CHALLENGES FACED IN TEACHING OF HOME SCIENCE IN PRIMARY TEACHER TRAINING COLLEGES IN EMBU AND MERU COUNTIES, KENYA

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E55/OL/13952/05

A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT FOR THE REQUIREMENTS OF MASTER OF EDUCATION DEGREE IN THE SCHOOL OF EDUCATION OF KENYATTA UNIVERSITY

DECEMBER, 2015
DECLARATION

I declare that this research project is my original work and has not been presented in any other university/institution for consideration of any certification. This research project report has been complemented by referenced sources duly acknowledged. Where text and data have been borrowed from other sources including the internet, these are specifically accredited and references cited using the current APA system and in accordance with anti-plagiarism regulations.

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DEDICATION

This project report is dedicated to my husband Peter and my children Roy and Ronnie. You have been such a blessing to me.
ACKNOWLEDGEMENTS

My most sincere gratitude goes to my supervisors; Dr. Michael Murage and Dr. Nobert Ogeta who worked hand in hand with me to bring this project to fruition. Special thanks to them for their wise counsel, patience, encouragement, constructive and innumerable suggestions as well as personal interest in my progress. Sincere thanks goes to the lecturers in the Department of Educational Management, Policy and Curriculum studies, Kenyatta University for their guidance and support during my entire study period of working on the project. I also acknowledge the entire Kenyatta University Management for their provision of academic facilities in the university.
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<tr>
<td>ASAL</td>
<td>Arid and Semi Arid Lands</td>
</tr>
<tr>
<td>GOK</td>
<td>Government of Kenya</td>
</tr>
<tr>
<td>HOS</td>
<td>Head of Subject</td>
</tr>
<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
</tr>
<tr>
<td>KCPE</td>
<td>Kenya Certificate of Primary Education</td>
</tr>
<tr>
<td>KICD</td>
<td>Kenya Institute of Curriculum Development</td>
</tr>
<tr>
<td>KSTC</td>
<td>Kenya Science Teachers College</td>
</tr>
<tr>
<td>MOE</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>P1</td>
<td>Primary Grade 1 Teacher</td>
</tr>
<tr>
<td>PHE</td>
<td>Physical Health Education</td>
</tr>
<tr>
<td>PTTC</td>
<td>Primary Teacher Training College</td>
</tr>
<tr>
<td>QAS</td>
<td>Quality Assurance and Standards</td>
</tr>
<tr>
<td>SH</td>
<td>Split Half</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>TE</td>
<td>Teacher Education</td>
</tr>
<tr>
<td>TIQET</td>
<td>Totally Integrated Quality Education and Training</td>
</tr>
<tr>
<td>TSC</td>
<td>Teachers Service Commission</td>
</tr>
<tr>
<td>UPE</td>
<td>Universal Primary Education</td>
</tr>
<tr>
<td>8-4-4</td>
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ABSTRACT

The central problem of this study is that despite the great importance placed on home science subject in the family life there are problems inhibiting its implementation in all levels of education especially in teacher training colleges. The purpose of the study was to assess the teaching of home science in PTTCs in Embu and Meru Counties. The objectives of the study were to: examine the support provided by KICD to home science tutors in PTTCs in Embu and Meru Counties; determine the problems encountered by trainees in learning home science; examine the challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs; determine the methodologies used to teach home science in PTTCs and identify the teaching and learning resources available for home science education in PTTCs. Also of interest to the researcher was the level of collaboration between the KICD personnel and the home science tutors in PTTCs. The target population for the study was all the five PTTCs in Embu and Meru Counties. The target respondents included all those who are directly involved in home science teacher education in PTTCs. These are the teacher trainees, home science tutors, home science heads of subject and the subject panel representative at KICD. The total population for the subjects of the study consisted of 14 home science tutors, 5 subject heads, 1,118 trainees from the PTTCs and one subject panel member. Two types of sampling procedures were employed in this study; purposive and simple random sampling. Purposive sampling enabled the researcher to sample the KICD home science subject panel representative and the home science subject head from each PTTC while the trainee sample was selected using simple random sampling based on the ratio of the student population in each college. The study utilized a combination of instruments. This included trainees and tutors questionnaire, an interview schedule for the subject panel representative and an observation schedule for observing the real classroom situation. Data collected were analyzed using descriptive statistics. Frequency distributions, tables and percentages were used to present the analysed data. This was done using the statistical package for social sciences (SPSS). The study findings revealed PTTCs receive support from KICD in various ways. The study also divulged numerous challenges encountered by trainees in learning home science in PTTCs and challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs. Methodologies used to teach home science in PTTCs were also assessed. The study also assessed the availability and unavailability of teaching and learning resources for home science education. It was recommended that; tutors should be encouraged to use as many teaching and learning resources as possible to set an environment which is simulative and conducive to learning and in which the trainees can be easily guided through the discovery of knowledge on their own. Tutors should also concentrate on individual students to guide trainees specifically on their difficult areas either in theory or practical lessons.
CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Governments all over the world commit large amounts of national budgets on primary teachers’ education. This is because primary education is considered to be of much benefit to society. Primary education in Kenya has received a lot of emphasis especially with the introduction of Free Primary Education (FPE) which takes a huge proportion of the education sector budget allocation due to increase in pupil enrolment since 2003. This has called for an increase in the number of teachers to handle the increasing number of pupils. Teacher training in Kenya dates back to 1920’s when teachers were being trained through apprenticeship (on the job training). There was no organized form of teaching and this left most of the learning to informal approaches like observation. Primary teacher education has registered considerable growth over the years. Currently, Kenya has forty eight Primary Teachers Training Colleges (PTTCs) where five are in Counties(Ministry of Education, 2006).

Sessional paper No. 10 (KESSP, 2011) states that government programmes for teacher education (TE) aims at providing quality and relevant education. The same paper stipulates the major objective of teacher education as follows: develop communication skills, develop professional attitude and values, equip the teacher with knowledge and ability to identify and develop educational needs of the child, and create initiative and sense of professional commitment to the society. It is assumed that home science education contribute to this goal.

The mission of home science is centred on the well being of families and individuals in the society. Home science education in schools focuses on those areas of life,
which constitute day to day activities. The aim of home science education is to
develop a basic set of knowledge, skills, and attitudes, which a learner can apply to
the material and human complexities of living in a diverse and evolving setting. Home
science education contributes to the development of independence, interdependence,
and the empowerment of individuals and families thus enabling them to become more
active and informed members of society. This study aimed at finding out the
challenges facing PPTC home science tutors, and which could negatively impact on
effective training of P1 home science teachers.

Existing literature suggests that primary school teacher training in Kenya could be
facing a number of challenges. The current selection procedure for pre service (PI)
training is through the use of ‘O’ level certificate. In 2002, the minimum qualification
for the course was C (plain) and C-(Minus) for Arid and Semi Arid Lands (ASAL)
districts. Since 2004, on top of the minimum entry grade a trainee was also required to
have C- (Minus) in language and a D+ (plus) in mathematics (Ministry of Education,
2009) although since 2005, the latter was nullified due to introduction of subject
specialization in PTTCs.

In the old system which was phased out in 2004, The PI trainees were to study and be
examined in the fifteen (15) compulsory subjects. In the same year after the
curriculum innovation, a new syllabus was put in place and the first group (pioneers)
were examined in July and graduated in August 2006. This innovation was to contend
to the Commission of Inquiry into Education System in Kenya, (Republic of Kenya,
2010). This commission, though with no legal mandate, was to inquire into the 8-4-4
system of education which had elicited a lot of public outcry especially on the aspect
of its load, relevance and cost effectiveness. This led to reduction of subjects in both
primary and secondary school syllabus. In relation to the above, curriculum developers adjusted the P1 pre service training curriculum to attempt to reflect what was in the primary school curriculum. Subjects were therefore reduced from fifteen (15) to ten (10) in the first year of training. Specialization which is a major challenge to home science tutors was also recommended in the second year of study. This allowed for only nine (9) subjects with only eight (8) as examinable. There are two categories of subjects: that is, Core subjects which include English, Kiswahili, P.H.E and ICT; and Elective subjects which are in two groups: Group A consisting of the science based subjects like science, Home science, Agriculture and Mathematics; and Group B form the art based subjects like the social studies, art and craft, music and religious education.

One of the subjects undertaken in the first year of the study is integrated science. This subject has raised a national outcry because it is expected to be taught by tutors from home science, agriculture and science. The biggest constraint here is that the tutors are not conversant with the content and methodology of teaching some of the topics therein. The subject is an integration of aspects of home science, agriculture and science that was done with the intention of dealing with overloading, merging, cost effectiveness and inclusion of emerging issues. However as stated earlier, this poses a big challenge to the trainers involved. The need to carry out a study on assessment of teaching of home science in PTTCs was thus reinforced by the fact that over the years, the teaching of home science in PTTCs has been faced by forces that home science tutors seem to be working against.
1.2 Statement of the Problem

Home science education helps to build in learners the necessary scientific attitudes to achieve greater efficiency and bring a qualitative change in life and homes. The objectives of home science education are to help each learner lead a more satisfying personal, family and community life. Home science is the application of many sciences and arts towards achieving better, healthier and happier homes. It includes knowledge of basic sciences, arts, applied sciences, such as nutrition, food, clothing, child care, home nursing, home management and human relationships. Home science education, by equipping learners with necessary skills for self-reliance, can contribute greatly to the country's achievement of vision 2030, as well as the first Millennium Development Goal of poverty eradication. However, as evidenced in the background to the study, it is clear that home science tutors in PTTCs are exposed to several problems and irregularities such as lack of clear cut policies on the relationship between the PTE home science syllabus and primary school science syllabus. When tutors are faced with such challenges they are unlikely to offer quality training to trainee teachers, meaning that the teachers will not be adequately prepared to offer quality instruction to learners. This means that the quality of home science education in primary schools is compromised. The study established the challenges facing the teaching of home science in PTTCs, and identified possible solutions to the challenges, which may lead to improved teaching and learning of home science in primary schools in the country.

1.3 Purpose of the Study

The purpose of the study was to assess the teaching of home science in PTTCs in Embu and Meru counties.
1.4 Objectives of the Study

The objectives of the study were to:

1. Examine the support provided by KICD to home science tutors in PTTCs in Embu and Meru Counties.

2. Determine the problems encountered by trainees in learning home science in PTTCs in Embu and Meru Counties.

3. Examine the challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs.

4. Determine the methodologies used to teach home science in PTTCs.

5. Identify the teaching and learning resources available for home science education in PTTCs.

1.5 Research Questions

The study was guided by the following research questions:

1. What support does KICD provide to home science tutors in PTTCs?

2. What are the problems encountered by trainees in learning home science in PTTCs?

3. What are the challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs?

4. What are the methodologies used to teach home science in PTTCs?

5. What are the teaching and learning resources available for home science education in PTTCs?
1.6 Significance of the Study

The findings of the proposed study may have a great impact on the future of curriculum development in Kenya. Theoretically, the study is expected to contribute to the advancement of knowledge about home science education in PTTCs. The study may also have a practical significance because it may lead to improvement of home science curriculum in PTTCs by identifying the strengths and constraints in the implementation process.

Similarly, the study findings may be of immediate benefit to MOE through KICD in the formulation of future primary teacher education policies. Also, the findings may guide the policy maker on subject selection procedure for subject specialization in the second year of training which is quite critical at the moment.

Finally, the study will form a basis on which other researchers can develop their studies.

1.7 Limitations of the Study

The following were limitations of the study.

1. In view of target population, the researcher encountered difficulties getting appointments and adequate time to interview some of the respondents.

2. Some of the respondents were not keen to expose the shortcomings of the policies or programmes for which they are directly responsible for. The responses might have therefore reflected bias.

1.8 Delimitations of the Study

The coverage of the study was confined to home science tutors, heads of subjects of home science, trainees and KICD subject representative. The study didn’t include
other stakeholders like Quality Assurance and Standards Officers (QASOs), Ministry of Education officials and principals of PTTCs due to shortage time, resources and other logistical challenges.

1.9 Assumptions of the study

The study was based on the following assumptions:

1. All home science tutors in PTTCs keeps up to date professional records that can be used to verify the quality of professional work going on in the colleges.

2. All the PTTCs in the sample studied would be experiencing some kind of challenges and irregularities.

3. The information given by home science tutors, trainees and other respondents will be correct and also a true reflection of the current situation in the PTTCs.

1.10 Theoretical Framework

Systems theory

This study adopted Systems theory as quoted by Lilienfeld, (1978). A system is composed of interacting parts that operate together to achieve some objective or purpose. A system is intended to "absorb" inputs, process them in some way and produce outputs. Outputs are defined by goals, objectives or common purposes. In order to understand the relationship between inputs, outputs and processes, you need to understand the environment in which all of this occurs. The environment represents everything that is important to understanding the functioning of the system, but it is not part of the system. The environment is that part of the world that can be ignored in the analysis except for its interaction with the system. It includes people, technology, capital, raw materials, data, regulation and opportunities.
The underlying assumption in systems theory is that all organizations are like living organisms, constantly moving, changing, and interacting, and a change in any one element affects the organization as a whole. Systems theory has a long history in the realm of human knowledge. Some scholars trace the development of systems theory back to Aristotle. Most scholars attribute the idea of holism, central to systems thinking, to the German philosopher Hegel who stated that the whole was greater than the sum of its part. This idea that systems consist of a number of interrelated and interconnected parts, that once put together, make the behavior of the whole different and distinct than the behavior of its individual parts. Management control systems consist of all organization structures, processes and subsystems designed to elicit behavior that achieves the strategic objectives of an organization at the highest level of performance with the least amount of unintended consequences and risk to the organization. The key ideas in this definition are as follows. Control is about achieving strategic objectives. The objectives must be achieved at a superior level of performance while minimizing any chance of unintended consequences. Structure refers to the formal task, authority and responsibility assignments in an organization. Processes are the activities through which control is accomplished. Subsystems support the structures and processes by providing the right incentives to shape behavior.

Using systems theory as a framework means that we view management control systems much like biological organisms that exist in a constant commerce with their environment. If an organization is an open system in constant commerce with its environment, then it follows that the environment will be very important in determining and explaining its behavior and controlling its fortunes. The implication is that a study of management control system must begin by understanding and
characterizing an organization’s environment. Organizational environments can be benign (few threats) or uncertain and dynamic (rapid change). Effective management control systems must meet the needs of their environment. Systems theory viewpoint when applied to management control would assert that these systems exhibit teleological or purposeful behavior. This is embedded in the definition of management control system when it was stated that the purpose of control is to achieve strategic objectives and to avoid unintended consequences (Goeran, 1994).

The concept of interrelated subsystems suggests that management control systems should be viewed as comprising of many interrelated components. Some of these may be structural components such as information, authority delegation, and so on. Others may be behavioral or cultural factors such as motivating behavior or building the right values. These systems are interrelated which means that we must design each one recognizing its impact on the other components. For example, we must consider how information will impact human behavior and vice versa. This means that the challenge for the designer of a management control system is to bring together an organization’s structural components and mesh it together with its behavioral and cultural components so all three work together as a singular whole. The concept of input-transformation-output links the management control system to the environment. Organizations obtain inputs from their environment, transform them into outputs, and then send the outputs back into the environment. In order to design a good management control system, it is imperative that we have a proper understanding of where in the environment to find the right inputs, what kind of transformation perform, and what output to produce. Differences in management control systems will reflect different input-transformation-output differences. For example, manufacturing organizations that use a mass manufacturing process will have different types of
control systems than organizations that use lean manufacturing methods. Understanding the input-transformation-output process helps to determine the special design parameters of a management control system for that organization. The notion of feedback is a very useful in designing management control systems. In a number of situations, an organization is faced with a choice of choosing whether to design feedback or feedforward systems. Budgetary controls typically use negative feedback. Economic and market forecasting systems use feedforward information. In general feedforward controls are better but they are expensive. Feedback systems are less efficient but also less costly to design and implement. The concept of homeostasis in the area of management control means that the system is not looking for a steady equilibrium. Rather it is seeking an improved state. Continuous improvement rather than maintenance of status quo becomes a key issue in designing control systems.

Control systems must continually scan their environment and improve their operations in order to maximize their chances of long run survival. The usefulness of concept of equifinality for management control is that it keeps the designer from looking for a one best way to do things. It recognizes that many different designs for a management control system can lead to the same end result. The concept of equifinality sensitizes a designer to look for solutions anywhere in the system and introduce change where it will be most likely to be effective in attaining the goals of the organization. For example, the productivity of a worker is affected not simply by how a task is designed; it is also affected by social environment in which he or she works. Increase in worker productivity, therefore, can be accomplished by redesigning the task or by redesigning the social system within which the worker is operating. In line with this study the researcher considers teaching of home science in primary teacher training colleges as based on systems theory of management (Bailey, 1994).
1.11 Conceptual Framework

The study assessed the teaching of home science subject in PTTCs in Embu and Meru Counties, with specific focus on the scope of the PTE syllabus, trainee challenges, classroom situation, teaching methodologies, staff challenges, teaching and learning resources and the level of collaboration between KICD and PTTCs.

The conceptual framework is presented in Figure 2.

![Conceptual Framework Diagram]

**Figure 1.1: Conceptual Framework**

**Source:** Researcher (2009)

As shown in Figure 1.2 above, the independent variables of the study include the home science PTE syllabus, characteristics of trainees, roles of teaching staff, teaching and learning facilities/resources and the level of collaboration between the
KICD and PTTCs. These factors were expected to pose challenges to the teaching and learning of home science in PTTCs, which was the dependent variable of the study. The final outcome would be the preparedness of home science teachers for offering quality teaching of the subject in primary schools in the country.

1.12 Definition of Operational Terms

Curriculum innovation: Specific change made on an existing programme taken to be more effective in accomplishing the goal of the system.

Curriculum: It is a planned course of programmes meant to achieve a set of objectives or goals.

Instruction: Orderly presentation of knowledge to a learner through various communication processes

Profession: A body that provides special services to the community, based on the accumulated knowledge.

Quality: High standards, determined by the effectiveness of qualified and motivated tutors, trainees and other stake holders, suitable learning environment including curriculum aspects and resources available.

Stake holders: The term refers to all those individuals or entities in the broad areas of education who may offer support from time to time.

Teacher education: A kind of programme intended to help students acquire the knowledge, skills, dispositions and norm of the occupation of teaching.

Training: Giving teaching and practice to attain a desired behaviour or skills.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature related to the study on assessment of teaching of home science in PTTCs in Kenya. The chapter covers literature on Home Science education, Home Science education in Kenya, challenges facing the teaching Home Science in teacher training colleges, challenges related to calibre of primary teacher trainers, challenges related to academic background of the teacher trainees, and a summary of the literature review.

2.2 Home Science Education

Home science means the art of managing ones resources efficiently or the science of achieving a healthier, happier home and, if need be, a successful career. Home Science teaches pupils the art of using things so that a beautiful, harmonious whole is achieved and an overall pleasant effect is created. At the same time, it gives pupils all the knowledge of the scientific procedures involved in making a home beautiful. As the very name suggests, Home Science is concerned with the home. The perception of a lay person is that it is a subject about home making and household chores. They are only partly correct because the area covered by the subject of Home science is vast and varied. Its scope extends far beyond the ‘home’ and is not limited to cooking, laundry, needlework and home decoration. In fact it is the only subject which prepares young learners for the two most important goals in their lives - looking after their home and family and preparing for a career or vocation in life.

In modern times great advances have been made in the fields of health, nutrition, sanitation, textiles, psychology, housing and so on, with the potentialities of making
available scientific knowledge which the home maker needs in his/her day-to-day work of managing the home. Since the home is the basis of all improvements and basically affects the national programmes, it is essential that such knowledge is made available to every homemaker in the country. Home science education helps to build the necessary scientific attitudes to achieve greater efficiency and bring a qualitative change in life and home. The objectives of home science education are to help each pupil lead a more satisfying personal, family and community life. Home science is an attempt to meet the demands of modern society. Home science is the application of many sciences and arts towards achieving better, healthier and happier homes. It includes knowledge of basic sciences, arts, applied sciences, such as nutrition, food, clothing, child care, home nursing, home management and human relationships.

2.3 Challenges Facing Teaching of Home Science in Teacher Training Colleges

Kenya is faced with new challenges of meeting the public demand for education and training both as a human right and as an essential investment in an endeavour to attain industrialization. These challenges point to the need for the education sector to properly play its role of developing needed skilled workers (UNESCO, 2000). The major challenges facing the education sector in Kenya relate to its financing, regional disparities in access, high wastage rates, relevance and quality education (Government of Kenya/UN Kenya, 2003; Otieno, 2003). The teaching of home science in PTTCs has also been faced with the afore-mentioned national challenges.

Telewa (2008), in her study on problems of teaching home science in PTTCs, indicated that in Kenya today, most of the tutors in PTTCs are faced by the problem of an overloaded curriculum. The study revealed that the PTE curriculum is characterized by too much integration, infusion and merging especially in the first
year of study and specialization is only done during the second year. This in turn leads to an overloaded curriculum which gives little time for Home Science and yet this is a subject that requires adequate time for practical teaching like any other science. Telewa (2008) also found that just like PE, the home science subject has been put together in the first year with agriculture and science to form integrated science. All tutors from this area are expected to handle this subject irrespective of the limited experience of the tutors involved.

Home science training is also faced by lack of equipments. To facilitate effective interaction between teachers and learners, teachers should use an assortment of materials, situations and facilities (Brock, 2001). Such a combination has the power to evoke an inquiry mind, motivate actions, evoke emotions, change attitudes and promote learning among learners (Heinich et al. 1999). The creativity of teachers and the sensory perception of their learners determine the effective facilitation of meaningful teaching/learning function (Levira, 1997) using most equipments, traditional and modern alike. In some colleges, there are no fully equipped home science rooms where the trainees can be encouraged to help practice, collect and create instructional materials for home science (Telewa 2008).

The provision of adequate learning facilities at the primary, secondary school levels and teacher training colleges, including equipment and human resource capacity, impedes the quality and relevance of the imparted skills to pupils. Home science training can be very expensive since all the equipment must be bought using scarce resources (Ngware & Nafukho, 2002). Very few schools can afford a fully equipped home science laboratory to enable the students learn all aspects of home science. If
anything, Kenya still finds it difficult to provide just enough text books for their overcrowded classrooms (Omari & Mosha, 2010).

2.4 Challenges Related to Calibre of Primary Teacher Trainers

The quality of any education system is greatly determined by the quality of the teacher. According to Kinyanjui (1979) the calibre of a teacher in any school or school system forms an important input variable which can have tremendous impact on school outcomes. The Teachers Service Commission (TSC) uses Curriculum Based Establishment (CBE) as the staffing criteria for PTTCs. Since there is no special requirement for one to be posted in a PTTC, any diploma or a degree holder may be posted in a PTTC regardless of whether they are trained to handle primary teacher trainees or whether or not they have had primary teacher training experience.

Levira, (1997) observed that most of the tutors teaching in PTTCs are not themselves trained to teach in colleges, neither are they at first familiar with primary level teaching methods. They learn on the job and go through induction. The Education Commission of 1999 (Republic of Kenya, 1999) established that posting of inexperienced tutors to PTTCs appear to be on the increase. To make matters worse, there is an increasing trend whereby senior teachers including head teachers who fail elsewhere are posted to PTTCs pending retirement.

The tutors and the lecturers in the PTTCs are also demotivated due to a stagnated upward mobility. Telewa (2009) postulates that, teacher qualifications and experience play a significant effect on learner performance. Ayot (1980) points out that in recent years most developments in teacher education programmes have focused on the need for developing professional competence rather than merely training in understanding
of concepts or in academic field. He proceeds to say that, there has been more emphasis placed on the development of competency based programmes.

The home science syllabus in PTTCs is also so wide that little time is left for practical works and polishing of microteaching skills. Telewa (2002) seems to be asking for factors like practical exposure of the trainees to the content they require to teach and the skills they will be required to use in teaching rather than craving for academic excellence and teaching content that is irrelevant to the teacher trainee. In the primary teacher training home science syllabus only a few topics on foods and nutrition and health education are reflected in the primary education integrated science syllabus. Kagatunyi (1986) pointed out that the preparation and professional enrichment of the teacher trainer continues to be neglected, yet it is the most powerful way of introducing innovations in educational systems.

2.5 Challenges Related to Academic Background of the Teacher Trainees

Kiptoon (2000), while addressing principals of PTTCs in a workshop on the theme “analytical evaluation of the current teacher training programmes: challenges and prospects for the 21st century”, affirmed that it is the duty of the Ministry of Education to produce quality teachers who are responsible for providing quality education. He continued to say that the quality of teachers produced by PTTCs depends on the entry qualification for the prospective teachers and how regularly they are in-serviced.

Kiptoon (2011) further stated that the low calibre of teacher trainees admitted to PTTCs is one of the constraints in producing quality teachers in Kenya. Majority of those admitted are usually at the bottom of the academic ladder. The entry grade has since been raised to C (plain) requirement. Trainees were to have C- (minus) in
language and science and a D+ (plus) in mathematics (Ministry of Education, 2001) but due to emphasis on subject specialization, the later has been nullified. In spite of all that, home science subject is disadvantaged because the trainees are expected to take the subject whether they had passed in it or not or whether they have any background knowledge of the subject or not.

Previous research for example by Mwangi (2011) indicates that most of the students admitted in PTTCs have very little background on the subject. This poses a great challenge to home science tutors because they start from the scratch with some of the trainees within limited time. The classes at hand also have mixed learners, those that have some knowledge on the subject, those with no knowledge at all and those with a lot of it, causing more organizational challenges to the tutors.

### 2.6 Trainees Attitudes towards Home Science Teaching- Learning Strategies

Trainees’ attitudes towards studying home science has been the object of some studies and research. The studies and research carried out have shown the fact that students acknowledge the importance of home science for life and career but have also pointed out a significant drop in interest in the study of the home science because of various reasons (Goe, 2004; Keuk, 2006). Among the factors identified that relate to students attitudes towards learning home science are peer influence, strategies used by teachers, their interest in the subject and students’ cognitive style. They are more positive to strategies that trained them to create their own knowledge, own statements or hypotheses about the texts they are reading. This involvement of learners in their own learning enables learners develop critical thinking skills so that they are able to gain both systematic knowledge and meanings interpreted. Soo-Phing & Tse (2007) in their study Interactive Multimedia Learning: Students Attitudes & Learning Impact in
an Animation Course found out that students are positive towards active learning and are confident in enforcing self-paced strategy. They also noted that interactive learning using web-based environment is feasible and is a viable alternative to the traditional classroom learning which has proven to be limited in achieving the necessary needs of the students in the modern learning context.

Ochieng’ (2006) Carried out a descriptive case study on students’ attitudes towards home science syllabus and the performance of home science in PTTCs and found out that students are generally happy with the content of home science syllabus. Steffan (2006) equally points out that students prefer those methods that render their life experiences valuable, stimulate their curiosity and involve them in research & practical activities. Learner-centered strategies are activity-oriented hence engage learners’ cognitive, affective and psychomotor skills. Learners therefore, prefer learner-centered strategies for these strategies involve learners actively in learning.

Du (2006) concurs with Steffan in his study “A Survey on Students’ Attitudes towards Teaching in Lexican Approach” where he found out that students have positive attitudes towards strategies that allow them to connect related items. This he argues could be achieved by guiding students to learn in a flexible and skillful way and by enriching oral and written activities so as to arouse and sustain students’ interest avoiding monotonous and unchanged teaching patterns.

It is therefore, evident from the cited studies that learners are more receptive to strategies that allow them to actively participate in learning. It is essential that teachers recognize this aspect and engage their learners more in the learning process.
2.7 Effect of Resources on the Choice of home science Teaching- Learning Strategies

For any learning to take place, the availability of teaching- learning resources is integral. The purpose of using teaching- learning resources is to increase the learners’ perception through effective communication. Farrant (1988) notes that for any meaningful change and improvement in education there must be adequate resources. Shiundu & Omulando (1992) concur by pointing out that teachers should access and acquire relevant instructional materials for the innovation in advance. These resources include physical for example buildings and equipment, material like textbooks and human like adequate staff. Bishop (1986) warns that unless there is a ready and continuing supply of teaching- learning equipment and adequate support services, any innovation introduced in the curriculum will be just a passing fancy. He further says that when a teacher has tools at hand, his confidence, effectiveness and productivity are increased.

Mwangi (2004) carried out a research to find out how teachers of home science select and utilize instructional resources in colleges, this was in the view that resources play an important role in the teaching and learning of home science. He found out that most teachers did not utilize authentic instructional resources or a multi media approach when teaching home science. He felt that if the resources were properly utilized they could help in improving the performance and competence of the students in home science. Newby, et.al (2000) also assert that teachers should objectively plan for and utilize the instructional materials available during lessons so as to achieve effective learning on the part of their learners.
Wamalwa & Wamalwa (2014) in their journal entitled “Towards the utilization of instructional media for effective teaching and learning” concluded that the instructional media element is a very integral aspect to the teaching and learning process. The use of instructional media enhances learning. However many teachers have for a long time been using traditional methods of teaching that do not incorporate the use of instructional media this in turn means that many home science lessons do not spark the interest and motivation required for optimal acquisition of skills and knowledge leading to a negative impact on students performance.

2.8 Summary

This chapter has presented a review of literature related to the study on the assessment of teaching home science in PTTCs in Kenya. From the reviewed literature, it emerged that main challenges faced by PTTCs in Kenya included inadequate financial provision, inappropriate tuition equipment and materials, dilapidated physical facilities, lack of adequate infrastructure, ICT equipment and software, and shortage of qualified personnel. The researcher noted that very few studies have been conducted on challenges related to preparation of home science teachers in Kenya. Only two related studies were identified (Male, 1988 and Mwangi, 1991). Based on the fact that the two studies were conducted over 15 years ago, and only one of the studies (Mwangi, 1991) concentrated on PTTCs, there is no empirical data to show the current challenges facing home science teaching in PTTCs in Kenya. The lack of attention to home science tutors by researchers is despite the fact that home science education, by equipping learners with necessary skills for self-reliance, can contribute greatly to the country’s achievement of the first Millennium Development Goal of poverty eradication as well as Vision 2030. The current study will assess the teaching of home science in PTTCs in Embu and Meru Counties in Kenya, with specific focus on the scope of the PTE syllabus, trainee challenges, classroom situation/methodologies, teaching staff challenges, teaching and learning resources, and level of collaboration between KICD and PTTCs.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter describes the research methodology to be used in investigating the challenges experienced by home science tutors in PTTCS in Kenya. This description will be undertaken under the following subheadings: research design, population, sample and sampling procedures, instrumentation, piloting, data collection procedures, and data analysis.

3.2 Research Design
Research design is the conceptual structure within which research is conducted. The design that was used in this study was descriptive survey design. A descriptive survey design represents what is or what was in any given situation. This includes the conditions existing, relationships, opinions held and the process going on among others (Mugenda & Mugenda 2003). The survey research design was chosen because it seeks to obtain information that describes existing phenomena by asking individuals about their perceptions, attitudes, behaviours or values, without manipulating any variables. According to Mugenda and Mugenda (2003) surveys are also excellent tools for the measurement of characteristics of large populations.

3.3 Study Locale and Population of the Study
Currently, Kenya has about forty eight PTTCs. For the purpose of the study, all the five PTTCs in Embu and Meru Counties were involved in the study. The target population in this study included all those who are directly involved in home science teacher education in PTTCs. These are the home science tutors, home science head of subjects, teacher trainees, and the subject panel representative at the Kenya Institute
of Curriculum Development. Embu and Meru Counties were chosen because there has been low choice of home science subject by trainees. The selection criterion for the locale was also one of convenience since the locale is easy to access by the researcher.

### 3.4 Study Population

The study population comprised of all the five PTTCs in Embu and Meru Counties. The total population for the subjects of the study consisted of 14 home science tutors, 5 subject heads, 1,118 trainees from the PTTCs and one subject panel member.

### 3.5 Sample Size and Sampling Procedures

All the five PTTCs in Embu and Meru Counties were involved in the study. From these PTTCs the researcher selected a representative sample of home science tutors, home science head of subjects, and teacher trainees to participate in the study. The tutors were selected using purposive sampling. This is because all the Home Science tutors in the colleges will be involved in the study. Mugenda and Mugenda (2003) observe that purposive sampling is a technique that allows the researcher to use cases that have the required information with respect to the objectives of the study. Respondents are therefore picked because they have the needed information or they have the required characteristics. Purposive sampling was employed to select the KICD Home Science subject panel representative and the home science subject head from each of the five PTTCs.
Table 3.1: Sampling Matrix

<table>
<thead>
<tr>
<th>Category of respondents</th>
<th>Population</th>
<th>Sample</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutors</td>
<td>14</td>
<td>14</td>
<td>100.0</td>
</tr>
<tr>
<td>Subject heads</td>
<td>5</td>
<td>5</td>
<td>100.0</td>
</tr>
<tr>
<td>Trainees</td>
<td>1,118</td>
<td>112</td>
<td>10.0</td>
</tr>
<tr>
<td>Subject panel</td>
<td>1</td>
<td>1</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,138</strong></td>
<td><strong>132</strong></td>
<td><strong>11.6</strong></td>
</tr>
</tbody>
</table>

The teacher trainees sample were selected using simple random sampling based on the ratio of the student population in each college. The total proposed sample of the student population was 10% of the accessible population. The second year trainees were purposively chosen because they have already covered most of the course work and hence they were placed in a better position to give the required information.

3.6 Research Instruments

The researcher utilized a combination of instruments to gather data for the study. This included trainees’ and tutors’ questionnaires, an interview schedule for the subject panel representative and an observation schedule for observing the real classroom situation. Details about each of the research instruments are provided below.

3.6.1 Questionnaires

The use of questionnaires was preferred since according to Borg and Gall (1996), less time is required when using questionnaires to collect data. Furthermore, Cohen and Marion (1994) indicate that compared to the interview which is both time consuming and expensive, the questionnaire is the best form of survey in carrying out an educational inquiry. The questionnaire is also, according to Kothari (1994), free from
interviewer bias and the respondents have adequate time to give well-thought out responses. The questionnaires included both open and closed ended items. Contingency questions were also included in the questionnaire where follow up questions were used to probe for more information. Two sets of questionnaires were designed, one for trainees and another for the trainers. The major focus of the questionnaires was to identify the resources applied in teaching and challenges encountered in teaching and learning of home science subject.

3.6.2 Interview Schedule

Interview schedule is an appropriate instrument in any study because it helps the interviewer to cover all the dimensions of an investigation through probing the participants. Borg and Gall (1996) indicates that an interview consists of oral questions by the interviewer and oral responses by the research participants. An interview situation often yields spontaneous reactions that the interviewer can record and might be useful in the data analysis stage.

The interview schedule guided a semi-structured interview where both structured and open ended questions were asked. The interviewer carefully recorded the interviewee’s responses during the interview as the respondent talks. The interviewer used suitable language to ensure there is effective communication. The responses were therefore be recorded by the researcher through handwritten notes. The researcher used the interview method to collect data from the KICD subject panel representative since the method allows great flexibility in questioning and it also allows the interviewer to collect supplementary information about respondents. The major focus of the interview schedule was to gather data on collaboration between KICD and PTTCs.
3.6.3 Observation Schedule

As a data gathering device, direct observation makes an important contribution to descriptive research. It is particularly good for information concerning aspects of material objects or specimens because the process involves classifying, measuring and counting. The observation schedule was used to observe the real classroom situation during the teaching of home science lessons to identify the problems the tutors face during these lessons. The researcher observed and recorded the available resources in the home science room. The researcher therefore used an observation check list to record what was observed during data collection.

3.7 Piloting

Before actual data collection, a pilot study was conducted in two PTTCs, which were not taken part in the actual study. This assisted in pre-testing the instruments. The aim of pre-testing was to identify major problems, instrument deficiencies and suggestions for improvement and to check if the instruments would elicit the anticipated data and whether the data could be meaningfully analyzed in relation to the stated objectives. Piloting also assists by providing data for use to improve reliability and validity of the research instruments.

3.7.1 Validity

Validity is defined as a measure of how well a test measures what it is supposed to measure (Kombo & Tromp, 2006). In other words, validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. In this study, both face validity and content validity of the instruments will be tested. Face validity is a subjective and cursory judgment of a concept, assessment instrument, or any other conceptualization to ascertain whether, on its face, it appears
valid (Bell, 1999). The pilot study was used to identify those items that could be misunderstood, and such items will be modified accordingly, thus increasing face validity (Wilkinson, 1991).

Content validity on the other hand refers to the degree to which a test appropriately represents the content domain it is intended to measure. When a test is judged to have high content validity, its content is considered to be congruent with the testing purpose and with prevailing notions of the subject matter tested. Expert opinions, literature searches, and pre-testing of open-ended questions help to establish content validity (Wilkinson, 1991). The researcher prepared the instruments in close consultation with her supervisor, whose expert judgement helped to improve content validity.

3.7.2 Reliability

The researcher used split-half technique to test the reliability of the instruments. Split-half technique is a method of reliability testing whereby the instrument being tested is administered only once to the pilot study respondents, and then the responses are divided into two equal halves, which are then subjected to reliability testing using a correlation test. Using this technique, the pilot questionnaires were divided into two equivalent halves (SH-1 and SH-2) and then a correlation coefficient for the two halves was computed.

Procedure for Split Half is as follows

\[
(i)
\begin{align*}
    r &= 1 - \frac{6 \cdot (D)^2}{N (N^2 - 1)}
\end{align*}
\]
Where:
\[ r = \text{Correlation coefficient} \]
\[ N = \text{Sample size}, \]
\[ \Sigma = \text{Summation of scores}, \]
\[ D = \text{Deviation} \]

(ii)
\[ SH = \frac{2r}{1 + r} \]

After correlation of the reliability coefficient of 0.77 was achieved, which showed that the instruments were reliable and thus they were accepted and recommended (Gay, 1992).

3.8 Data Collection Procedure

The researcher obtained an introduction letter from Kenyatta University and a research permit from the National Council for Science and Technology (NACOSTI). After this, the researcher visited the PTTCs to familiarize herself with them and book an appointment with the respondents through the principals. The researcher then visited each of the PTTC and administered the questionnaires herself. The respondents were given instructions and assured of confidentiality after which they were given enough time to fill in the questionnaires, after which the researcher collected the filled-in questionnaires. As the study participants fill in the questionnaires, the researcher was making observations on availability of various resources for teaching and learning of home science in the PTTCs. The researcher booked an appointment with the selected KICD subject panel representative on an appropriate date when the interview was to be held. During the interview, the researcher first created rapport with the respondent and assure him/her that strict confidentiality was to be observed, after which the interview proceeded.
3.9 Data Analysis

Data collected were analyzed using descriptive statistics. Data analysis involved organization of the data collected from the trainees’ and tutors questionnaire, interviews with the subject panel representative at KICD and the observation schedule. The open-ended responses from the questionnaires, observations and the interview yielded qualitative data that was organized in themes and presented in a narrative and discussion form. Frequency distribution, tables and percentages were used to present the data. Tables were used because they are easier to read and interpret by a variety of readers. From the tables and percentages that were presented, the researcher interpreted the information and made conclusions and recommendations.

3.10 Logistical and Ethical issues.

The researcher sought for a research permit from the government through the National Council for Science and Technology. The researcher then requested for permission to from the DEOs offices and the principals of the PTTCs to visit the selected colleges in Embu and Meru Counties. In this study confidentiality of information provided by respondents was ensured. The researcher ensured that the principle of voluntary participation was applied in that no respondent was coerced into participating in this study.
CHAPTER FOUR
RESULTS, DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction
This chapter presents an analysis of data collected from tutors, subject heads, trainees and KICD subject panellist. Data was collected from all the five PTTCs in Embu and Meru Counties. The analysis presents an assessment of teaching of home science in primary teacher training colleges in Embu and Meru Counties. Data analysis and report of findings was done using descriptive statistics in the form of mean, frequencies and percentages.

This section of data analysis was based on the following research objectives:
1. Examine the support provided by KICD to home science tutors in PTTCs in Embu and Meru Counties.
2. Determine the problems encountered by trainees in learning home science in PTTCs in Embu and Meru Counties.
3. Examine the challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs.
4. Determine the methodologies used to teach home science in PTTCs.
5. Identify the teaching and learning resources available for home science education.

4.2 Support provided by KICD to home science tutors in PTTCs
This section presents information from tutors from PTTCs in Embu and Meru Counties on whether KICD provides support to them. Questionnaires were distributed
to 14 (N=14) tutors and all of them responded to the instruments. The responses collected are as presented in Table 4.1.

Table 4.1: Support provided by KICD to Home Science Tutors

<table>
<thead>
<tr>
<th>KICD Support</th>
<th>Response Count (f)</th>
<th>Response Percent</th>
<th>Response Count (f)</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advise the PTTCs on matters pertaining to curriculum development</td>
<td>Yes = 10</td>
<td>71%</td>
<td>No = 4</td>
<td>29%</td>
</tr>
<tr>
<td>Develop, review support materials for the PTTCs</td>
<td>Yes = 9</td>
<td>64%</td>
<td>No = 5</td>
<td>36%</td>
</tr>
<tr>
<td>Disseminate information on education to PTTCs</td>
<td>Yes = 11</td>
<td>79%</td>
<td>No = 3</td>
<td>21%</td>
</tr>
<tr>
<td>Collaborate with PTTCs to offer tutors professional development courses</td>
<td>Yes = 5</td>
<td>36%</td>
<td>No = 9</td>
<td>64%</td>
</tr>
<tr>
<td>Develop, disseminate and transmit programmes and curriculum support materials via electronic learning to PTTCs</td>
<td>Yes = 6</td>
<td>43%</td>
<td>No = 8</td>
<td>57%</td>
</tr>
<tr>
<td>Promote equity and access to quality curricula and curriculum support materials</td>
<td>Yes = 6</td>
<td>43%</td>
<td>No = 8</td>
<td>57%</td>
</tr>
<tr>
<td>Promote appropriate utilization of technology in PTTCs to enhance innovations and achievement of a knowledge based economy</td>
<td>Yes = 4</td>
<td>29%</td>
<td>No = 10</td>
<td>71%</td>
</tr>
<tr>
<td>Offer consultancy services to PTTCs</td>
<td>Yes = 8</td>
<td>57%</td>
<td>No = 6</td>
<td>43%</td>
</tr>
<tr>
<td>Receive, consider, develop and review curriculum proposals for PTTCs</td>
<td>Yes = 7</td>
<td>50%</td>
<td>No = 7</td>
<td>50%</td>
</tr>
</tbody>
</table>

From the information presented in Table 4.1, it was found 10 (71%) tutors felt that KICD advises the PTTCs on matters pertaining to curriculum development whereas 4 (29%) found that they didn’t. On developing and reviewing support materials for the
PTTCs, 9 (64%) tutors felt that KICD supports them while 5 (36%) felt that they didn’t. From the responses gotten from the tutors, 11 (79%) felt KICD disseminates information on education to PTTCs whereas 3 (21%) felt that they didn’t. Regarding collaboration with PTTCs to offer tutors professional development courses, 5 (36%) felt that KICD do offer tutors professional development courses while 9 (64%) felt that they don’t. Out of the 14 tutors who responded to the questionnaire, 6 (43%) felt that KICD develops, disseminates and transmits programmes and curriculum support materials via electronic learning to PTTCs whereas 8 (57%) observed that they don’t. KICD also promotes equity and access to quality curricula and curriculum support materials with 6 (43%) tutors responding “yes” and 8 (57%) responding “No”.

The institute also promotes appropriate utilization of technology in PTTCs to enhance innovations and achievement of a knowledge based economy with 4 (29%) responding “yes” and 10 (71%) responding ‘No”. In terms of offering consultancy services to PTTCs, 8 (57%) of the respondents observed that KICD does it while 6 (43%) stated that they don’t. KICD also receives, considers, develops and reviews curriculum proposals for PTTCs with 7 (50%) responding “yes” and “No” respectively.

4.3 Problems encountered by trainees in learning home science in PTTCs

This section presents findings on the problems encountered by trainees in learning home science in PTTCs in Embu and Meru Counties. The sample size was 112 respondents. The questionnaire return rate 110 (98%) out of the 112 distributed questionnaires.
Table 4.2 Problems encountered by trainees in learning home science

<table>
<thead>
<tr>
<th>Problem mentioned by trainees</th>
<th>Response Count (f)</th>
<th>Response Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate time allocated for practicals</td>
<td>89</td>
<td>81%</td>
</tr>
<tr>
<td>Tutors unaware of trainees’s difficulties during practicals</td>
<td>34</td>
<td>31%</td>
</tr>
<tr>
<td>Poor coverage of content</td>
<td>12</td>
<td>11%</td>
</tr>
<tr>
<td>Large practical classes</td>
<td>45</td>
<td>41%</td>
</tr>
<tr>
<td>Inadequate revision materials</td>
<td>98</td>
<td>89%</td>
</tr>
<tr>
<td>Wide Syllabus (Difficult to Cover)</td>
<td>88</td>
<td>80%</td>
</tr>
<tr>
<td>Inadequate facilities</td>
<td>79</td>
<td>72%</td>
</tr>
<tr>
<td>Lack of interest in the subject</td>
<td>12</td>
<td>11%</td>
</tr>
<tr>
<td>Inadequate prior knowledge of some topics</td>
<td>23</td>
<td>21%</td>
</tr>
<tr>
<td>Inability to do some practicals e.g neat needle work</td>
<td>66</td>
<td>60%</td>
</tr>
<tr>
<td>Difficult concepts</td>
<td>76</td>
<td>69%</td>
</tr>
<tr>
<td>Inadequate tutors</td>
<td>78</td>
<td>71%</td>
</tr>
<tr>
<td>Few Practicals</td>
<td>87</td>
<td>79%</td>
</tr>
<tr>
<td>Tutors doing a lot of explanation during practicals rather</td>
<td>23</td>
<td>21%</td>
</tr>
<tr>
<td>than hand on experience approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutors too fast during practicals</td>
<td>12</td>
<td>11%</td>
</tr>
<tr>
<td>Inadequate learning resources</td>
<td>57</td>
<td>52%</td>
</tr>
<tr>
<td>Teaching mostly adopts expository strategy</td>
<td>33</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>n=110</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2 above presents the problems encountered by trainees in learning home science in PTTCs in Embu and Meru Counties. It was found that 89 (81%) of the respondents identified inadequacy of time allocated for practicals as a problem faced by the trainees. The problem of tutors unawareness of trainees difficulties during practicals was mentioned by 34 (31%), Poor coverage of content was stated by 12 (11%), Large practical classes was identified by 45 (41%), inadequate revision materials was mentioned by 98 (89%) while wide Syllabus which was difficult to
cover due to the time allocated for home science lessons was mentioned by 88 (80%). Other problems identified by the trainees include; inadequate facilities which was mentioned by 79 (72%) of the respondents, lack of interest in the subject which was stated by 12 (11%) and inadequate prior knowledge of some topics, mentioned by 23 (21%). Additionally the trainees identified other they face which include; inability to do some practicals e.g neat needle work which was stated by 66 (60%), difficult concepts which was mentioned by 76 (69%), inadequate tutors which was identified by 78 (71%) and few practicals lessons, identified by 87 (79%). Trainees also observed that, tutors do a lot of explanation during practicals rather than hand on experience approach, a problem which was stated by 23 (21%) of the respondents, tutors being too fast during practicals which was mentioned by 12 (11%), inadequate learning resources which was stated by 57 (52%) and tutors mostly adopting expository strategy in teaching which was stated by 33 (30%). Inadequate time allocated for practicals, inadequate revision materials, wide Syllabus which was difficult to cover within the allocated time and few practicals allocated for home science lessons were the problems that had the highest frequency count.

4.3.1 Challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs

Information in this section was gotten from 5 heads of subjects and 15 home science tutors, thus comprising a total of 19 respondents. The questionnaire return rate was 19 (100).
Table 4.3: Challenges faced by heads of subjects and home science tutors

<table>
<thead>
<tr>
<th>Problem mentioned by trainees</th>
<th>Response Count (f)</th>
<th>Response Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncomfortable with Integrated Science Syllabus – not related to primary school education – more inclined to pure science</td>
<td>18</td>
<td>95%</td>
</tr>
<tr>
<td>Large Classes</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Un available room for practicals</td>
<td>18</td>
<td>95%</td>
</tr>
<tr>
<td>Inadequate time to cover content</td>
<td>18</td>
<td>95%</td>
</tr>
<tr>
<td>Cultural influences – Men do not deal with Childcare, cook e.t.c</td>
<td>15</td>
<td>79%</td>
</tr>
<tr>
<td>New trainees in home science with no prior knowledge in the subject</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Low morale of the trainees</td>
<td>15</td>
<td>79%</td>
</tr>
<tr>
<td>Limited teaching resources</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Interruption by co-curricular activities</td>
<td>5</td>
<td>26%</td>
</tr>
</tbody>
</table>

N=19

Table 4.3 presents findings on the challenges faced by heads of home science subject and tutors of the subject in PTTCs in Embu and Meru Counties. The findings reveal that 18 (95%) of the respondents stated that they were uncomfortable with integrated Science Syllabus since it was not related to primary school education and it was more inclined to pure science than home science topics. The respondents also stated the challenge of large class sizes with total number of respondents 19 (100%) mentioning this problem. The respondents observed that there was un available room for practicals with 18 (95%) stating this as a challenge in implementation of the home science syllabus in PTTCs in Embu and Meru Counties. They also stated inadequacy of time to cover content as a major challenge which was mentioned by 18 (95%) of the respondents. Additionally, the respondents also mentioned the challenge of
cultural influences in that male trainees were not comfortable with childcare and cookery topics since in their cultural backgrounds, men do not indulge in those activities. This challenge was stated by 15 (79%) of the respondents. Many trainees who join the PTTCs usually have no prior knowledge in home science subject and thus the heads of subject and tutors introduce the subject totally new discipline to the learners. This poses a challenge to the heads of subject and tutors in comparison when teaching trainees who covered it either in primary or secondary schools. This problem was stated by 19 (100%). The respondents also mentioned the following challenges namely; low morale of the trainees 15 (79%), limited teaching resources 19 (100%) and interruption by co-curricular activities 5 (26%) as impeding challenges to the implementation of the home science syllabus. Their corresponding response count frequencies and percentages are also indicated.

4.4 Methodologies used to teach home science in PTTCs

This section discusses on the methodologies and pedagogy applied in teaching and learning of home science subject in PTTCs in Embu and Meru Counties. Data in this section was collected through observation technique in five PTTCs in Embu and Meru Counties.

4.4.1 Lesson Preparation

Findings on lesson preparation are presented in this section and also presented in Table 4.4.
Table 4.4: Lesson preparation documents

<table>
<thead>
<tr>
<th>Lesson preparation documents</th>
<th>I</th>
<th>Av</th>
<th>A</th>
<th>VA</th>
<th>EA</th>
<th>Rating Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatedness of the schemes of work and syllabus</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
<tr>
<td>Inclusion of objectives, content, activities, resources</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>Coverage of content</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>3.8</td>
</tr>
<tr>
<td>Suitability of instructional objectives</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Assessment procedures</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Key: I-Inadequate, Av-Average, A -Adequate, VA-Very Adequate, EA-Extremely Adequate

As presented in Table 4.4, five parameters were investigated on lesson preparation through observation method from five PTTCs in Embu and Meru Counties. The five parameters which were investigated are; relatedness of the schemes of work and syllabus, inclusion of objectives, content, activities, resources, coverage of content, suitability of instructional objectives and assessment procedures. The five point likert scale comprised of five rating levels which are inadequate, average, adequate, very adequate and extremely adequate. The five levels weights are 1, 2, 3, 4 and 5 respectively. After observation, it was found the five parameters which are relatedness of the schemes of work and syllabus, inclusion of objectives, content, activities, resources, coverage of content, suitability of instructional objectives and assessment procedures constituted of 2.6, 2.4, 3.8, 3 and 3 rating averages respectively. Coverage of content had the highest rating average of 3.8 and inclusion of objectives, content, activities, resources had the lowest of 2.4. This implies that there was adequate coverage of content in all the five PTTCs but there was a weakness with inclusion of objectives, content, activities and resources.
4.4.2 Proficiency of content

This section presents findings on proficiency of content as observed during teaching and learning process. Data for this section was collected through observation in actual classroom setting and findings are presented in Table 4.5.

Table 4.5: Proficiency of content

<table>
<thead>
<tr>
<th>Proficiency of content</th>
<th>I</th>
<th>Av</th>
<th>A</th>
<th>VA</th>
<th>EA</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers’ mastery of content</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Teachers’ response to questions asked</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Suitability of the teaching method</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2.4</td>
</tr>
</tbody>
</table>

Key: I-Inadequate, Av-Average, A -Adequate, VA-Very Adequate, EA-Extremely Adequate

As indicated in table 4.5, three parameters were rated from the five PTTCs in Embu and Meru Counties. The five parameters are; teachers’ mastery of content, teachers’ response to questions asked and suitability of the teaching method. It was found that, both teachers’ mastery of content and teachers’ response to questions asked had a rating average of 2.2 and suitability of the teaching method had a rating average of 2.4. This implies that all the three observed parameters were average and adequate respectively.

4.4.3 Assessment of the Teaching- Learning Process

This section presents findings on teaching- learning Process. Data for this section was collected through observation during the teaching learning process and findings are presented in Table 4.6.
Table 4.6: Assessment of the Teaching-Learning Process

<table>
<thead>
<tr>
<th>Response Choice</th>
<th>I</th>
<th>Av</th>
<th>A</th>
<th>VA</th>
<th>EA</th>
<th>Rating Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation level of learners</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>Learner participation in the lesson</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
<tr>
<td>Development of practical skills</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>3.6</td>
</tr>
<tr>
<td>Use of verbal reinforcement</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td>2.8</td>
</tr>
<tr>
<td>Use of non-verbal reinforcement</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>3.2</td>
</tr>
<tr>
<td>Stimulus variation</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>3.2</td>
</tr>
<tr>
<td>Use of appropriate example and illustrations</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Appropriate use of the method chosen</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>3.2</td>
</tr>
<tr>
<td>Demonstration procedure in practical</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td>2.8</td>
</tr>
</tbody>
</table>

Key: I-Inadequate, Av-Average, A-Adequate, VA-Very Adequate, EA-Extremely Adequate

With regard to assessment of the teaching-learning Process, the following features were observed and their corresponding rating averages are indicated; motivation level of learners had a rating average of 2.4, learner participation in the lesson was rated 2.6, development of practical skills was rated 3.6, use of verbal reinforcement was rated 2.8, use of non-verbal reinforcement was rated 3.2, stimulus variation was rated 3.2, use of appropriate example and illustrations was rated 2.2, appropriate use of the method chosen was rated 3.2 and demonstration procedure in practicals had a rating average of 2.8. Development of practical skills had the highest rating average of 3.6 and use of appropriate example and illustrations had the lowest rating average of 2.2. This implies that tutors were effective in training on practical skills. The five point likert scale comprised of five rating levels which are inadequate, average, adequate,
very adequate and extremely adequate. The five levels weights are 1,2,3,4 and 5 respectively.

4.4.4 Assessment of the Teaching- Learning Resources

This segment presents data on teaching learning resources which was observed from the five PTTCs in Embu and Meru Counties. The findings are as presented in Table 4.7.

Table 4.7: Teaching learning resources

<table>
<thead>
<tr>
<th>Teaching learning resources</th>
<th>I</th>
<th>Av</th>
<th>A</th>
<th>VA</th>
<th>EA</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching /learning aids use</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>Improvisation from locally available</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>3.8</td>
</tr>
<tr>
<td>materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of local environment as resources</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>3.8</td>
</tr>
<tr>
<td>General facilities for the subject</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
</tbody>
</table>

Key: I-Inadequate, Av-Average, A-Adequate, VA-Very Adequate, EA-Extremely Adequate

As presented in Table 4.7, four features of the teaching learning process were investigated and rated in respect to their utilization in the five PTTCs in Embu and Meru Counties. The four parameters are; teaching /learning aids use, improvisation from locally available materials, use of local environment as resources and general facilities for the subject. The rating average ranged from 3.8 for improvisation from locally available materials and 2.2 for general facilities for the subject. This implies that PTTCs in Embu and Meru Counties usually improvise locally available resources for use in teaching-learning process but there was deficiency of general facilities for home science subject.
4.4.5 Evaluation of Learners

This section presents information on the evaluation of students in home science subject. The data was collected through observation technique from the five PTTCs in Embu and Meru Counties. The results are presented in Table 4.8.

Table 4.8: Evaluation of Learners

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>I</th>
<th>Av</th>
<th>A</th>
<th>VA</th>
<th>EA</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of the questioning technique</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Monitoring of class performance</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Individual learner performance</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>Readiness to do remedial teaching where learners do not understand</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving adequate assignment after the lesson</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>3.2</td>
</tr>
</tbody>
</table>

Key: I-Inadequate, Av-Average, A-Adequate, VA-Very Adequate, EA-Extremely Adequate

Table 4.8 presents information on evaluation of learners in home science subject. The following parameters were observed and rated. The five point likert scale comprised of five rating levels which are inadequate, average, adequate, very adequate and extremely adequate. The five levels weights are 1,2,3,4 and 5 respectively. The rating averages for the five five parameters rated are as follows; use of the questioning technique was rated 2.2, monitoring of class performance was rated 2.2, individual learner performance had a rating average of 3.4, readiness to do remedial teaching where learners do not understand was rated 4 and dving adequate assignment after the lesson had a rating average of 3.2. The rating averages ranged from 2.2 to 4, with readiness to do remedial teaching where learners do not understand having the highest and both use of the questioning technique and monitoring of class performance having
the lowest rating average. This means that tutors in PTTCs in Embu and Meru Counties conducted remedial classes for the difficult topics.

4.4.6 Time management

This section discusses information on time management in the five PTTCs in Embu and Meru Counties. Time management is the ability to use one's time effectively or productively, especially at work. The results are as indicated in Table 4.9.

Table 4.9: Time management

<table>
<thead>
<tr>
<th>Time management</th>
<th>I</th>
<th>Av</th>
<th>A</th>
<th>VA</th>
<th>EA</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time allocation for each activity</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>Effective use of time</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
</tbody>
</table>

Key: I-Inadequate, Av-Average, A -Adequate, VA-Very Adequate, EA-Extremely Adequate

Time allocation for each activity and effective use of time were the two considerations that were of interest to the researcher. The two parameters had rating averages of 3.4 and 2.6 respectively as shown in Table 4.9. This indicates that time allocation for each activity is done appropriately and suitably.

4.5 Teaching and learning resources available for home science education

The teaching learning resources available for home science which were observed from the five PTTCs in Highlands’s zone can be grouped as follows:

(i) Cookers

It was observed that in three PTTCs there were no cookers. In the other two colleges, one had four unfunctional cookers and in the other one there were two old model
cookers. This shows high deficiency of this facility in the PTTCs in Embu and Meru Counties.

(ii) Sewing Machines
Regarding sewing machines, it was observed that in four PTTCs the available sewing machines were not functional. Only in one college where there were two functional and two not functional sewing machines. Most colleges do not make use of sewing machines.

(iii) Laundry work Equipment
With respect to laundry work equipment, it was observed that each college had only a few laundry equipments which include washers, dryers, ironing and pressing equipment. All colleges borrowed these items to show trainees

(iv) Child care facilities
Regarding child care facilities, they were nonexistent in all colleges. These facilities are usually borrowed during practicals.

(v) Cleaning Equipment
With respect to cleaning equipment, it was observed that each college had only a few cleaning equipments which include brooms and buckets. In most of the colleges they borrowed them from housekeeper’s department.

4.6 Proposed interventions to enhance implementation of home science syllabus in PTTCs in Embu and Meru Counties
The following interventions were proposed by the respondents on how implementation of the home science syllabus can be improved.
(i) **Include more practical sessions in the timetable**

Respondents felt that time allocated for practical activities was inadequate and thus should be increased so that trainees can have more time practising.

(ii) **Application of heuristic strategies**

It was also suggested that tutors should avoid expository strategies (teacher centred) in teaching and embark more on heuristic strategies (students centred) during instruction, e.g., discussion methods. This coincides with recommendations by Telewa (2008) in the study about teaching of oral skills in middle colleges in New Delhi, India.

(iii) **Provision of more revision materials**

It was also stated that there was need to improve on revision materials so that learners can have broader access to information related to the subject.

(iv) **Remedial lessons**

It was suggested that tutors should arrange for remedial lessons so as to tackle difficult aspects and cater for slow learners.

(v) **Narrow the syllabus**

Majority of the respondents complained about the integrated science syllabus being so wide which becomes impossible to cover within the timetabled lessons. Thus the number of topics should be reduced in order to be covered within the stipulated time frame.

(vi) **Use of teaching aids in the teaching and learning process**

It was also suggested that tutors should be encouraged to use as many teaching and learning aids as possible to set an environment which is simulative and conducive to
learning and in which the trainees can be easily guided through the discovery of knowledge on their own. Learning and teaching aids are items used to facilitate learning and teaching. These can be visual or audio (Bruner, 1966).

(vii) **Individual attention to learners**

Tutors should also concentrate on individual students to guide them specifically on their difficult areas either in theory or practicals.

(viii) **Improve on facilities and equipments**

It was also suggested that facilities and equipments should be provided to enable effective practical lessons. PTTCs should also acquire state of art facilities and equipments so as to be at par with modern technology.

(ix) **Smaller class sizes**

Class sizes should also be reduced in order to enhance on teaching learning process and improve on the evaluation procedures. This is reducing the teacher pupil ratio which aims at ensuring the tutor can give attention to individual learners.

(x) **Time allocation**

It was also suggested that more time should be allocated on practical lessons. This would ensure that learners have adequate time to practice and master procedures during practical lessons.

(xi) **Make content relevant to primary schools**

Majority of the respondents stated that the content provided in the integrated science syllabus was irrelevant to primary schools. Thus the content should be revised to conform to primary education requirements.
(xii) **Switch from traditional methods to modern methods.**

It was suggested that tutors should switch from the traditional “chalk and talk” method of teaching to modern, revolutionary and innovative teaching methods. They should also adopt state of art technologies during practical lessons e.g in needle work.

(xiii) **Recruit more tutors**

It was suggested that the government should recruit more tutors for PTTCs in order to avoid large class sizes.

(xiv) **Introduce the Home Science Subject in first year**

Respondents also suggested that Home Science Subject should be introduced in first year so as to give trainees sufficient period for coverage and mastery of the subject.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the research findings, conclusions and recommendations. This chapter was based on the following research objectives:

1. Examine the support provided by KICD to home science tutors in PTTCs in Embu and Meru Counties.
2. Determine the problems encountered by trainees in learning home science in PTTCs in Embu and Meru Counties.
3. Examine the challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs.
4. Determine the methodologies used to teach home science in PTTCs.
5. Identify the teaching and learning resources available for home science education.

5.2 Summary

From the results analyzed and discussed in chapter four, the study findings can be summarized as follows:

5.2.1 Support provided by KICD to home science tutors in PTTCs

Data gathered from the respondents revealed that KICD advises the PTTCs on matters pertaining to curriculum development develops and reviews support materials for the PTTCs. KICD also disseminates information on education to PTTCs. The institute also offer tutors professional development courses, develops, disseminates and transmits programmes and curriculum support materials via electronic learning to PTTCs, promotes equity and access to quality curricula and curriculum support.
materials. The institute also promotes appropriate utilization of technology in PTTCs to enhance innovations and achievement of a knowledge based economy. The institute also offers consultancy services, receives, considers, develops and reviews curriculum proposals for PTTCs.

5.2.2 Problems encountered by trainees in learning home science in PTTCs

Data revealed that the PTTCs face various challenges in implementation of home science syllabus. The problems identified are; inadequacy of time allocated for practical lessons, unawareness of trainees difficulties during practicals, Poor coverage of content, Large practical classes, inadequate revision materials, wide Syllabus which is difficult to cover due to the time allocated for home science lessons. Other problems identified include; lack of interest in the subject, inadequate prior knowledge of some topics, inability to do some practicals, difficult concepts, inadequate tutors and few practical lessons.

5.2.3 Challenges experienced by heads of subjects and home science tutors in teaching and implementing the home science syllabus in PTTCs

Information analyzed revealed the following challenges faced by heads of home science subject and tutors of the subject. The challenges include the following; integrated Science Syllabus was not related to primary school education, large class sizes, unavailable room for practicals, inadequacy of time to cover content, challenge of cultural influences, lack of prior knowledge in home science subject, low morale of the trainees, limited teaching resources and interruption by co-curricular activities.
5.2.4 Methodologies used to teach home science in PTTCs

Data revealed that methodologies utilized in teaching home science revealed that lesson preparation was adequately done. It was also revealed that tutors were proficient in content. The teaching-learning process was also well managed. Evaluation of learners was effective and time management was properly done.

5.2.5 Teaching and learning resources available for home science education

Information gathered showed there was inadequacy of teaching learning resources available for home science.

5.3 Conclusions

From the results analyzed, the following conclusions can be made:

KICD supports PTTCs in various. Support provided by KICD is aimed at improving effectiveness and efficiency of PTTCs. It was also concluded that PTTCs face numerous challenges which needs attention in order to improve implementation of home science syllabus. The problems are encountered by trainees, tutors, heads of subjects. PTTCs tutors also make use various methodologies used to teach home science in PTTCs.

Additionally it was concluded that, the PTTCs in Highlands’s zone lacked adequate facilities and equipments for home science teaching and learning. In three PTTCs there were no cooking facilities and in the other two colleges, the cookers were not functional. The available sewing machines in the PTTCs were not functional. With respect to laundry work equipment, it was observed that each college had only a few laundry equipments which include washers, dryers, ironers and pressers. Regarding child care facilities, they were nonexistent in all colleges. With respect to cleaning
equipment, it was observed that each college had only a few cleaning equipments which include brooms and buckets.

5.4 Recommendations

From the results analyzed it can be recommended that:

i) Adequate time to be allocated for practical activities

ii) Tutors should avoid expository strategies (teacher centred) in teaching and embark more on heurist strategies (students centred) during instruction. e.g discussion methods

iii) There was need to improve on revision materials so that learners can have broader access to information related to home science subject

iv) Tutors should arrange for remedial lessons so as to tackle difficult lessons

v) The number of topics in the syllabus to be reduced in order to be covered within the stipulated time frame.

vi) Additionally it was recommended that; tutors should be encouraged to use as many teaching and learning aids as possible to set an environment which is simulative and conducive to learning and in which the trainees can easily be guided through the discovery of knowledge on their own

vii) Tutors should also concentrate on individual students to guide trainees specifically on their difficult areas either in theory or practicals.
5.5 **Suggestions for Further Research**

The following areas are suggested for further study:

i. Enhancing application of e-Learning in teaching and learning in PTTCs. This would give information on how quality of teaching and learning home science can be enhanced.

ii. Improving quality of trainees in PTTCs. This will divulge strategies that can improve on home science instructional processes

iii. Ensuring internal efficiency in PTTCs. This will show how access, retention and quality of trainees can be enhanced.

iv. Effects of tutors strikes in PTTCs. A study on this topic will show how unrests of teaching staff affects the output of PTTCs
BIBLIOGRAPHY


Telewa (2008), Implementing English Curriculum: Final Report of a seminar held in NewDelhi

Telewa (2009), Motivation within instructional strategies: Final Report of a seminar held in Nairobi, Kenya.


APPENDICES

APPENDIX A: QUESTIONNAIRE FOR HOME SCIENCE TUTORS IN PTTCS

This questionnaire is intended to gather information that will be useful in examining the challenges that home science tutors face in primary teacher training colleges in Embu and Meru Counties, Kenya. Any information provided will be used for the purpose of research only and will be kept confidential. You therefore need not indicate your name.

1. Gender
   - Male ( )
   - Female ( )

2. Age
   - 20-30 ( )
   - 31-40 ( )
   - 41-50 ( )
   - 51 and above ( )

3. What is your academic qualification
   - S1 ( )
   - DIP. ED ( )
   - B.ED (Regular) ( )
   - M.ED /MA ( )
   - Any other (specify) ..........................................................

4. What was the length of your training as a home science teacher?
   - 1 year ( )
   - 2 years ( )
   - 3 years ( )
   - 4 years ( )
   - Any other (specify) ..........................................................

5. For how long have you taught home science in PTTCs?
   - 0–1 Years ( )
   - 1 – 2 Years ( )
   - 3 – 5 years ( )
   - 5 years and above ( )
6. Have you attended any in service course for home science you joined the PTTC
   Yes  (  )  No  (  )
   If the above answer is yes what was the purpose of the course?.................................................................
   ...........................................................................................................................................................................

   Who organised the course?.................................................................................................................................

7. Are you satisfied with the change that took place in the home science PTE syllabus recently?Yes  (  )  No  (  )
   If the above is no, mention some of the causes of dissatisfaction to you........
   ...........................................................................................................................................................................
   ...........................................................................................................................................................................

8. Which areas in the first year integrated science content do you find difficult to teach?
   Methodology aspects  (  )  Agricultural aspects  (  )
   Science aspects  (  )  Home science aspects  (  )

9. Which areas in the second years home science syllabus content do you find difficult to teach
   Foods and nutrition aspects  (  )
   Needlework aspects  (  )
   Maternal child health care aspects  (  )
   Housing the family and care of the home  (  )

10. Is the primary school science syllabus familiar to you?
    Yes  (  )  No  (  )
    If YES, what areas do you find inclusive of the PTE home science syllabus content
    Food and nutrition  (  )
    Material child health care  (  )
    Needle work  (  )
    Health education  (  )
    Housing the family and care of the home  (  )
11. How many hours per week are allocated to teaching integrated science in first year? ..............................................................

12. Is this time adequate for covering the first years syllabus
   Yes (  )  No (  )

13. How many hours per week are allocated to teaching of home science in the second year?
   ........................................................................................................

14. In your opinion is this time adequate for covering the second year’s syllabus
   Yes (  )  No (  )

15. If the answer is no, how do you manage to cover the syllabus? ..............................................................
   ........................................................................................................

16. A part from the aspect of the time what other factors contribute to not covering the syllabus adequately?
   ........................................................................................................

17. How do you rate the official PTTCs home syllabus in terms of usefulness in helping you teach the subject?
   Very helpful (  )  Helpful (  )  Not helpful (  )

18. If not very helpful what suggestion would you offer for the improvement?
   ........................................................................................................

19. Is the methodology content taught in the first year of study suitable for teaching home science aspects?
   Very suitable (  )  Suitable (  )  Not suitable (  )

20. Home science is a practical subject and many aspects have to be taught practically to master the skills involved. How effective is your organisation and supervision of these practical
   Very effective (  )  Effective (  )
   Not effective (  )
21. If not very effective what problem hinder effective organisation of the practical?
   Lack of adequate time  (  )  Large classes  (  )
   Lack of resources  (  )  Any other (specify) ............................

22. How often do you use the following methods in the teaching of home science in your college? (Tick on the appropriate column)

<table>
<thead>
<tr>
<th>Teaching methods</th>
<th>Not used at all</th>
<th>Frequently</th>
<th>Very Frequently used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field trip</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science walk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guest speaker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role play/dramatization</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. From the methods recommended in the first year of study, which one is quite irrelevant to the teaching of home science subject?..........................................

24. Do you have home science room in your college?  Yes  (  )  No  (  )

25. If the answer is yes indicate the level of adequacy of the following facilities in the home science room

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Not available</th>
<th>Inadequate</th>
<th>Adequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewing machine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kitchen equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laundry equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needlework equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference books</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T/l Aids e.g. charts, posters</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
26. What problems do you face when teaching home science in your college? ......
........................................................................................................................................
........................................................................................................................................

27. How do you normally cope with the problems you have highlighted above?....
........................................................................................................................................
........................................................................................................................................

28. What suggestion would you offer to eradicate them?.................................
........................................................................................................................................
........................................................................................................................................

29. What is your feeling about the scope of home science subject included in the primary school science syllabus?.................................................................
........................................................................................................................................

30. Does this have any negative effect on the teaching of home science in primary teacher training colleges?
Yes ( ) No ( )

31. If yes what solution can you offer about it?.................................................
........................................................................................................................................

32. Do you think the recent review of the PTTC syllabus was favourable to the home science subject tutors? Yes ( ) No ( )
Explain your answer briefly..............................................................................................
........................................................................................................................................

33. a) What criteria did your college use to help students select the subject for group A and B? ........................................................................................................
 b) Were you satisfied with the criteria used? Yes ( ) No ( )
 c) Explain your answer briefly........................................................................................
........................................................................................................................................

34. What are your views on the best criteria that should be used in selecting subjects for specialization in the second year of the study?...................................................
........................................................................................................................................
........................................................................................................................................
APPENDIX B: QUESTIONNAIRE FOR HOME SCIENCE TEACHER TRAINEES

The questionnaire is intended to gather information that will be useful in determining the challenges that home science trainees face in primary teacher training college in Embu and Meru Counties, Kenya. Any information provided will be used for the purpose of the research only and will be kept confidential. You therefore need not indicate your name.

1. Gender
   Male ( )    Female ( )

2. Age
   Below 20 ( )   21-25 ( )
   26-30 ( )   31-40 ( )

3. Marital status
   Single ( )   Married ( )
   Divorced ( )   Widow ( )

4. What is your academic qualification
   CPE/KCPE ( )   KCE/KCSE ( )
   KACE ( )
   Any other (specify) .................................................................

5. What grade did you get in your highest academic level? ........................................

6. Before coming to teacher training college did you have any knowledge of home science subject? Yes ( ) No ( )

7. If yes up to what level did you do home science subject?
   Primary ( ) Secondary ( ) Post secondary training ( )
   Any other (specify) .................................................................

8. What part of the first year syllabus content did you find most difficult.
   Agriculture aspects ( )
   Home science aspects ( )
   Science aspects ( )
9. How was your mid course performance in integrated science as compared to other subjects?

<table>
<thead>
<tr>
<th>Performance</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>( )</td>
</tr>
<tr>
<td>Good</td>
<td>( )</td>
</tr>
<tr>
<td>Average</td>
<td>( )</td>
</tr>
<tr>
<td>Below average</td>
<td>( )</td>
</tr>
</tbody>
</table>

If not very good what reasons can you give for not doing so well?

10. In your own opinion, what can be done to improve the teaching and learning of integrated science in the first year of training?

11. a) Are you familiar with the second year home science syllabus content

<table>
<thead>
<tr>
<th>Familiarity</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>( )</td>
</tr>
<tr>
<td>No</td>
<td>( )</td>
</tr>
</tbody>
</table>

b) If yes, which areas of the content sound difficult to you?

<table>
<thead>
<tr>
<th>Area</th>
<th>Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle work</td>
<td>( )</td>
</tr>
<tr>
<td>Food and nutrition</td>
<td>( )</td>
</tr>
<tr>
<td>Housing the family and care of the home</td>
<td>( )</td>
</tr>
<tr>
<td>Maternal child health care</td>
<td>( )</td>
</tr>
<tr>
<td>Health education</td>
<td>( )</td>
</tr>
</tbody>
</table>

12. a) Have you ever had an opportunity to teach science in primary school during teaching practice?

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>( )</td>
</tr>
<tr>
<td>No</td>
<td>( )</td>
</tr>
</tbody>
</table>

b) If yes, what aspects of integrated science are mostly included in the primary school syllabus content?

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Inclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home science aspects</td>
<td>( )</td>
</tr>
<tr>
<td>Agriculture aspects</td>
<td>( )</td>
</tr>
<tr>
<td>Science aspects</td>
<td>( )</td>
</tr>
</tbody>
</table>
13. How do you rate the relationship between the primary teacher training college home science syllabus and the primary school science syllabus
   Very related ( )  Fairy related ( )  Not related ( )

14. Which general method of teaching is commonly used to teach home science in your college?
   Theory ( )  Practical ( )

15. a) Have you ever done any practical in home science since you came to this college
   Yes ( )  No ( )
b) If yes, what are some of the practical that you have done in some science?

16. a) Is there a home science room in your college?
   Yes ( )  No ( )
b) If yes how do you rate its effectiveness in terms of space and facilities available?
   Very effective ( )  Effective ( )  Not effective ( )

17. Were you interested in taking home science subject during subject selection or you were forced to do it by circumstances?
   Interested ( )  Not interested ( )

18. What problems do you experience in the course of learning home science in your college?

19. How do you cope with some of the problems you have stated above?

20. What suggestion would you offer for their remedy?
APPENDIX C: INTERVIEW SCHEDULE FOR THE HEAD OF HOME SCIENCE SUBJECT

This schedule is intended to gather information that will be useful in examining the challenges that heads of home science subject face in primary teachers training colleges in Embu and Meru Counties, Kenya. Any information provided will be used for the purpose of the research only and will be kept confidential. You therefore need not indicate your name.

1. Gender  Male  (    )  Female  (    )

2. Profession qualification

3. What is your working experience?

4. How many years have you taught in colleges?

5. a) What is the total number of staff in the whole science department? __________

   b) How many of them teach
   - Home science
   - Agriculture
   - Science

   What is your teaching load?

6. Do you normally teach home science to both first and second years __________

7. What is the teaching load of other members of home science subject? __________

8. a) Are the tutors of home science comfortable with the new integrated science syllabus? (probe) __________

   b) If not, explain why?
9. Is the time allowed adequate to cover the second year syllabus? 

10. a) Are the home science facilitate and resources adequate in your college? 

b) If not, how do you cope with limited sources? 

11. a) What is the total enrolment of the 
   First years 
   Second years 
   b) What is the average size in class? 
   c) Does the class size the teaching of home science in any way? 

12. (a) What problem do you experience in teaching of home science subject in your college? 
    b) How can these problems be solved? 

13. a) Do you think the teacher trainees academic, social, cultural and economic background have any influence on the teaching of home science in primary teacher training colleges in Kenya? 
    b) Explain 

14. What criteria were used to group the second years in the various subjects’ specialization areas in your college? 

15. a) How do you rate the motivation level of the trainees who were selected to take home science subject in your college? 
    b) How can their morale be improved?
16. a) Do you think the criteria used for selection in your college was fair? ...........

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

b) Explain ................................................................................................................................

17. a) how often do you organise insets for you subject either internal or external?

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

b) Have your member attended any external in service course related to the home science subject?

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

c) If yes, who was the organiser of the course? ....................................................................

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

18. Do you have any other comment on the teaching and learning of home science that you would wish to give? ........................................................................................................

........................................................................................................................................
APPENDIX D: INTERVIEW SCHEDULE FOR KICD HOME SCIENCE SUBJECT SPECIALISTS

This interview schedule is intended to gather information that will be useful in examining the support provided by KICD to home science tutors in primary teacher training college in Embu and Meru Counties, Kenya. Any information provided will be used for the purpose of research only and will be kept confidential. You therefore need not indicate your name.

1. Gender  Male ( ) Female ( )

2. Designation and rank of respondent

3. What is the role of KICD home science subject panel in the management of home science curriculum in teacher training colleges?

4. Do you conduct any in service seminars for science tutors in teacher training colleges?
   Yes ( ) No ( )
   If yes how often are they organised

5. When re-organising syllabuses for primary teacher colleges do you normally involve the tutors in colleges? (Probe)

6. (a) Are there policy guidelines put in place to facilitate subject specialization especially on the criteria to be used in the second year of training in primary teacher training colleges?
   b) What are the highlights of these policies?
7. (a) Integrated science content is mostly pure science based. Do you think home science tutors can effectively teach that subject? 

b) What plans are you putting in place to improve the above?

8. Is integrated science being taught by all tutors from the three merged subjects in all teacher training colleges as per your plan?

9. (a) In your opinion how is managing curriculum change a challenge in primary teacher education in Kenya? 

b) What do you regard as the change challenges facing home science tutors in primary teacher training colleges?

10. Kindly comment on the relationship between the primary teachers training college home syllabus and that of the primary school (i.e. science syllabus)?

11. Kindly give your honest comments and suggestion on primary teacher home science education policy in Kenya.
**APPENDIX E: OBSERVATION SCHEDULE**

N.B. Any information obtained during the observation will be used for the purpose of research and will be kept confidential.

Indicate with a tick (✓) against any of the five categories specified as is deemed relevant.

**Key:** I-Inadequate, Av-Average, A-Adequate, VA-Very Adequate, EA-Extremely Adequate

<table>
<thead>
<tr>
<th>Lesson preparation documents</th>
<th>I 1</th>
<th>Av 2</th>
<th>A 3</th>
<th>VA 4</th>
<th>EA 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatedness of the schemes of work and syllabus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inclusion of objectives, content, activities, resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage of content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suitability of instructional objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Proficiency of content**

- Teachers’ mastery of content
- Teachers’ response to questions asked
- Suitability of the teaching method

**Methodology**

- Motivation level of learners
- Learner participation in the lesson
- Development of practical skills
- Use of verbal reinforcement
- Use of non-verbal reinforcement
- Stimulus variation
- Use of appropriate example and illustrations
| Appropriate use of the method chosen |
|Demonstration procedure if practical |
|**Teaching learning resources** |
|Teaching /learning aids use |
|Improvisation from locally available materials |
|Use of local environment as resources |
|General facilities for the subject |
|**Assessment** |
|Use of the questioning technique |
|Monitoring of class performance |
|Individual learner performance |
|Readiness to do remedial teaching where learners do not understand |
|Giving adequate assignment after the lesson |
|**Time management** |
|Time allocation for each activity |
|Effective use of time |

General observation of the home science room

- Types and number of cookers
- Types and numbers of sewing machines
- Laundry work equipment
- Child care facilities
- Cleaning equipment
APPENDIX F: RESEARCH AUTHORIZATION LETTER

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

NACOSTI/P/15/7535/5438

Isabella Mwari Iregi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "Assessment of teaching of home science in teacher training colleges in Eastern Zone," I am pleased to inform you that you have been authorized to undertake research in Embu and Meru Counties for a period ending 6th November, 2015.

You are advised to report to the Principals of selected Teacher Training Colleges, County Commissioners and the County Directors of Education, Embu and Meru Counties before embarking on the research project.

On completion of the research, you are required to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

Said Hussein
FOR: DIRECTOR GENERAL/CEO

Copy to:

The Principals
Selected Teacher Training colleges.

The County Commissioner
Embu County.

The County Director of Education
Embu County.

The County Commissioner
Meru County.

The County Director of Education
Meru County.
APPENDIX G: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:

MS. ISABELLA MWARI IREGI
of KENYATTA UNIVERSITY, 0-60100 EMBU, has been permitted to conduct research in Embug, Meru Counties on the topic: ASSESSMENT OF TEACHING OF HOME SCIENCE IN TEACHER TRAINING COLLEGES IN EASTERN ZONE for the period ending: 6th November, 2015

Applicant's Signature

CONITIONS

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, flooding 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.

RESEARCH CLEARANCE PERMIT

Serial No. A 34522

CONDITIONS: see back page