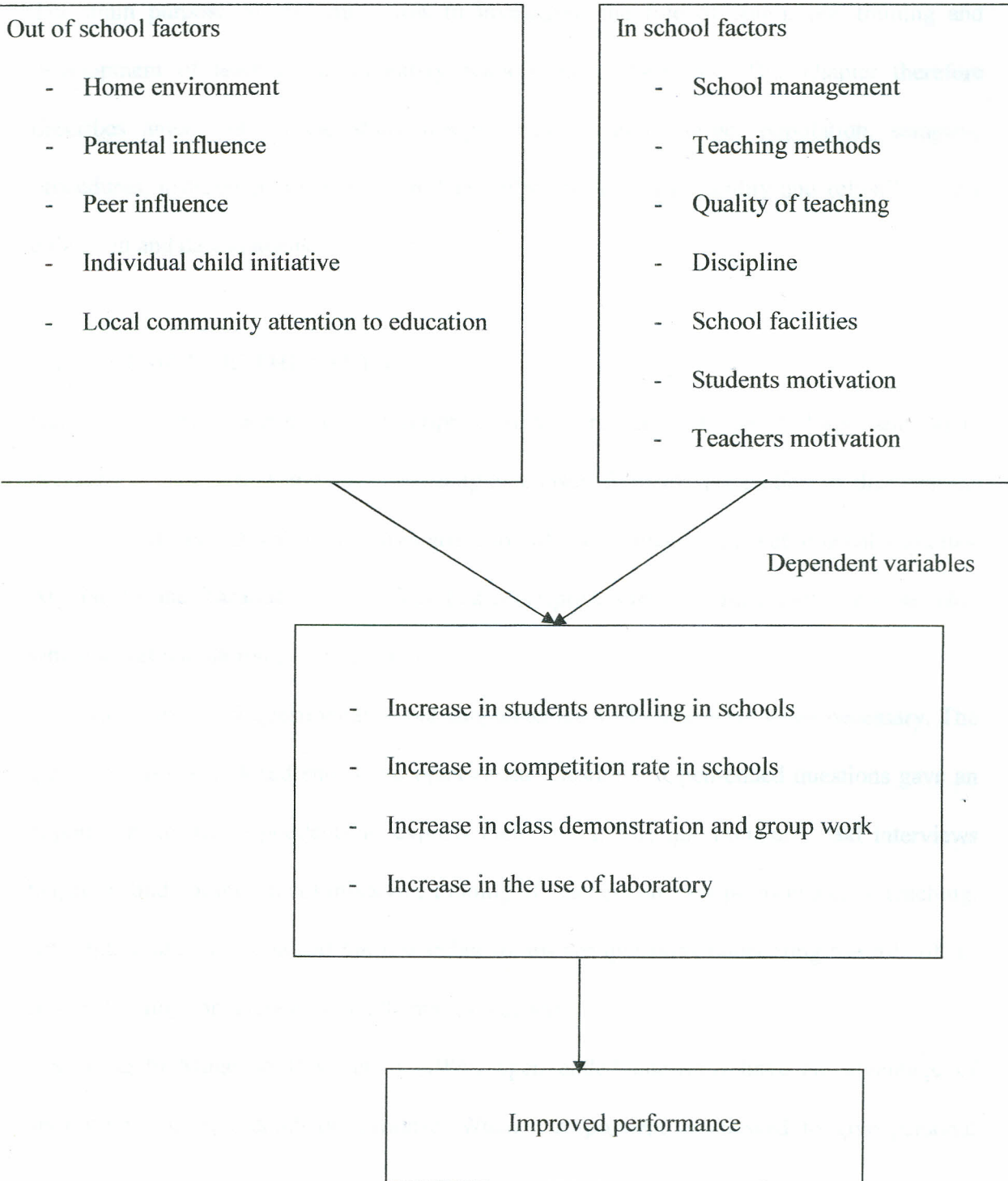
- Challenging learners to achieve.
- Integrating new knowledge with familiar experiences.
- Rewarding achievements.
- Evaluating oneself on the basis of the extent to which objective have been achieved.

According to November 2004 SMASSE Newsletter, the last cycle of in-service training for teachers in Meru South district took place in August 2004. According to this Newsletter, most trainers worked as a team in preparing and organizing INSET activities. Most participants expressed a lot of satisfaction to all activities in the INSET.

It was reported that time management, record keeping and ability to adapt materials used in the National INSET remained a big challenge to the district trainers.

2.2.3 CONCEPTUAL FRAMEWORK OF THE EFFECT OF IN-SERVE TRAINING ON PERFORMANCE.

Independent variables



CHAPTER THREE

3.1 INTRODUCTION

The main purpose of this study was to investigate the role of continuous training and development of teachers in secondary schools on performance. This chapter therefore describes among others the study design, area of study, target population, sampling procedures, instruments to be used in data collection, piloting, validity and reliability, data collection and data analysis.

3.2 DESIGN OF THE STUDY

Kerlianger (1973) argues that descriptive survey research studies a large and small population by selecting and studying samples chosen from the population to discover the relative incidences, distribution and interrelation of sociological and psychological variables. Ary Jacobs and Razamith (1972) argue that descriptive survey is quite useful in researches where target population is not very large.

This study employed questionnaires but supplemented with interviews when necessary. The questionnaires had closed-ended and open-ended questions. Open-ended questions gave an opportunity to the respondents to express their views. The questionnaires and interviews helped to find out the role of in-service training of teachers on their performance in teaching. Descriptive approach enabled the researcher to answer questions concerning the role of in-service training for science and mathematics teachers.

According to Mugenda O.M. et al (1999) open ended questions have an advantage of permitting a greater depth of response. When a respondent is allowed to give personal

response; usually reasons for the response may be directly or indirectly included. Also open-ended questions are simpler to formulate mainly because the researcher does not have to labor to come up with appropriate response categories. The respondent's responses may give an insight into his feelings, background, hidden motivation, interest and decisions.

Mugenda (1999) argues that closed ended questions have the advantage of being easier to analyze since they are in immediate usable form, are easier to administer because each question is followed by alternative answer and lastly they are economical to rise in terms of time and money.

The researcher distributed the questionnaires to the schools selected and collected them from the teachers after two days.

3.3 STUDY POPULATION

Cohen and Manion (1995) states that the specification of population which the inquiry is addressed affects decisions that the researcher must make both about sampling and resources to be used. The study was carried out in Meru South District which was chosen because of convenience to the researcher. The researcher lives and works in this district hence information acquired will be used by the researcher to help the district realize better performance.

According to the district education office, Meru South has 48 public secondary schools with approximately 1175 teachers and 48 principals. In the 48 schools most schools have a minimum of three sciences and mathematics teachers and one principal. This added up to 192 teachers who formed the study population.

3.4 SAMPLING STRATEGY

48 public secondary schools in Meru South were listed by the researcher alphabetically and all schools falling on even numbers were picked for investigation. In these schools a minimum of four teachers were given questionnaires. This means (ninety six) 96 teachers out of 192 teachers were interviewed. According Gay (1992) a researcher selects a sample due to various limitations that may not allow researching the whole population. A sample of 10% of the population is considered minimum, Gay 1992. For a small population 20% of the population may be required.

The key teachers targeted were head teachers, mathematics and sciences teachers. All these teachers have gone through various in-service training and development programs.

3.5 RESEARCH INSTRUMENTS

The researcher used questionnaires in his study. According to Lovel and Lawson (1971), questionnaires are widely used in research work to obtain information about current conditions and practices and to make inquiries concerning attitudes and opinions quickly and in precise form. Orodho (2004), says that questionnaires enables efficient use of time since information can be collected from a large number of people and the questions can be easily analyzed; anonymity can be possible and questions are standardized.

Questionnaires were of one set which were given to head teachers, sciences teachers and mathematics teachers. Questionnaires were tailored to capture details on the role of training and development on performance of secondary schools teachers.

3.6 INSTRUMENT VALIDITY

According to Borg and Gall, (1998) they argue that validity is the degree to which a test measures what it purposes to measure.

The researcher carried out a pilot study by administering the questionnaire to twenty respondents that is five respondents from each stratum. Head teacher, mathematics teachers and three science teachers. This number represented a substantial population to verify the usefulness of the instruments employed. Then the pilot study was analyzed and revised for the purpose of collecting the main data. The redundant questions were phased out and replaced with relevant and logical ones which elicited the required response.

3.7 DATA COLLECTION TECHNIQUES

The researcher requested for a permit from the office of the president to conduct research in Meru South District in August 2006. The researcher then contacted the respective principals of the sampled schools and requested for permission to interview the teachers.

The researcher talked to subject heads in sciences and mathematics and requested them to issue questionnaires to all teachers teaching these subjects. The teachers were left with the questionnaires and the researcher collected them after two days. The researcher left the principal with a questionnaire to fill and collected it after two days.

3.8 DATA ANALYSIS

The completed instruments were assembled and information analyzed. Quantitative data was analyzed using descriptive statistics and results on average percentages and variability presented through tables and graphs. Peil (1995) maintains that when making the results of

the research known to a variety of readers, percentages make considerable advantage over complex statistics. Best and Khan (1989) holds that the most widely used and understood standard proportion is percentage.

In this study percentages on in-service frequencies offered to secondary school teachers and their performance is shown. There are also graphs showing the effects of continuous training and development of secondary school teachers on their performance.

CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATION

4.1 INTRODUCTION

This chapter deals with data analysis and presentation of research findings. Questionnaires were issued to ninety six teachers out of one hundred and ninety-two sciences and mathematics teachers in the District. All the questionnaires were returned which represented 100% response rate. The data is summarized and presented in form of tables, means, graphs and percentages.

4.2 Gender distribution

The respondents were required to indicate their sex. The responses obtained are analyzed in table 3 below:

Table 3: Gender Distribution

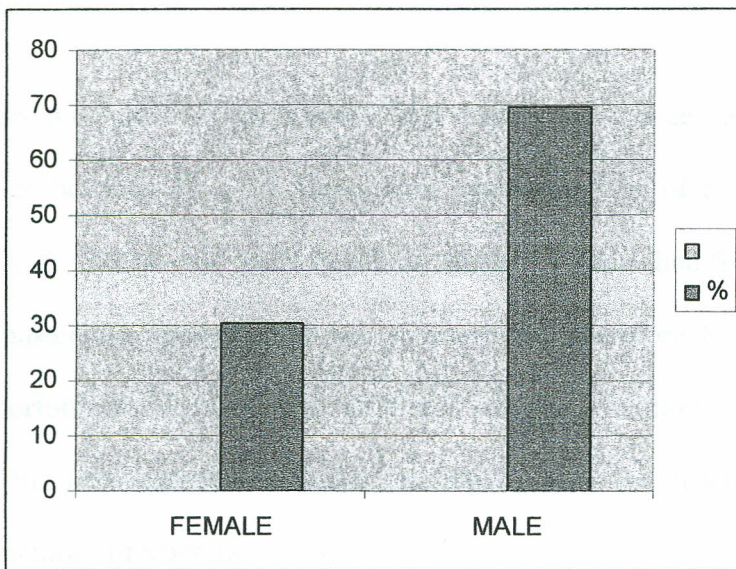
GENDER	FEMALE	MALE
No.	29	67
%	30.21	69.79

It can be seen that majority of the teachers teaching sciences and mathematics are male teachers. Male teachers are sixty-seven which represents 70% against female teachers who are 29 representing 30% of the sampled teachers.

This means that most girls must be shying away from sciences and mathematics because role model is lacking. There is need therefore to find ways of encouraging more ladies to train in sciences and mathematics. It is only by doing this that more girls can be encouraged to take sciences seriously and not to feel that these subjects are a preserve of male gender.

The results are further analyzed by bar graphs below.

Fig 1: Gender Distribution



4.3 Age of respondents

The respondents were required to indicate their age. An interval of nine years from thirty years was considered appropriate since that could be the age of most trained teachers whom the study was targeting. The responses obtained are analyzed in the table below:

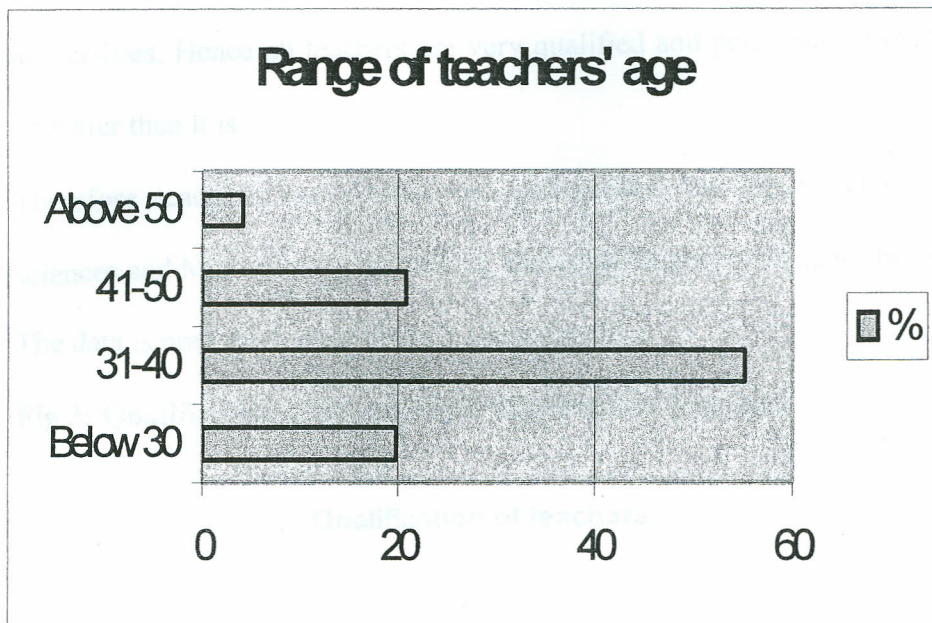
Table 4: Age of respondents

Age	No. Of Teachers	%
Below 30	19	19.79
31-40	53	55.21
41-50	20	20.83
+ 50	4	4.17
Total	96	100.00

From the table above, it is seen that majority of sciences and mathematics teachers have their age between 31 – 40 years. This represents 55% of the total population of the sampled teachers. This age group may have taught for more than five years, which is a good period to master the syllabus. Syllabus mastery may therefore be contributing little as far as poor performance is concerned. Probably out dated methods of teaching could be the problem. This necessitates continuous training to keep the teachers informed of new and better methods of teaching.

There is a very small percentage of teachers above 50 years. It is just 4.17%. Such teachers have less vigor in teaching. They are mostly thinking how to settle after retirement. Because the number is small, they are contributing little to the poor performance in sciences and mathematics.

Fig 2: Bar graph showing age bracket of respondents



4.4 Academic qualification of teachers.

The respondents were required to indicate their highest academic qualification from a list consisting of diploma in education /S1 teacher, Graduate, Post graduate (masters) and others (specify). The data is analyzed below:

Table 5: Academic qualification of teachers.

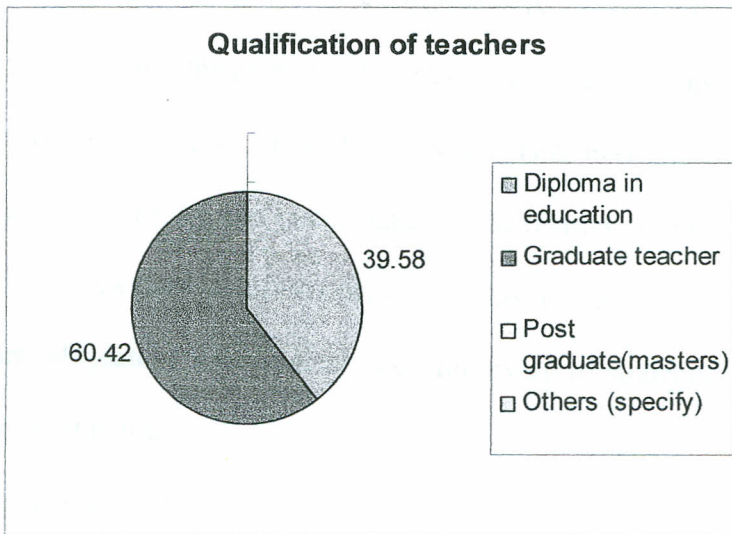
Qualification of teachers	No. of teachers	Percentage
Diploma in education	38	39.58
Graduate teacher	58	60.42
Post graduate(masters)	-	
Others (specify)	-	
Total	96	100.00

From table 5, 40% of sciences and mathematics teachers are diploma in Education while 60% are graduate teachers. This means that most teachers are graduates from various universities. Hence all teachers are very qualified and performance in these subjects should be better than it is.

Therefore academic and professional qualification has less effect in poor performance of sciences and Mathematics. Something else could be contributing to the poor performance.

The data is presented using the following pie chart.

Fig 3: Qualification of sciences and mathematics teachers.



4.5 Teaching load of teachers.

Responses on teaching load are analyzed and the following are the results obtained.

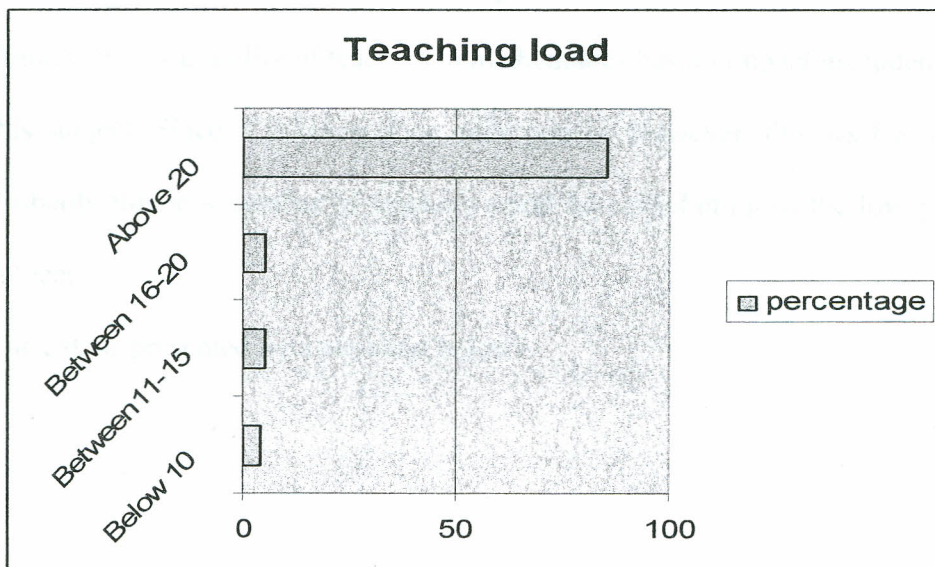
Table 6: Teaching load of teachers in Secondary schools.

No. of lessons	Duration of lesson	No. of teachers	percentage
Below 10	40 min	4	4.17
Between 11-15	40 min	5	5.21
Between 16-20	40 min	5	5.21
Above 20	40 min	82	85.41
Total		96	100

The table shows that majority of teachers have more than twenty lessons per week.

The ministry of Education in Kenya recommends a maximum of eighteen lessons per week for efficient teaching for every teacher. When lessons are many, there is less time for proper preparation and checking of students' work. This may therefore be contributing to less performance in sciences and mathematics in the district. There is a very small percentage of teachers with less than 16 lessons per week. This means very few teachers have enough time to prepare adequately, and conduct close follow-up of students work. The data is presented using the chart below:

Fig 4: Teaching load



4.6 Subject of specialization

The respondents were asked to indicate subjects of specialization. This was an open ended question. The researcher wanted to find out if mathematics is the area lacking teachers most or there is a certain science subject lacking teachers. The responses obtained are analyzed below:

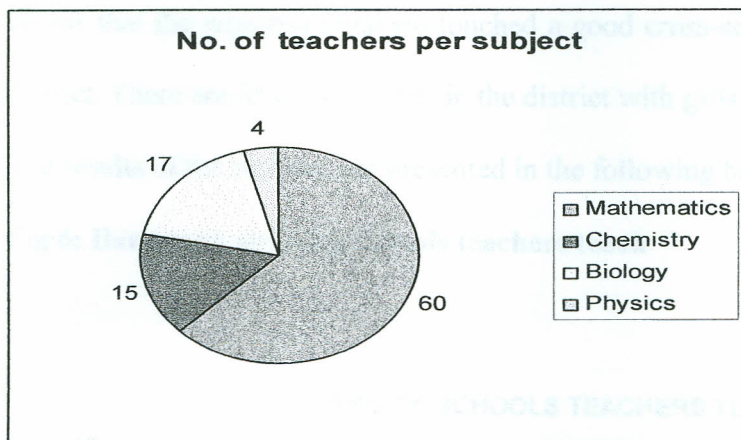
Table 7: Subject of specialization

Subject	No. of teachers	Percentage
Mathematic	60	62.50
Chemistry	15	15.63
Biology	17	17.70
Physics	4	4.17
Totals	96	100.00

From the table mathematics has the highest number of teachers with 62% of the total teachers sampled. This means that there are enough teachers in mathematics and the subject should be doing well. Availability of teachers in mathematics has no impact in students' performance in this subject. Since it is being done quite poorly. However, Physics has very few teachers. Probably this less number of teachers could be contributing to the low performance in the subject.

The data is presented by a pie-chart below:

Fig 5: Pie chart showing number of teachers per subject.



4.7 The type of school.

The respondents were required to indicate the type of their schools; the responses obtained are analyzed in table 8 below:

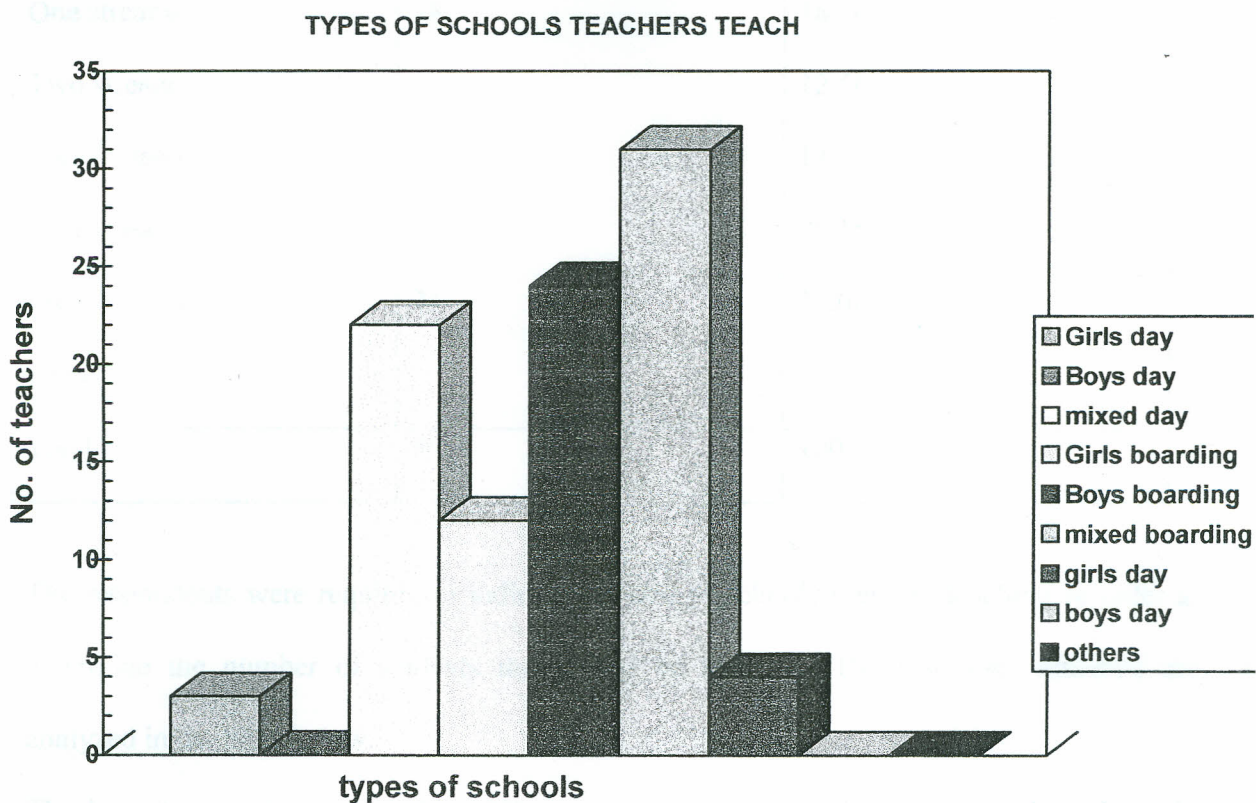
Table 8: types of schools

Type of school	No. of teachers	Percentage
Girls day school	3	3.13
Boys day school	4	4.47
Mixed day school	22	22.91
Girls boarding	12	12.50
Boys boarding	24	25.00
Mixed boarding	31	32.29
Others	-	-
Total	96	100.00

The table above shows that most of the respondents were from mixed boarding school. This means that the response obtained touched a good cross-section of both boys and girls in the district. There are few day schools in the district with girls only. They represent 3.13%.

The results of the analysis are presented in the following bar graphs.

Fig 6: Bar graph showing schools teachers teach



4.8 Size of schools in terms of streams.

The respondents were required to indicate the size of schools they are teaching in order to determine the number of students they could be teaching. The responses obtained are analyzed in the table below:

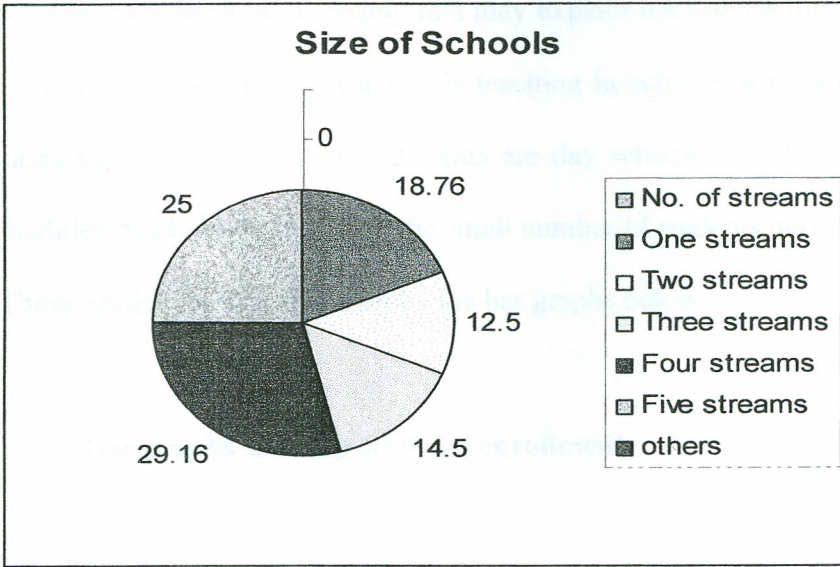
Table 9: Size of schools in terms of streams.

No. of streams	No. of teachers	Percentage
One streams	18	18.76
Two streams	12	12.50
Three streams	14	14.50
Four streams	28	29.16
Five streams	24	25.00
others		
Total	96	100

The respondents were required to indicate the size of schools they are teaching in order to determine the number of students they could be teaching. The responses obtained are analyzed in the table below.

The largest percentage of teachers 28% is teaching in four and five streamed teachers. In most cases, such schools have classes with more 45 students. Ministry of Education recommends classes of 40 students if a teacher will be effective. This means that large classes could be leading to less performance in Sciences and Mathematics. The results are analyzed further using the pie chart below.

Figure 7: pie chart showing size of schools where teachers are teaching



4.9 Student enrolment.

The respondents were required to indicate students' enrolment in their schools. An Interval of 100 was considered appropriate since a streams takes an average of 50 students which means that single streams school have a maximum of 200 students. The responses obtained are analyzed in table 10 below:

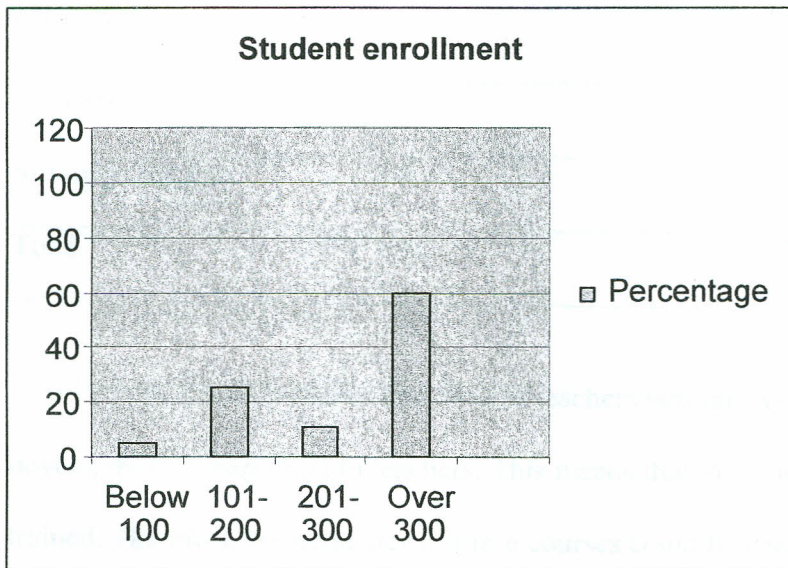
Table 10: Students enrolment

Students enrollment	No. of teachers	Percentage
Below 100	5	5.20
101-200	24	25.00
201-300	10	10.42
Over 300	57	59.38
Total	96	100.00

From the table, 57% is teaching in large schools. This means classes could also be having many students. Students could be exceeding 40 students per class as recommended by the Ministry of Education. Probably this may explain the low performance by these students. A very small percentage of teachers is teaching in schools with below 100 students. In most cases these schools with few students are day schools, which are new and have very few facilities. Such teachers despite the small number of students may not be any effective.

These results are further shown by the bar graphs below.

Fig 8: Bar graphs showing students enrollment.



4.10 Importance of continuous training and development courses.

Respondents were required to indicate importance of training and development courses.

Options were given on whether they strongly agree, uncertain, disagree or strongly disagree.

The responses obtained are analyzed below:

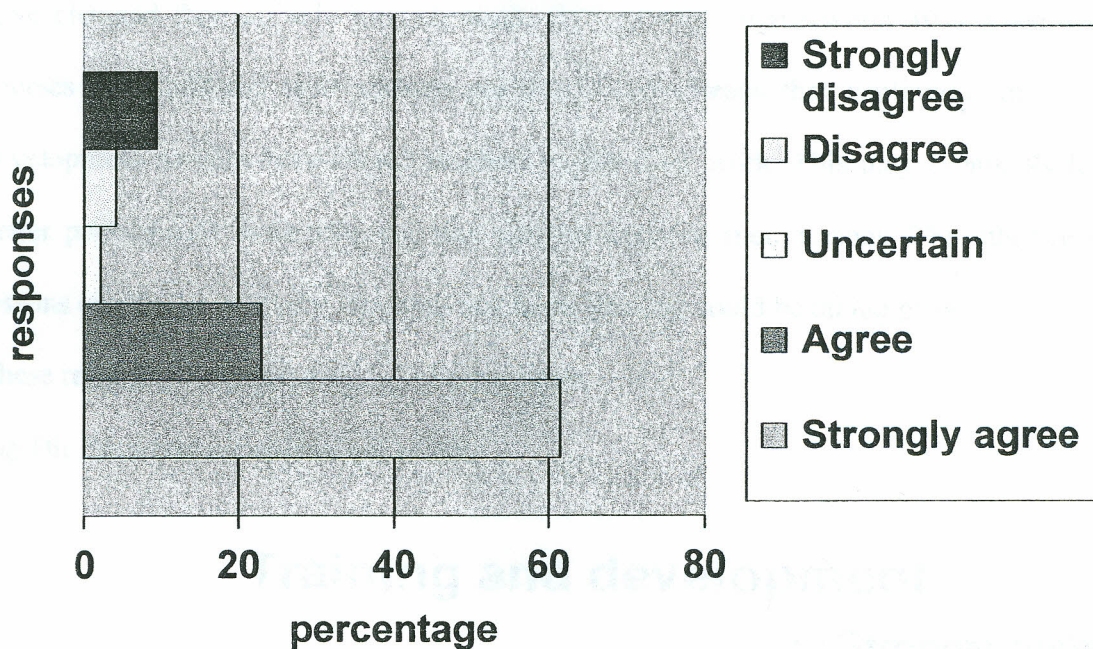
Table 11: Importance of continuous training and development.

Responses	No. of teachers	Percentage (%)
Strongly agree	59	61.46
Agree	22	22.91
Uncertain	2	2.08
Disagree	4	4.17
Strongly disagree	9	9.38
Total	96	100.00

Results from the table shows that 51% of teachers strongly agree that continuous training and development is important to teachers. This means that many teachers desire to be continually trained. Therefore the frequency of these courses could be less than expected or the quality of the courses offered could be wanting. This is because improvement in performance is minimal. Only 9% of the teachers interviewed strongly disagree that continuous training and development is not important to teachers.

These results can further be represented by the following bar graphs:

Fig 9: Bar chart on important of training and development.



4.11 Change in attitude towards work :

The respondents were required to indicate whether continuous training and development courses have helped them change their attitude positively towards work. The responses obtained are analyzed below:

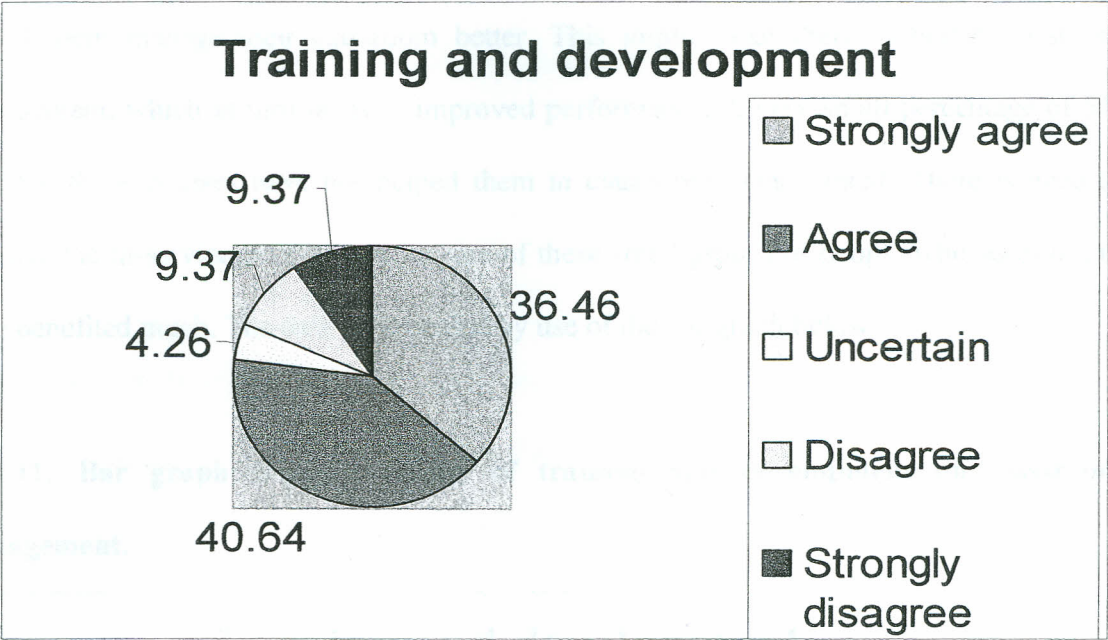
Table 12: Effects of continuous training and development on attitude:

Responses	No. of teachers	Percentage
Strongly agree	35	36.46
Agree	39	40.64
Uncertain	4	4.26
Disagree	9	9.37
Strongly disagree	9	9.37
Total	96	100.00

From the table, most of the teachers accept that continuous training and development courses have changed their attitude towards work. 36% strongly agree while 40% agree that the courses have affected their attitude positively. This means that continuous training and development courses have helped teachers to like their work. This may eventually lead to better performance since learners may also be enjoying their lessons. The otherwise dull lessons could now be lively; meaning that more learning could be taking place.

These results are presented by use of a pie chart:

Fig 10: Pie chart on attitudinal effect.



4.12 Effects of the training on classroom management.

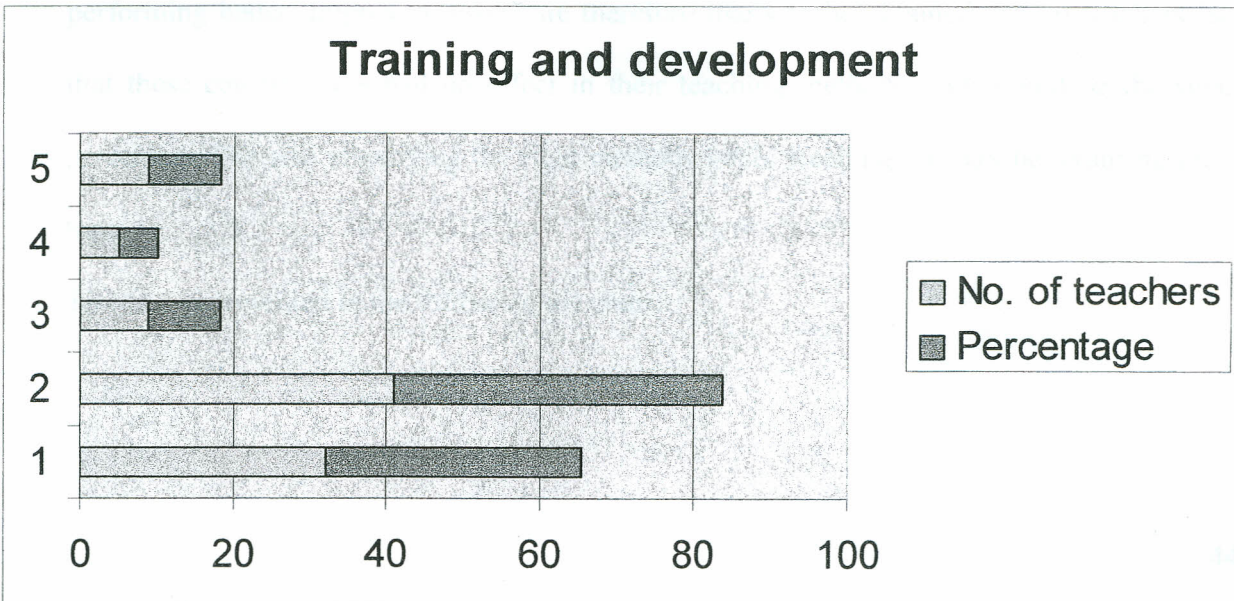
The respondents were required to indicate whether continuous training and development courses have helped them manage their classrooms better. The following responses were got.

Table 13: Effects of training and development on classroom management.

Responses	No. of teachers	Percentage
Strongly agree	32	33.33
Agree	41	42.71
Uncertain	9	9.38
Disagree	5	5.20
Strongly disagree	9	9.38
Total	96	100.00

The data shows that 76% of the teachers agree that training and development courses have helped them manage their classroom better. This implies that there is better classroom management, which in turn leads to improved performance. A very small percentage of 5% feel that these courses have not helped them in classroom management. There is need to improve the in-service courses to take care of these small groups of people who seem not to have benefited much. The data is presented by use of the bar graph below.

Fig 11: Bar graph showing effects of training and development on classroom management.



4.13 Effects of in-service courses on teaching of the area of specialization.

The respondents were required to indicate whether continuous training and development courses had any positive effect in teaching of their areas of specialization. The responses obtained are analyzed below:

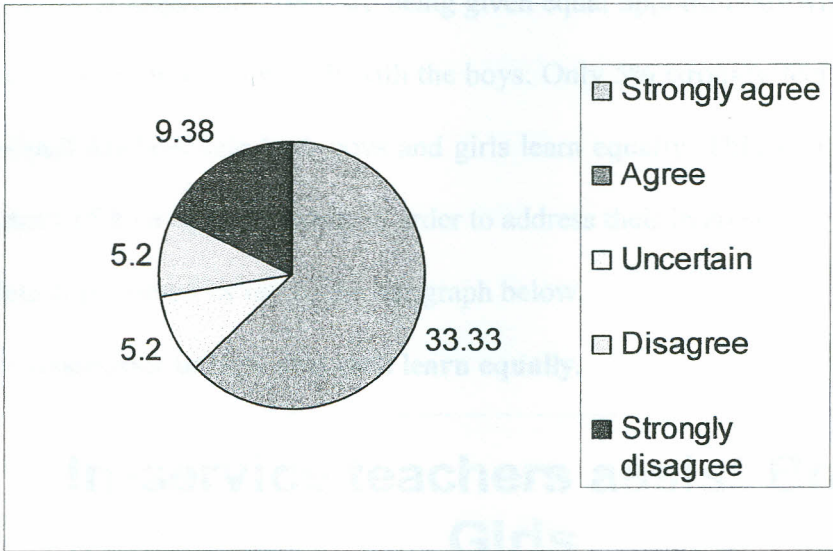
Table 14: Effects of in-service courses on teaching of the area of specialization.

Responses	No. of teachers	Percentage
Strongly agree	32	33.33
Agree	45	46.88
Uncertain	5	5.20
Disagree	5	5.20
Strongly disagree	9	9.38
Total	96	100.00

Results from the data show that most of the teachers have had their teaching methods in their area of specialization improved 77% agree that they can now teach better in their areas of specialization. This implies that students are learning better and there is a probability of them performing better. Improved results are therefore likely to be obtained. 9% of teachers feel that these courses have had no effect in their teaching methods. This could be the small percentage that was employing the right methods while teaching, or may be requiring more training.

The data is presented in the following pie chart:

Fig 12: Pie chart showing effects of T &D on teaching subjects of specialization.



4.13 In-Service programs are helping teachers assist both boys and girls learn equally.

Respondents were required to indicate whether in-service programs helped teachers assist boys and girls learn equally in and out of classes. The responses obtained are analyzed below:

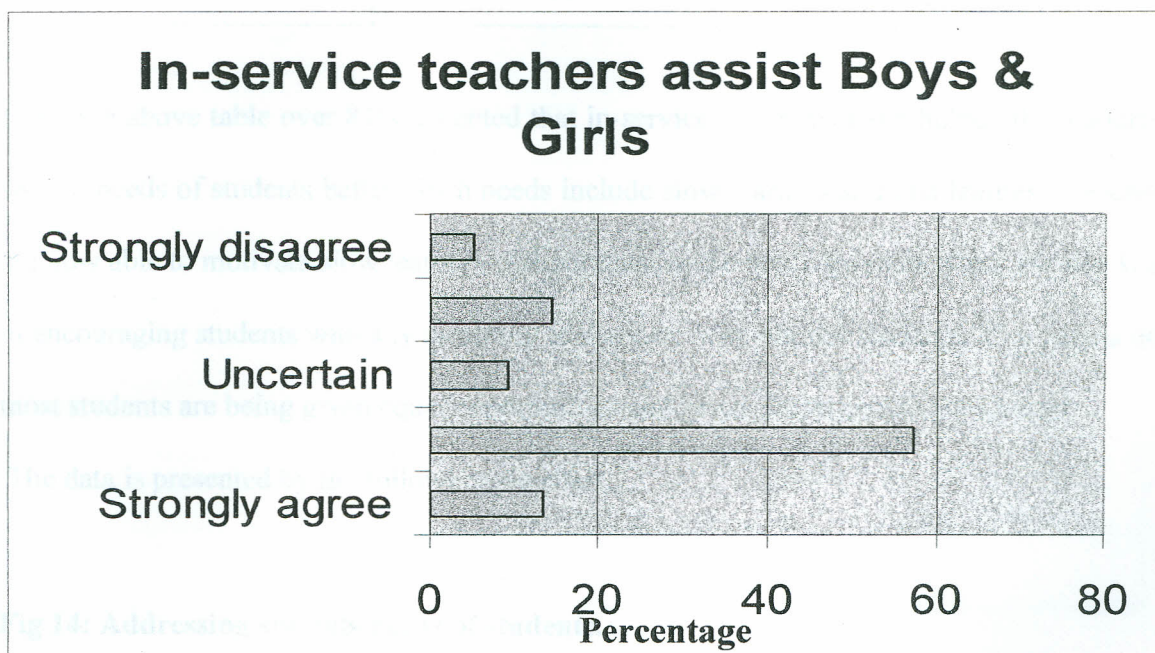
Table15: Assistance to Boys and girls learn equally.

Response	No. of teachers	Percentage
Strongly agree	13	13.54
Agree	55	57.29
Uncertain	9	9.38
Disagree	14	14.58
Strongly disagree	5	5.21
Total	96	100.00

From the table above 78% of teachers interviewed agree that INSET courses have assisted them help boys and girls learn equally. This shows that girls are not viewed as less capable in sciences and mathematics. They are being given equal opportunities with boys. It is expected that girls will soon compete well with the boys. Only 5% strongly feel that the courses have not assisted teachers help both boys and girls learn equally. This small percentage calls for assessment of in-service programs in order to address their interests.

This data is presented by use of the bar graph below.

Fig 13: Assistance to boys and girls learn equally.



4.14 In-Service programs help teachers address special needs of students better.

Respondents were required to indicate whether in-serviced teachers were able to address special needs of students better. Special needs of students include slow learners and quick learners, gender difference and some form of impairments or disabilities.

The responses obtained are analyzed below.

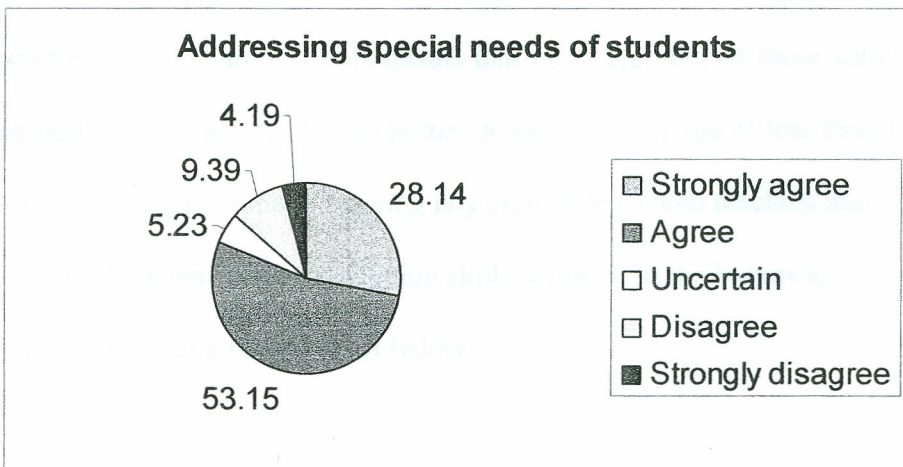
Table 16: Addressing special needs of students better:

Response	No. of teachers	Percentage
Strongly agree	27	28.14
Agree	51	53.15
Uncertain	5	5.23
Disagree	10	9.39
Strongly disagree	4	4.19
Total	96	100.00

From the above table over 81% accepted that in-service programs have helped them address special needs of students better. Such needs include slow learners and fast learners. Teachers are now able to motivate slow learners without losing the quick learners. They are also keen in encouraging students with any disability to compete with normal students. This means that most students are being given equal opportunities and better performance is expected.

The data is presented by the following pie chart.

Fig 14: Addressing special needs of students.



4.15 In-service programs have helped teachers and students enjoy their learning.

In-service programs were designed to make learning of sciences and mathematics more practical, real and inclusive. Students were to be involved more and teachers were to be involved less during a lesson. Their role was only to act as a guide while learners did most of the work. This would make learning more enjoyable hence more learning would take place.

Respondents were required to indicate whether students and teachers enjoy learning after teachers have undergone in-service courses.

The responses obtained are analyzed below.

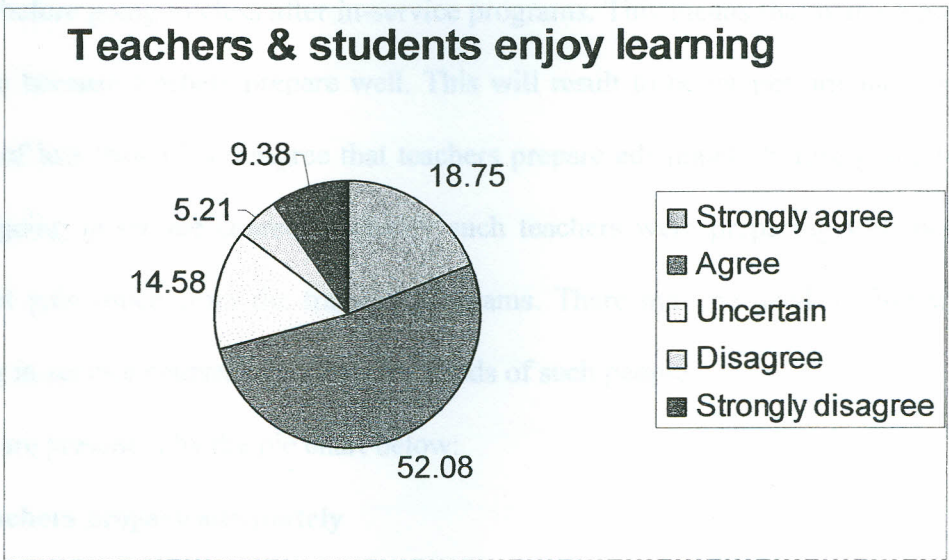
Table 17: Teachers and students enjoy their learning.

Response	No. of teachers	Percentage
Strongly agree	18	18.75
Agree	50	52.08
Uncertain	14	14.58
Disagree	5	5.21
Strongly disagree	9	9.38
Total	96	100.00

From the table, over 70% of teachers interviewed agree that after in-service courses teachers and their students enjoy learning. This means that more learning of these subjects is taking place hence performance is bound to be better. A small percentage of less than 15% feel that the in-service courses do not make learning any enjoyable to both teachers and students. This percentage of teachers may not be practicing skills acquired in the in-service training.

The data is presented using the pie chart below.

Fig 15: Teachers and students enjoy learning.



4.16 Preparation of teachers

Respondents were required to indicate in-serviced teachers prepare adequately before going to class. The following results were got:

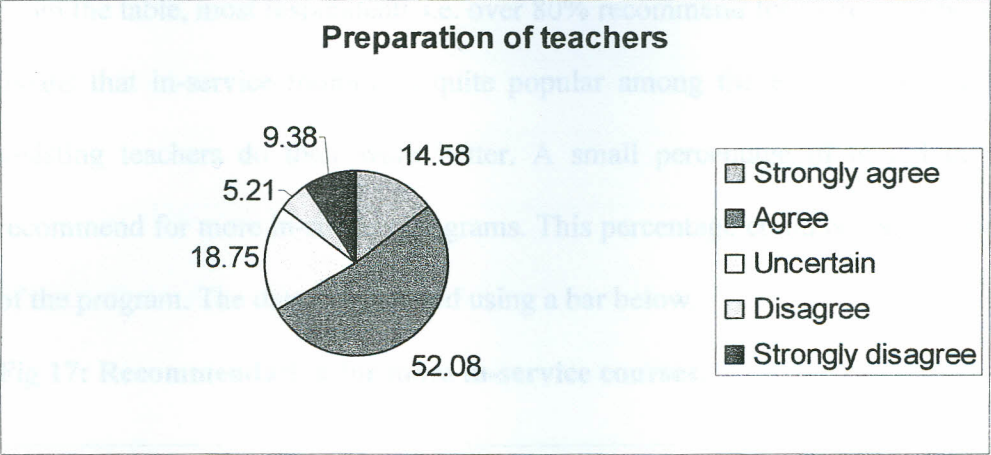
Table 13: Preparation of teachers

Response	No. of teachers	Percentage
Strongly agree	14	14.58
Agree	50	52.08
Uncertain	18	18.75
Disagree	5	5.21
Strongly disagree	9	9.38
Total	96	100.00

The data above shows that a large percentage of more than 60% agree that teachers prepare adequately before going to class after in-service programs. This means that better teaching is taking place because teachers prepare well. This will result to better performance. A small percentage of less than 15% disagree that teachers prepare adequately before going to class after undergoing in-service courses probably such teachers were preparing well before or they did not gain much from the training programs. There may be need to find ways of diversifying in-service courses to address the needs of such people.

The results are presented by the pie chart below:

Fig 16: Teachers prepare adequately



4.17 Recommendations for more in-service courses.

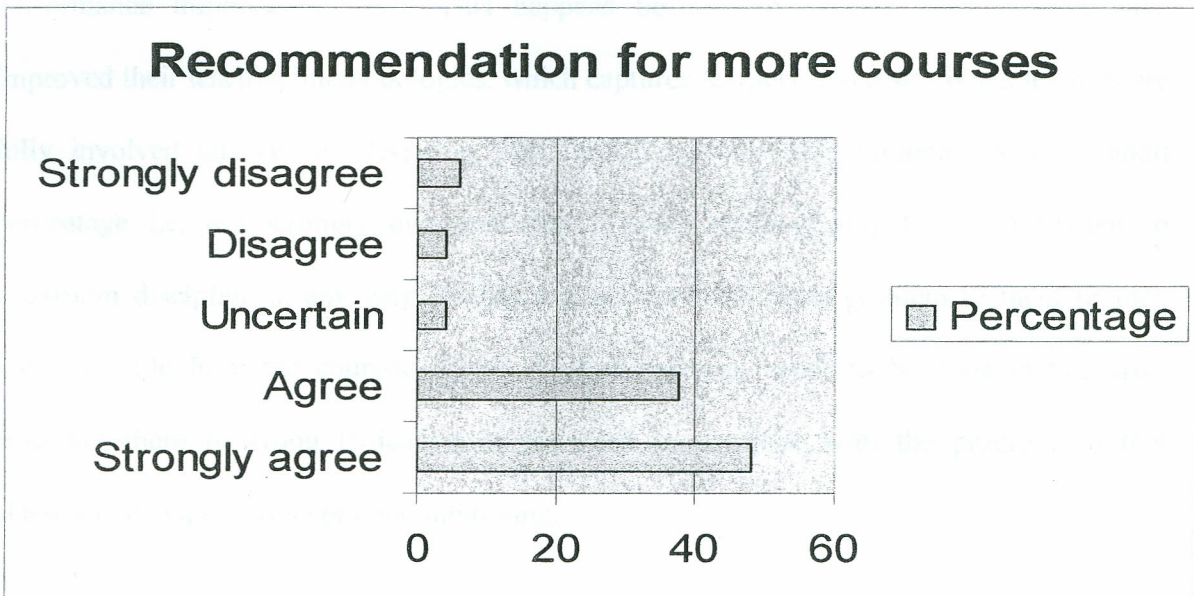
Respondents were required to indicate whether they would recommend for more in-service courses. The following responses were got:

Table 19: Recommendation for more in-service courses

Response	No. of teachers	Percentage
Strongly agree	46	47.91
Agree	36	37.50
Uncertain	4	4.17
Disagree	4	4.17
Strongly disagree	6	6.25
Total	96	100.00

From the table, most respondents i.e. over 80% recommend for more in-service courses. This means that in-service training is quite popular among the teachers. The courses must be assisting teachers do their work better. A small percentage of less than 15% does not recommend for more in-service programs. This percentage could be calling for improvement of the program. The data is presented using a bar below.

Fig 17: Recommendation for more in-service courses.



4.18 Improvement of discipline.

Respondents were required to indicate whether in-service programs had assisted in any way to improve class discipline.

The following responses were obtained:

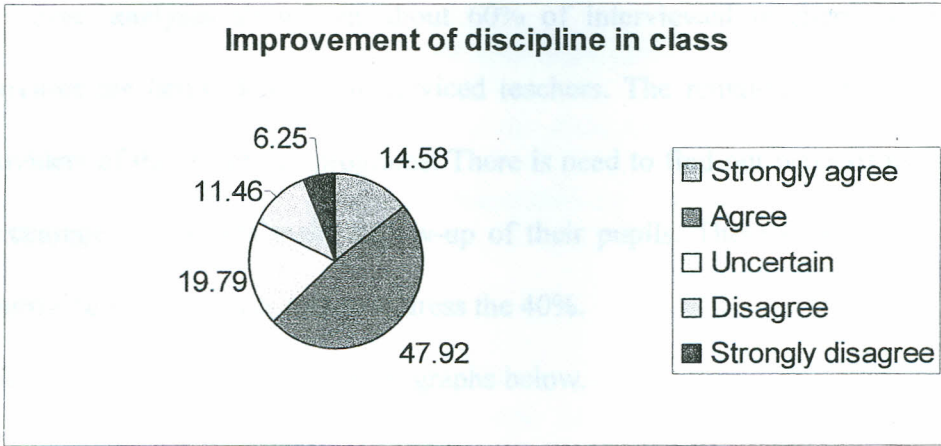
Table 20: Improvement of discipline in class

Response	No. of teachers	Percentage
Strongly agree	14	14.58
Agree	46	47.92
Uncertain	19	19.79
Disagree	11	11.46
Strongly disagree	6	6.25
Total	96	100.00

Results of the data shows that above 60% of teachers agree that in- service programs have assisted in improving classroom discipline. When classroom discipline improves performance improves as well. This happens because in-serviced teachers will have improved their teaching methodologies, which captures learners' interests. When learners are fully involved chances of deviating from lesson activities are minimal. A very small percentage i.e. 6% strongly disagrees that in-serve training may have contributed to classroom discipline in any way. Probably classroom was not a problem to them or they acquired little from the courses offered. Further research needs to be done in this area. However there is strong indication of the need to continue with the program so that classroom discipline can continue improving.

The data is further presented using a pie chart below:

Fig 18: Improvement of discipline



The respondents were required to indicate whether teachers who had gone through training programs were making follow up of their pupils performance.

The responses obtained are analyzed below:

Table 21: Follow-up of pupils

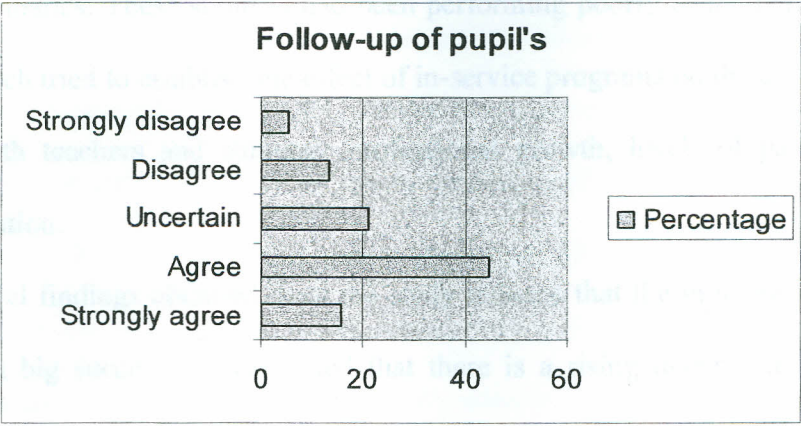
Response	No. of teachers	Percentage
Strongly agree	15	15.63
Agree	43	44.79
Uncertain	20	20.83
Disagree	13	13.54
Strongly disagree	5	5.21
Total	96	100.00

The data above shows that 44.79% of the teachers agree that after in-service courses follow-up is being intensified. 15.63% strongly agree that follow-up is being done by in-serviced

teachers. This means in-service training has developed concern in teachers over their students work. When teachers make continuous follow-up on their pupils, performance will be better. However, analyses show that about 60% of interviewed teachers agree that follow-up activities are being done by in-serviced teachers. The remaining 40% is a concern to the providers of the in-service programs. There is need to find out ways of making sure a larger percentage of teachers make follow-up of their pupils. There is necessity to find ways of improving in-service courses to address the 40%.

The results are presented using bar graphs below.

Fig 19: Follow-up of pupils



CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS.

This chapter summarizes the findings of the study in relation to the objectives of the study, conclusion drawn from study and recommendations for further research.

5.1 SUMMARY

The research project focused on the role of continuous training and development of secondary school teachers in Meru South district. In-service training programs in the district were organized during the holiday and were mainly targeting teachers teaching sciences and mathematics. These subjects had been performing poorly in the national examinations. The research tried to establish the effect of in-service programs on the areas such as performances of both teachers and students, professional growth, levels of participation and resource utilization.

General findings obtained from the study indicate that the in-service program in the district was a big success. It was noted that there is a rising demand to have other subjects go through the program. There has also been willingness for more teachers to enroll in the program. Teachers who have gone through this program have gained competences in various aspects of classroom work, collaboration learning and general classroom organization. This has improved classroom discipline and general academic improvement.

There was a general finding that teachers who had finished the course were transferred without giving them time to train others. They were also not given time to realize their efforts after trying to put into practice the skills learnt in the course.

The study found out that the head teachers had a crucial role to play in the success of the in-service program. They give the necessary support in financial matters and general moral support. However a number of them were found not to be supportive and the performance of the course was not appealing.

The research established that the in-service program was more responsive to gender issue and special needs of students than before. This has made it possible to cater for individual differences in class hence enhancing general performance of the school.

The study also established that the in-service program helped teachers acquire better methods of teaching and approaches that made pupils to like their classes. The study established that in-service program should be continuous because it provides a forum for teachers to exchange views and help them grow professionally. The study revealed that the teachers appreciate the need to prepare before going to teach a lesson. Teachers felt the need to have well prepared schemes of work, lesson plan and learning materials. This has improved teaching and learning in public secondary schools.

5.2 CONCLUSIONS

In the view of the study quite a number of issues have been noted and conclusions drawn.

5.2.1 Gender Distribution

Figures in table 3 indicate that 69.8% of teachers teaching sciences and mathematics are male teachers. Conclusion drawn here is that men dominate these subjects. Girls could therefore be shying away from these subjects because they lack role models.

There is need to encourage more ladies to train in these subjects to act as role models to the girls and encourage them do the subjects.

5.2.2 Academic qualification of teachers

Figures in table 5 show that 60.42% sciences and mathematics teachers are graduates from various universities.

Figures also indicate that none of the sampled teachers is untrained. One therefore concludes that the teaching force is well qualified to handle their work. Poor performance could be resulting from inferior methods of teaching. There is need to have these teachers continually in-serviced for them to improve their teaching methods.

5.2.3 Teaching load of teachers.

Figures in table six indicates that 85.41% of the sampled teachers teaches above 20 lessons per week. Statistics in table nine also indicates that over 54% of the sampled teachers teach in big schools where classes have more than 45 students against recommendation by the Ministry of Education. One therefore concludes that most sciences and mathematics teachers are overloaded. They have little time to closely follow their learners for better performance.

Therefore in-service programs being offered should be tailored to help teachers handle large classes effectively. Training being offered should also address the issue of too much work.

5.2.4 Importance of continuous training and development courses.

A huge percentage i.e. 84% of the sampled teachers felt that in-service training programs are very important. Hence many teachers and head-teachers have very positive attitude towards in-service courses. There is need therefore to continue offering in-service courses. It is even necessary that in- service programs for other subjects are drawn to have many teachers in-serviced.

5.2.5 Preparation of teachers.

Figures in table 18 show that 67% of the sampled teachers felt that in-service programs helped them prepare adequately for their lessons. Well-prepared teachers deliver better than poorly prepared teachers. One can therefore conclude that with teachers preparing better, teaching methods have improved and performance will also improve.

5.2.6 Improvement of discipline

Statistics in table 20 show that over 62% of the sampled teachers agree that in-service programs have helped teachers improve class discipline. With improved discipline one concludes that better performance will be realized. Therefore in-service courses are meeting some of their set objectives.

5.2.7 Frequency in offering in-service program

Responses got from the sampled teachers showed that most teachers felt continuity of in-service programs lacked. It was alleged that during some holidays the programs were not held while in other times, the period of training was reduced. This created a gap that hindered the smooth continuity and more learning for the teachers. There is need to correct this problem to ensure that continuity is adhered to.

5.2.8 Monitoring of in-service program

All respondents felt that no monitoring of in-service program is being done. For any instructional program to succeed, it should have competent monitoring to ensure that policies of the course are interpreted and implemented with some uniformity. Head-teachers who are the immediate supervisors of their teachers need to be conversant with the aims and objectives of the in-service programs. For the head-teacher to offer fully and informed support for the program, an intensive training for the program is necessary.

Teachers are very important as far as the success of the program is concerned. Therefore they need to be motivated and encouraged to carry on with the program. They need to stay in their stations for not less than three years in order to implement the skills they have learnt.

5.3 RECOMMENDATION FOR FURTHER RESEARCH.

The study focused on the role of continuous training and development of secondary schools teachers. Teachers targeted were mainly sciences and mathematics teachers.

A study can be carried out on the role of supervision to teachers who are undergoing the in-service programs. Supervision should be targeted to the officers of District Education Office.

A study on the motivation of teachers undertaking the in-service programs need to be carried out to establish their needs. The success of the in-service program depends on how well the teachers are motivated.

The study focused on Meru South district only. The same study can be extended to other districts in Kenya or other public institutions such as hospitals.

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LIST OF APPENDICES

APPENDIX I

WORK PLAN

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RESEARCH PROPOSAL															
LITERATURE REVIEW	█	█													
DRAFT REPORT 1			█	█											
DRAFT REPORT 2					█	█									
FINAL REPORT						█	█								
PRINTING AND REPORTING								█	█						
RESEARCH PROJECT															
DATA COLLECTION											█	█			
DATA ANALYSIS/INTERPRETATION												█	█		
REPORT WRITING/DRAFT AND REVISION													█		
FINAL REPORTING AND PRESENTATION														█	█

APENDIX II

BUDGET

RESEARCH PROPOSAL

	Cost in Kshs
Transport and traveling	3000
Stationery and printing	3500
Library services	1000
Internet services	1000
Sub. Total	8500

RESEARCH PROJECT

	Cost in Kshs.
Transport and traveling	4000
Stationery and printing	3000
Draft preparation	2000
Communication	3000
Binding	1200
Sub. Total	13200
Grand Total	21,700

APPENDIX III

LETTER OF INTRODUCTION

KINYUA TIMOTHY NYAGA,
KENYATTA UNIVERSITY,
P.O. BOX 43844,
NAIROBI.

Dear Teacher,

I am a postgraduate student at Kenyatta University. The purpose of the attached questionnaire is to collect data for research project leading to the Degree of Masters in Business Administration (MBA). I am undertaking a research on the assessment of the impact of continuous training and development in performance of secondary school teachers.

To satisfy the requirements, I request your input through filling the questionnaire. Secondary school teachers from various schools will fill this questionnaire. Kindly note that your honest responses will be held in strict confidence and will be used purely for academic purposes. Any additional information you may consider relevant for this research will be most welcome.

Your acceptance to complete the questionnaire is greatly appreciated.

Yours sincerely,

Kinyua T. Nyaga.

(MBA Student K.U)

APPENDIX IV

SCHOOLS IN MERU SOUTH DISTRICT

NAME OF SCHOOL	TOTAL TEACHERS	SCIENCE & <i>MATHS TRS</i>
	MATHS TRS	
1. Chief Mbogori Girls	20	4
2. Chogoria Boys	42	6
3. Chogoria Girls	54	8
4. Chuka Boys	39	5
5. Chuka Girls	32	5
6. Gianchuku Day	15	3
7. Gituja Day	14	3
8. Ibiriga Day	17	3
9. Igangara Mixed	23	4
10. Igwanjau Mixed	27	4
11. Ikawa Mixed	22	4
12. Ikuu Boys	37	5
13. Ikuu Girls	27	4
14. Iruma Girls	27	4
15. Kajiunduthi Mixed	36	5
16. Kajuki Mixed	19	3
17. Kambandi Girls	27	4
18. Kamwimbi Mixed	22	3
19. Karamugi Girls	25	4

20.	Kiamuriuki Day	20	4
21.	Kianjagi Day	13	3
22.	Kiereni Mixed	23	4
23.	Kiini Mixed	24	4
24.	Kimuchia Day	19	3
25.	Kirege Day	17	4
26.	Kiriani Boys	22	4
27.	Magundu Girls	23	4
28.	Makawani Day	19	3
29.	Makuri Girls	31	5
30.	Mbukoni Boys	20	4
31.	Mugona Girls	17	4
32.	Mukuuni Mixed	30	5
33.	Mumbuni Mixed	16	4
34.	Muraga Day	21	4
35.	Muthambi Boys	29	5
36.	Muthambi Girls	30	5
37.	Mutindwa Day	16	3
38.	Ndagani Mixed	29	4
39.	Ndagoni	29	4
40.	Ngaita Girls	26	4
41.	Ngeru Boys	26	4
42.	Njuri Mixed	25	4

43.	Nturiri Mixed	17	3
44.	Rubate Mixed	17	3
45.	Ruguta Girls	17	2
46.	St. Ann Day	19	4
47.	Thigaa Mixed	27	4
48.	Wiru Day	19	3
	TOTAL	1175	192

(Source: Meru South District Education Office)

APPENDIX V

PART ONE

QUESTIONNAIRE FOR HEADTEACHERS, MATHEMATICS TEACHERS AND SCIENCES TEACHERS

Please respond by putting a tick (✓) or writing in the space provided. Do not write your name or the name of your school but kindly please be as honest as possible.

1. What is your sex?

Male

Female

2. What is your age?

Below 30 years

Between 31-40 years

Between 41-50 years

Above 50 years

3. What is your marital status?

Married

Single

Divorced

4. What is your highest academic qualification?

Diploma in Education/S1 teacher

Graduate teacher.

Post graduate (Masters)

Others (Specify) _____

5. What is your teaching load?

- Below 10 lessons per week
- Between 11-15 lessons
- Between 16-20 lessons
- Above 20 lessons

6. What subjects have you specialized in?

7. Indicate the type of your school.

- Girls' day school
- Boys' day school
- Mixed day school
- Girls' boarding school
- Boys' boarding school
- Mixed day and boarding school
- Mixed boarding school
- Girls' day and boarding school
- Boys' day and boarding school
- Others (specify) _____

8. Indicate the size of your school in terms of streams.

- One stream
- Two streams
- Three streams
- Four streams
- Five streams
- Others (Specify)

9. What is your school enrollment?

- Below 100 students
- Between 101 – 200 students
- Between 201 – 300 students
- Over 300 students

PART TWO

Use the key given to indicate your opinion towards the items that are listed below. Put a tick (✓) against the response that best describes your opinion.

- Strongly agree 1
- Agree 2
- Uncertain 3
- Disagree 4
- Strongly disagree 5

	1	2	3	4	5
1. Continuous training and development courses are important to teachers.					
2. Continuous training and development courses have changed your attitude towards work.		✓	✓		
3. After undergoing various in-service courses, you can now manage your classes better.					
4. After in-service courses, you can now teach your area of specialization better.					

	1	2	3	4	5
5. Teachers who attend in-service courses regularly assist boys and girls learn equally.					
6. In-serviced teachers are able to address special needs of the students better.					
7. After in-service courses, teachers and their students enjoy learning.					
8. In-serviced teachers prepare adequately before going to class.					
9. Would you recommend more in-service course?					
10. In-serviced teachers have improved class discipline remarkably.					
11. After training most teachers are making follow up of their pupil's performance.					
12. In-service courses should be continuous for all teachers especially in Mathematics and Sciences.					
13. In-serviced teachers have improved in the use of learning aids.					
14. There has been general improvement in performance in your area of specialization since inception of in-service courses.					
15. Holiday tuition is playing a major role in performance of your students.					
16. Insufficient teachers in mathematics and sciences is causing dismal performance in these subjects.					

	1	2	3	4	5
17. Motivation of teachers is largely resulting to better performance of students.					
18. Large classes are leading to less performance by students.					
19. Students who joined secondary school with high KCPE marks are doing very well.					

PART THREE

1. As a teacher who has undergone continuous training and development programs, in which way do you think your school has benefited from these programs?

- Better results have been realized.
- There is improved discipline
- Both teachers and students are more motivated
- All of the above
- None of the above
- Other benefits (specify)

.....

.....

.....

.....

2. Compare your results since inception of continuous training and development programs. What is your comment?

- A lot of improvement
- Slight improvement
- No change
- Slight drop
- A big drop

3. How has continuous training and development programs helped you to be efficient in your class room work on the following areas:

a. Classroom management and control

Very helpful

Helpful

Not helpful

b. Lesson plan

Very helpful

Helpful

Not helpful

c. Class notes

Very helpful

Helpful

Not helpful

d. Teaching methods

Very helpful

Helpful

Not helpful

e. Use of relevant learning aids

Very helpful

Helpful

Not helpful

4. In your view, having been involved in in-service training and development programs what do you think are the weaknesses of these courses.

.....
.....
.....
.....

5. What recommendations can you make to improve SMASSE program and other in-service programs

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.....
.....
.....

6. Comment on any other factors which are affecting performance of teachers and students apart from training and development of teachers.

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Thank you for your assistance and cooperation.