FACTORS INFLUENCING STUDENTS ENROLMENT IN AGRICULTURE SUBJECT IN PUBLIC SECONDARY SCHOOLS IN KIAMBU EAST DISTRICT, KIAMBU COUNTY, KENYA

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A Thesis Submitted to the Faculty of Education in Partial Fulfillment of the Requirements for the Degree of Masters of Education in Curriculum Studies and Istruction.

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DECLARATION

I the undersigned declare that this thesis is my original work, and to the best of my knowledge has not been presented to any other University or Higher Institute of learning for any academic accreditation.

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DEDICATION

This Master's Thesis is dedicated to my sons, Master Cadmer Munene and Master Calvin Mutuma with thoughts of the future.

ACKNOWLEDGEMENT

I am grateful to almighty God for his protection and guidance during my entire study period. I sincerely owe an appreciation to my entire family especially my husband who financed my course and gave me moral support. Also I sincerely appreciate my late sister Ann who took very tender care of my children as I was attending classes but unfortunately died before I completed the course.

I am most grateful to my supervisors; Dr. Elizabeth Ngumbi and Dr. Robert Kamau for their untiring encouragement, guidance, corrections and useful suggestions they offered to me from the start to completion of my master's Thesis. Also special thanks goes to them for the guidance and counseling service and encouragement offered to me when I lost my sister through a traumatizing incident and had lost hope of continuing my course.

Thanks to my classmates Joyce Ireri, Fr.Nicholas, Fr. Martin, Sister Ann and Julius for the moral support and encouragement as we journeyed together. Special thanks goes to all my course lecturers for their support and encouragement, and more so for adding value to me at Catholic University of Eastern Africa.

I appreciate and acknowledge the contribution of all my respondents; the principals, Teachers, and Students of the schools that participated in the study

ABSTRACT

The purpose of the study was to establish the factors influencing students' enrolment in agriculture in public secondary schools in Kiambu-East District, Kiambu County. The study was conducted on account of views, attitudes and experiences of 140 participants. The researcher used three research instruments: Questionnaire for students and agriculture teachers, interview guide for principals and observation guide for agriculture resources.

To realize the purpose of this study a mixed method research paradigm was used. Cross-sectional survey and naturalistic designs were adopted. Sampling was done using simple random and stratified random sampling procedures. The District has 20 public secondary schools and 5 of them were selected to participate in the study. The respondents included 5 principals; 7 Agriculture teachers and 128 students. Quantitative data was analyzed using statistical package for social sciences (SPSS) version 17.0 and was presented in frequencies, tables and percentages. Qualitative data was presented in form of discussions and explanations in a narrative form. The findings of the study revealed that there was Low student enrolment in agriculture subject. Career and parental influence were found to be the main factors contributing low enrolment in agriculture subject. Inadequacy of teaching learning resources was also a contributing factor to low enrolment where most of the schools were able to provide simple tools and equipment that they would afford. Students were found to have a negative attitude towards agriculture as many felt that agriculture related careers involve a lot of dirt.

The researcher also observed that there were enough textbooks and guide books in schools as they were provided by the Ministry of Education. Also there was presence of agriculture land which was used by form fours for examination projects in all schools but none of the schools had its own agriculture laboratory except the stores where the implements are kept. The researcher also observed that agriculture teaching aids needed some improvement as few schools had charts that are used in teaching and also agriculture clubs were not active in most schools and this was also emphasized by principals during interview. On the challenges facing agriculture subject enrolment the study found out that parental influence in the subject played a key role in subject selection. Diversity in job markets as stated by some principals has shifted the focus from agriculture to business related jobs in the young generation. To overcome these challenges career guidance and counseling was suggested to be done both to the students and parents. Also modern methods of teaching agriculture subject should be provided like use of videos, slides and projectors in order to make the subject interesting and realistic. Schools were also advised to invite agriculture experts to give motivational talks to students on agriculture related career. The Ministry of Agriculture Department in the Counties was advised to emphasize more seminars and workshops to parents in order to educate them on various agricultural activities that can boost the income in so as change the parental attitude.

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ABBREVIATIONS AND ACRONYMS

AAAE	American Association for Agricultural Research
FAO	Food and Agricultural Organization of the United Nations
GDP	Gross Domestic Product
ICRAF	International Centre for Research in Agro Forestry
KCS	Kenya Certificate of Secondary Education
KLB	Kenya Literature Bureau
MDG	Millennium Development Goals
MOA	Ministry Of Agriculture
MOE	Ministry of Education
MOEST	Ministry of Education Science and Technology
NEPAD	New Partnership for Africa's Development
UNDP	United Nations Development Programme
WFP	World Food Programme

CHAPTER ONE

INTRODUCTION

This chapter covers the background of the study, statement of the problem, objectives, research questions, and significance of the study, in addition, the section covers the scope and limitation of the study, theoretical framework and conceptual framework, definition of terms and organization of the study.

1.1 Background of the Study

Globally agriculture plays a crucial role in promoting social economic and cultural development (Temu, 2003). However, the first and continuing challenge facing the world of agriculture and in particular Africa is to produce enough food to feed the growing population (Mcalla, 2000). In Kenya, food poverty is an issue of concern particularly in rural areas (UNDP, 2000). For instance the country has undergone several difficult times of famine such as during the 1984/1985 and 1992, drought years, when farmers lost crops and livestock (Ngesa, 2006).

Prior to Kenya's independence as early as 1924, Phelps-stokes commission observed that the African natives were more independent on agriculture, and therefore recommended vocational agriculture education to Africans (Jones, 1926). However the colonial government concentrated on teaching agriculture in primary schools, intermediate schools and primary teachers colleges, as reinforced in 1949 and 1952 in Beecher committee, and Binns report respectively (Eshiwani, 1993). The Phelps-Stokes Commission recommendation to introduce secondary agriculture curriculum could not be implemented immediately, since there were no secondary schools by that time. After Kenya gained independence schools started offering agriculture as a subject in secondary school and were incorporated in revised general science syllabus (Ominde Commission, 1964).

Current and emerging trends such as globalization and trade liberalization, rapid advancement of technologies, population growth and urbanization have a significant impact on agriculture in Sub-Saharan Africa (Abalu, 2001). In this rapidly changing agricultural environment, post-primary agricultural education and training in Sub-Saharan Africa is being asked to play a crucial role because it is supposed to provide skilled and competent people for social-economic development in rural areas (Ngesa, 2006). This is a clear indication that agriculture is the backbone of many countries. This study focuses on factors influencing students' enrolment in agriculture subject in public secondary schools in Kiambu County.

According to FAO (1997), agriculture education is a program that is designed to provide students with competencies to make them aware of and prepared for the world of work. Agriculture is a dynamic, rapidly changing industry that has an exciting future. The program concentrates on the development of essential technical skills that are vital to the success of people entering a career in agriculture. People are needed who not only have an understanding of the technical aspects of the issues, but who also have an understanding of the ethical and philosophical issues.

The clustering of subjects into various groups by the ministry of education specifies the optional subjects the students in the 8.4.4 system of education should choose or not to choose at all based on their interest (M.O.E, 2008). The required secondary subjects are categorized into groups as follows:

Group 1: English, Mathematics and Kiswahili.

Group 2: Biology, Physics, Chemistry.

Group 3: History and Government, Geography, Christian Religious Education, Islamic Religious Education.

Group 4: Home science, Agriculture, Art and design, Woodwork, Metal work, Electricity, Business studies, and aviation and technology.

Group 5: French, Germany, Arabic, Music and computer studies.

Students are required to take all the subjects in group 1 and at least two subjects from Group 2. They are also required to select subjects in the other three remaining areas. The selection of subjects depends upon what the individual schools offer (Mwiria, 2005). This in turn depends upon the resources and the teachers available in the individual schools and also career prospects of the students. Therefore this study found out the factors influencing students' enrolment in agriculture subject in public secondary schools in Kiambu County.

Agricultural policy in Kenya (2006) revolves around the main goals of increasing productivity and income growth, especially for smallholders; enhanced food security and equity, emphasis on irrigation to introduce stability in agricultural output. The key areas of policy concern include: Increasing agricultural productivity and incomes, especially for small-holder farmers, emphasis on irrigation to reduce over-reliance on rain-fed agriculture in the face of limited high potential agricultural land, encourage diversification into nontraditional agricultural commodities and value addition to reduce vulnerability, enhancing the food security and a reduction in the number of those suffering from hunger and hence the achievements of MDGs, ensuring environmental sustainability (Agriculture Policy in Kenya, 2006).

Declining performance of the sector in terms of its growth has been one of the major concerns of the policy makers, and those having interest in the sector (UNDP, 2000). The performance of agriculture, which remains the backbone of economy slackened dramatically over the post independence years from an average of 4.7% in the first decade to only below 2%

in the 1990s. This decline implies lower levels of employment, incomes and more importantly, food security for a vast majority (UNDP, 2002).

Agriculture has traditionally played a critical role in the overall development of most African economies (Abalu, 2001). During the early stages of economic growth, the agricultural and rural populations of Africa comprise a substantial component of the markets for the products of domestic industries, including the markets for producer and consumer goods. As economic growth and incomes rise over time, agriculture is expected to transfer surplus capital and labour to the non-agricultural sectors through a proportionate decline in the agricultural sector's contribution to national output and total employment and a proportionate increase in the non-agricultural sector's contribution to national output. Agricultural sector is also expected to contribute to the balance of trade either by augmenting the country's export earnings or by expanding the production of agricultural inputs (Abalu, 2001). Therefore many students should be equipped with agricultural knowledge and expertise in order to be able to meet this demand. This study deals with the factors influencing students' enrolment in agriculture in order to meet this demand.

In Kenya 80 per cent of the population derive their livelihood from agricultural activities; the sector contributes over 26% to GDP while substantially contributing to exports, industrial raw materials and national food security (Ministry of Agriculture, 2007). Agriculture as a subject was affected in 2002 when the ministry of education initiated reforms to rationalize school curricula. This is when the subject became unexaminable in primary schools and an optional subject in secondary schools. Due to these changes the enrolment of the subject started to decline (Ngesa, 2006). A survey carried by (Mwiria, 2005; Ngesa, 2006) shows that the number of students choosing agriculture in general has decreased from 70% in the early 1990s

to about 40% today, yet agriculture is the backbone of many African countries. This study focused on the challenges facing student enrolment in agriculture in order to establish why the enrolment is decreasing and find the solutions to the challenges.

According to NEPAD (2002) agriculture provides 60 percent of all employment, constitutes the backbone of most African economies; in most countries, it's the largest contributor to GDP; the biggest source of foreign exchange, still accounting for about 40 percent of the continents hard currency earnings; and the main generator of savings and tax revenues. The agricultural sector is also still the dominant provider of industrial raw materials with about two thirds of manufacturing value-added in most African countries being based on agricultural raw materials. Agriculture education therefore will help in boosting agriculture sectors because when there are many agricultural experts quality work will be done.

Agriculture therefore remains crucial for economic growth in most African countries. The rural areas, where agriculture is the mainstay of all people, support some 70-80 percent of the total population, including 70 percent of the continent's extreme poor and undernourished (NEPAD, 2002). Improvement in agriculture performance has potentials to increase rural incomes and purchasing power for large numbers of people. Thus more than any other sector agriculture can uplift people on a mass scale. Therefore agriculture education needs more emphasize in secondary schools to provide more expertise knowledge to learners who will work in Agricultural related industries.

According to Kenyan government's policy on human resources (2006) the government fully recognizes the importance of skilled labor development and agriculture sector as one of the implementers of skilled labor. This is evidenced by its high investment in education and training since independence and the number of committees commissioned to review manpower

development policies (Onyango & Owiti 2008). Agriculture education should be geared towards equipping the students with skills and knowledge which will help them in future careers. This study focused on factors influencing students' enrolment in Agriculture in public secondary schools.

Kamunge report (1988), on education and manpower training for the next decade and beyond are some of the policies that emphasize the importance of education, training and research in social economic development. It states that industrialization and attainment of modern technology for the enhancement of quality life for all Kenyans, for example, can only be achieved through well planned training programmes which emphasize entrepreneurial skills basically targeted towards both the private and the informal sector.

According to Onyango & Owiti (2008) Agriculture education in the secondary schools plays a vital role in integration of theory knowledge and practical knowledge and therefore helps to improve skilled labor. Many studies have been carried out in other countries to find out the explanation for the chronic low minority enrollments in secondary agricultural science programs but none has been carried out in Kenya to find out the factors influencing enrolment in agriculture subject (Talbert & Larke, 1995).

1.2 Statement of the Problem

During my teaching experience and interaction with teachers teaching agriculture within the schools in Kiambu County, I experienced increasing concern over the students selecting agriculture subject up to form four. There was a complain from the teachers that most students opt to select other subjects in the same group as agriculture, e.g. business studies. This posed as a wakening call especially a time like now when the government is raising alarms of food insecurity in the country.

According to Muturi, (2012) in the Daily Nation dated 17th October the low number of youth in agriculture worried the president, which is a clear indication that agriculture plays a great role in the country's economy.

> President Kibaki expressed concern over the low number of youth engaging in Agriculture, saying if the situation is not rectified; the country's food security would worsen in the coming years. He added that for agriculture to remain a key driver of our economy we must attract and develop a generation of young farmers, who will bring not only their energy and skills to the sector but also innovative and modernized farming methods (p. 30)

An estimated 51% of the Kenyan population lacks access to adequate food and even the little available is of poor nutritional value (Ministry of Agriculture, 2007). Sustainable development of the agricultural sector, including implementation of identified priority projects in the vision 2030; require substantial investments and interventions, especially good background agricultural education in schools.

Table 1.1: Enrolment of Agriculture Subject in Kenya

YEAR	Total Candidates	Agriculture Candidates	Percentage (%)
2008	305015	117736	38.6
2009	337404	132937	39.4
2010	357488	143710	40.2
2011	411783	167456	40.6
2012	436349	178424	40.8

Souce: Kenya National Examination Council (June, 2013)

Table 1.1 **s**hows that enrolment of agriculture subject nationally is higher than the enrolment of the subject in Kiambu East District, though the percentage is still below 50%. This shows that in some areas the enrolment is high while in others the enrolment is low. This study

investigated the factors influencing students' enrolment in Agriculture in public secondary schools in Kiambu East District, Kiambu County.

Table 1.2: Enrolment of Agriculture Subject in Kiambu East District

Year	Total Number of Candidates	Candidates taking agriculture	Percentage (%)
2008	2272	680	29%
2009	2380	752	31%
2010	2472	844	34%
2011	2580	860	33%
Total	**9704**	**3136**	**100**

Source: D.E.OS' Office Kiambu August, 2012

Table 1.2 shows a slight increase in the total number of students as a result of free primary and secondary education, though the percentage of students taking agriculture subject is low. For example in the year 2011 out of a total of 2580 students in Kiambu East District 860 students take Agriculture which is approximately 33%. Therefore this study will find out the factors influencing students' enrolment in agriculture subject in secondary schools in Kiambu East District; Kiambu County.

Table 1.3: Data of Entry and Performance of Agriculture in Selected Schools

Schools	Total no. of students in form 4	Students selecting Agriculture	%	Mean score of Agriculture year 2009	Mean score of Agriculture year 2010	Mean score of Agriculture year 2011
Senior chief girls Secondary school	201	24	11.9 %	6.85	6.33	7.9
Kihara secondary School	131	30	22.9 %	3.6	3.3	4.6
Gachie secondary School	88	26	29.5 %	3.6	3.3	3.7
Gacharage secondary School	103	52	50.4 %	3.5	3.3	2.5
Muthurwa secondary School	149	23	15.4 %	3.6	2.5	4.4

Source: D.E.O Office Kiambu (May, 2012)

Table 1.3 shows that enrolment in agriculture as a subject in many schools is low, and also the performance is quite low which indicates that the subject is not taken seriously. For example in Senior Chief Girls out of 201 students in form four only 24 students enroll in agriculture which is 11.9%. Therefore this study sought to find out what factors influences students enrolment in agriculture in Kiambu East District.

Studies have been done on agriculture like factors that influence Bruneian not to enroll in secondary agriculture subject (Chee, 2006) Prospects and problem in secondary schools agriculture program (Kathuri, 1996) Factors influencing enrolment in agriculture courses (Kritsada, 2012). Though many studies have been done on agriculture none has been carried out to determine factors influencing students' enrolment in agriculture in secondary schools in Kiambu East District, Kiambu County.

1.3 Objectives

This study focused on the following objectives which were used as a guide.

1. To determine the factors that influence students choice of agriculture subject in public secondary schools in Kiambu East District; Kiambu County.
2. To find out the resources / materials available for the teaching of agriculture subject in public secondary schools in Kiambu East District; Kiambu County.
3. To find out the perception of the students about the teaching and learning of agriculture subject in public secondary schools in Kiambu East District; Kiambu County.
4. To investigate the challenges facing agriculture students in Kiambu East District; Kiambu County
5. To find out the strategies that could be employed to minimize the challenges facing agriculture students enrolment in Kiambu East District; Kiambu county.

1.4 Research Questions

1) What factors influence the students' choice of agriculture subject in public secondary schools in Kiambu East District; Kiambu County?
2) What resources/ materials are available for the teaching of agriculture subject in public secondary schools in Kiambu East District; Kiambu County?
3) What are the perceptions of the students about the teaching and learning agriculture subject in public secondary schools in Kiambu East District; Kiambu County?
4) What are the challenges facing agriculture students enrolment in public secondary schools in Kiambu East District; Kiambu County?
5) What are the strategies that can be employed to eliminate the challenges facing students' enrolment in public secondary schools in Kiambu County?

1.5 Significance of the Study

This study is of significance to several groups of people including schools, policy makers, curriculum developers, and international organizations dealing with agriculture. The findings of the study will give new insights to the teachers and administrators on the factors influencing students' enrolment in agriculture subject in secondary schools.

The study is of great use to Kenya Institute of Education and the Ministry of Education in general for decision making purposes concerning agriculture education. The study will help the decision makers in agriculture to draw up policies that will boost the secondary agriculture education.

The study is of significance to the society because it enlightens them on new agricultural activities taking place in a certain area through the Ministry of Agriculture. Also educates the society on the benefits of Agriculture to them.

The study is also expected to enlighten curriculum developers on the areas of weakness and strength in secondary agriculture education syllabus, and therefore appropriate moderations done. The findings will also be used by other bodies in agriculture like the NEPAD, WFP, FAO, and MOA to come up with ways of increasing agricultural knowledge among the youth in order curb most of the agricultural related problems.

1.6 Scope and Delimitation of the Study

According to Mugenda (2009), delimitations are'' those characteristics of the study that limits its scope; the boundaries of a study are determined by the conscious exclusion or inclusion of certain decisions that are made throughout the development of research'' (p.149). This study was delimited to factors influencing students' enrolment in agriculture subject in public secondary schools in Kiambu East District. The study focused on students' enrolment because

the students will be involved in improvement of future agricultural sector. The study was delimited to five secondary schools in Kiambu East District.

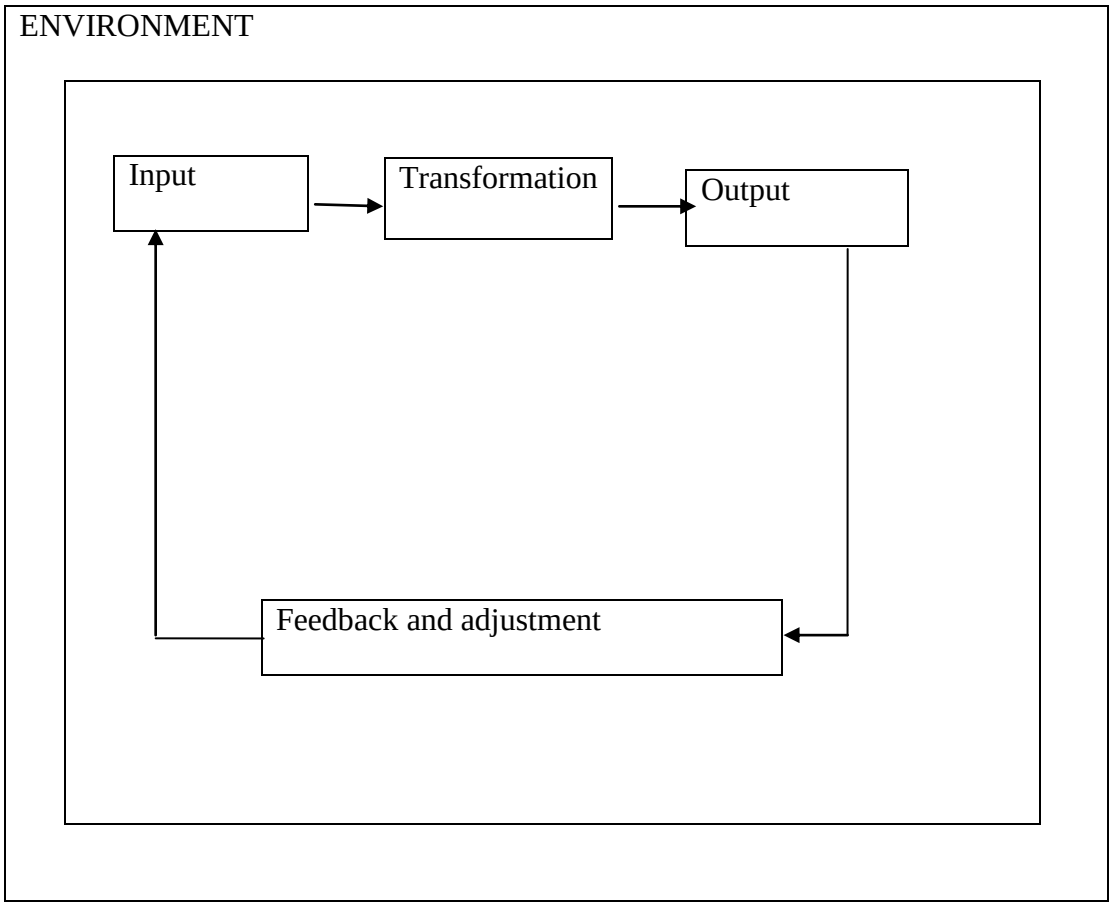
The study further delimits to the principals and teachers because of the role they play in students' enrolment. The justification for the choice of Kiambu East District for the study was that Kiambu East is an agricultural potential area that many people derive their livelihood from agriculture and therefore will be the best suited to provide the factors influencing students enrolment in agriculture subject.

1.7.1 Theoretical Frame Work

The study utilized a systems view of education adapted from Hunkins (1990). It enables one to utilize a systems approach, which has emerged from a System Theory. Kaufman (1972), as cited in Hunkins (1990) noted that a systems approach is an overall process by which needs are identified, problems selected, requirements for problem resolution determined, solutions chosen from alternatives, actual methods and means obtained and implemented, results evaluated and revisions enacted. He defined a system as "the sum total of parts working independently and together to achieve a required outcome" p. 56

Therefore, a systems view is obtained by noting phenomena that have common characteristics, by identifying relationships between phenomena, by indicating relationships between principles, and by organizing phenomena into conceptual schema that can be displayed as systems model.

Figure 1:1 System Model



Source: Adapted from developing a systems view of education by Hunkin (1990) p. 37.

Figure 1:1 illustrates a system model which depicts four major processes: input, transformation, output, feedback and adjustments. Input processes refer to those Operations that enable information to be taken from the environment or a system and introduced into the transformational phase. It separates crucial from incidental data. Transformation refers to those processes that work upon the data furnished in the system. Output processes subsume those

operations that identify and asses the results of transformation process and deal with the interaction between the system and outside environment. Feedback and adjustments activates analysis and interpretation of information such that adjustments can be introduced into the overall functioning of the system, that is, if such modifications are necessary (Hunkins, 1990).

The above model determines the type of data to be processed. For example in this study the data to be processed was from form three students where the subject selection is done. The data was based on their background, attitude towards agriculture as the subject, efficiency of the teachers in teaching agriculture curriculum. Transformation would include the teaching methods used by the agriculture teachers, agriculture syllabus and the interaction between the teachers and the students. Output processing referred to the performance of agriculture subject in relation to other technical subjects as a result of the transformation phase and the impact of the knowledge on the outside environment, this is the simple agricultural practices they do at their homes. Output also will be based on the number of students selecting agriculture. Lastly there is a room for feedback and adjustments after examining the performance of the students in the subject, and also the number of students taking agricultural courses in the tertiary institutions which takes us back to the input process.

1.7.2 Conceptual Framework

Figure 1:2 Diagrammatic Presentations of Possible Factors Influencing Students' Enrolment in Agriculture Subject in Public Secondary Schools.

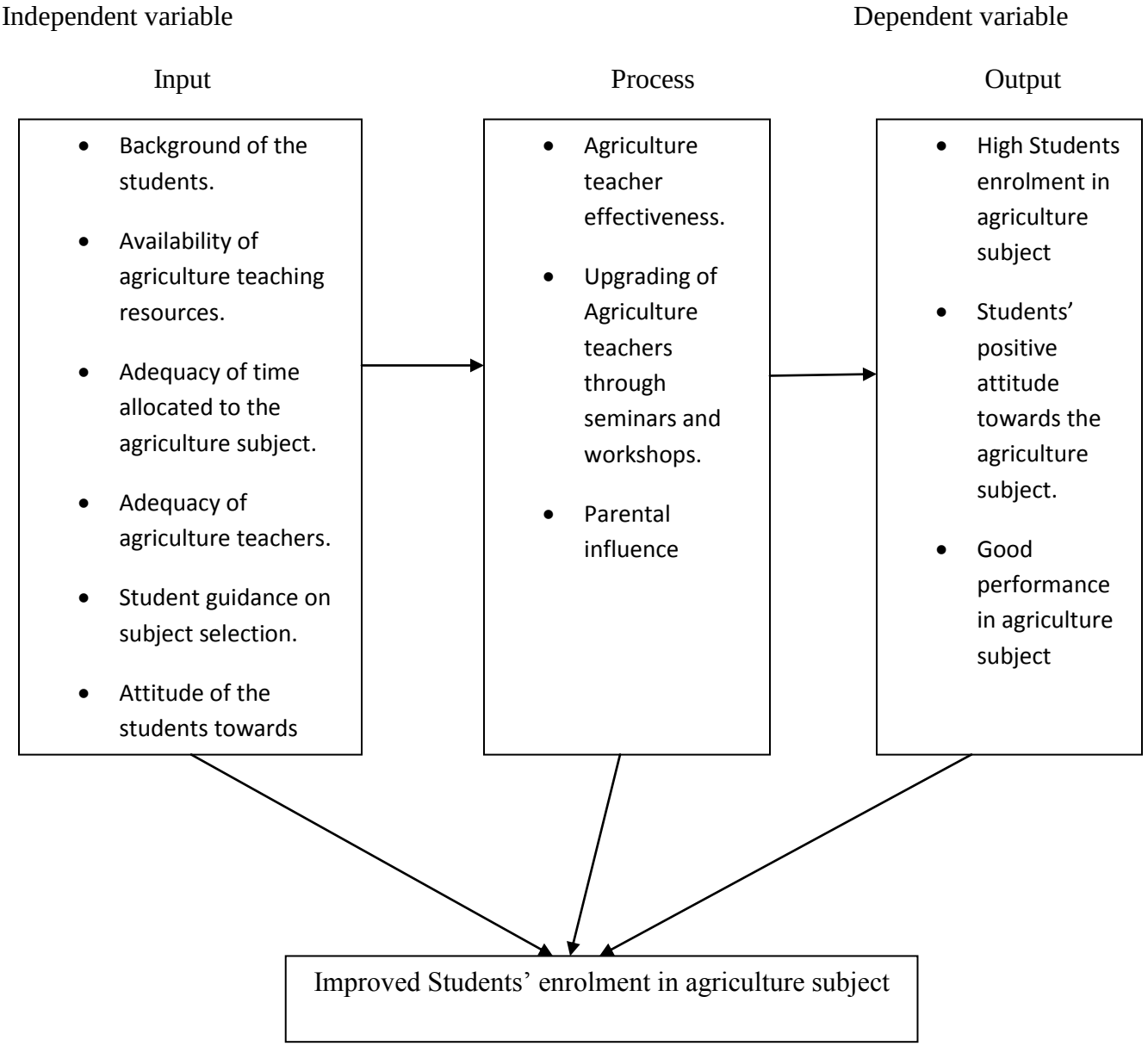


Figure 1:2 is of the conceptual framework on factors influencing students' enrolment which is based on the Systems theory. What goes into the input has a bearing on the students' subject selection. Students' backgrounds, interests, attitudes towards the subject both by the teachers and students would play a role in determining the students' subject selection. The process refers to the learning experiences the agriculture students goes through. These include: The teachers effectiveness in teaching the subject like preparation of the lessons, schemes of work and lesson plans. Practical activities done and teaching methods utilized by teachers. The output is influenced by the input and the process stages. The number of students choosing agriculture is not enough in determining if one will be an effective agriculturalist; other factors in the environment also come in. That is why schools need to do a follow up on their students' career choice and make necessary adjustments.

1.8 Operational Definition of Key Terms

Agriculture Subject: This term will be used to refer to one of the courses offered in the secondary school curriculum in Kenya

Agriculture Students: For the purpose of the study, this term will refer to the pupils studying agriculture subject in secondary schools.

Agriculture Teacher: The study will use the term to refer to a person whose job is to teach Agriculture in a school.

Administrator: The study will use the term to refer to the principal of a secondary school.

Student Enrolment: This term will be used in the study to refer to the number of students selecting agriculture subject up to the K.C.S.E level

Public secondary schools: This term has been used to refer to schools governed by the government of Kenya.

1.9 Organization of the Study

This study is organized in five chapters: Chapter one dealt with the introduction. It included the following; background to the study, statement of the problem, research questions, significance of the study, theoretical frame work, conceptual framework, scope and delimitation of the study, operational definition of key terms and organization of the study.

Chapter two presented a review of related literature. The review was presented under the following sub headings: Global situation of agriculture education, agriculture education in Africa, Agriculture education in Kenya, importance of agriculture in secondary schools challenges facing agriculture in secondary schools solutions to the challenges facing agriculture education and summary of the reviewed literature.

Chapter three presented the study design and methodology. It described the research design and target population, description of the sample and sampling procedure, data collection instruments, validity and reliability of the instruments, data collection procedures, ethical considerations and data analysis procedures.

Chapter four presents an analysis, presentation, and discussion of research findings while chapter five present the summary of the findings, conclusions and recommendations and suggestions made in the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This section contains review of literature related to factors influencing students' enrolment in agriculture subject in secondary schools. Works of scholars,' academicians and researchers were studied and referred to. The review of related literature was presented under the following sub- headings: Global situation of agriculture education, agriculture education in Africa, agriculture education in Kenya, importance of agriculture education in secondary schools, challenges facing agriculture subject in secondary schools in Kenya, solution to the challenges facing agriculture and summary of the reviewed literature.

2.1 Global Situation of Agriculture Education

Agriculture industry began in the united state of America since the passage of the Hughes Act in 1917. The industry resulted in farm power transferring from oxen and horses to massive petroleum powered pieces of equipment. During this period there was a decline in the percentage of individuals involved in production agriculture from 38% to 2.6% in 2000 (Department of agriculture United States, 2005). According to United States department of agriculture, (2005) high school agricultural programs began at the start of the 20th century, and were dominated by production agriculture content. The programs were designed to assist youth men to prepare for a career in production agriculture. Just as the agriculture industry was changing, also the agriculture education programs changed. The objectives of the program shifted from preparing students for a career in production agriculture, to preparing students for a career that requires knowledge of agriculture.

Sereno (2004) in his study on challenges facing higher agricultural education in United States, highlighted that agricultural education in many developing countries faces difficulty challenges among them enrolment, curriculum content, and finances. In his study he found out that the number of student applying to study agriculture had reduced since 2001.He recommended that in order to overcome the challenges, high schools and primary schools should be assisted in the revision of their syllabi to strengthen their science and agricultural courses, in order to encourage more students to apply for agriculture related courses at the higher level.

Camp, Broyles, and Skeleton (2002) in their study on problems facing beginning agricultural teachers, emphasized that shortage of qualified personnel to fill existing and future secondary agricultural programs as a challenge affecting students' enrolment. According to American Association for Agriculture Education (AAAE research 2011-2015) the study showed that as the global population grows to a projected nine billion people by 2050; the non agricultural population has little to no understanding of the complexities involved with sustaining a viable agriculture system. Therefore they emphasized for an informed citizen alongside policy decisions at all levels in order to ensure a long-term sustainability of agriculture, and quality life in communities across the world. Technology and economic advances have led to reductions in the number of farms and rural community populations, posing a major threat in agriculture (American farm bureau federation, 2002).

Elliot (2007) in AAAE research found out that American agriculture is highly affected by attitude alongside the population shift from rural communities to more urbanized areas. He further emphasized that the understanding of agriculture history, and current economic, social and environmental significance both domestically and internationally as an important aspect for all Americans. Igo and Frick (1999) confirmed that the success of the U.S agricultural industry

and the nation as a whole is a well informed literate society that has the capability to make informed decisions about agriculture.

Bekker, Thornton and Connelly (1999) defined an informed decision as one where a reasoned choice is made by reasonable individual using relevant information about the advantages and disadvantages of all possible courses of action, in accord with the individuals' beliefs. In the case of agriculture this information must include knowledge of food and fibre production, processing and domestic and international marketing, as well as agriculture's role in renewable energy, natural resource management, community resiliency, human nutrition, and food safety and other bio-based products and processes.

Darling (2008) found out in his study that one of the challenges facing the U.S agriculture is that many learning environments still rely heavily on rote memorization of narrow facts. He recommended that education should prepare individuals on how to learn and solve problems in dynamic work environments where information conditions and technologies are ever changing.

Rock off (2004), pointed out teacher preparation as also a challenge influencing enrolment. He found out that many teachers have not engaged in any formal preparation or professional development programs. For example he noted that many university professors are subject matter experts with little to no formal education in teaching and learning .Camp (1995) emphasized that teachers who are best able to teach meaningfully are those who have developed adaptive expertise. Therefore, agriculture educators should have expertise in researching, assessing and creating professional development programs for meaningful engaged learning.

In other countries agriculture education is also a problem, for example, a study carried out in Thailand on factors influencing enrollment in agriculture courses (Kritsada, 2012) found out that many younger generation are not much interested in agriculture as a vocation or career,

instead many would opt to have white collar jobs than blue collar jobs. The study further identified internal factors influence like the social economic characteristics of the student, academic program in high schools and values and attitudes towards agriculture, and external factors like person's influence as some of the factors influencing students' decision to enroll in agriculture related courses. The study recommended that agriculture subject should be made more interesting and relevant in order to encourage high school students to enroll in agriculture.

High school teachers were advised to design a community based curriculum in agriculture that is relevant to community needs in order to motivate the student to like the subject and later enroll in agriculture courses in higher education. Kritsada (2012) also recommends that teachers should be tapped to advocate the importance of agriculture to the society. This means that teachers and high school counselors should be given opportunity to attend trainings in the field of agriculture to be updated on recent trends in agriculture technology and be provided with adequate learning resources.

Chee (2003) in her study on factors influencing Brunei students not to enroll in secondary agriculture subject, found out that weak students were made to take the subject; lack of budget and financial support for the subject; .not enough basic gardening tools; no laboratory and store room. Camp et al (2002) students' interest in the subject depends on how they perceive agriculture in terms of what they are learning in this subject and also what type of career they can pursue in future. Most students have misconceptions of agriculture work related careers because not only are they unaware of how many types of jobs there are in this sector, but also have the impression that all jobs in this area have very low pay and there is no chance for promotion (Sereno, 2004).

Therefore this study determined the factors influencing students' enrolment in agriculture subject in secondary schools in Kiambu East District; Kiambu County in Kenya.

2.2 Agriculture Education in Africa

Secondary agricultural education in Africa has generally been very unresponsive to rapidly changing patterns of demand for trainees and failed to adapt and respond to new realities (Tom, 2009). Curricula, syllabi, timetables at secondary education level are almost always overloaded with classroom lessons on knowledge at the expense of practical applications. According to Tom (2009) topics are mostly related to agricultural production and only in few cases include aspects of agricultural entrepreneurships, income generating activities and agricultural processing and marketing.

Abalu (2001) noted that in some countries in Africa, agriculture was introduced in general school curriculum at secondary education level as a compulsory subject, or as an optional subject. According to Abalu (2001) the goal of offering agricultural subjects to secondary schools students was to counter the apparent negative attitude to farming by many secondary school pupils whose occupational choices were limited.

Lindley (1993) stated that secondary school agriculture had provided many students with an understanding of agricultural principles and practices but only a few of these young people became agricultural producers. He further emphasized that there are many secondary school students who have gone on to higher education and their agricultural knowledge has not been put into direct practice at the field level (Lindley, 1993).

Abalu (2001) in his study also identified that curricula, syllabi, and timetables at secondary level are always overloaded with classroom lessons on factual knowledge at the expense of practical application especially if the subject is examinable. A study carried by Dlamini (2004)

on agriculture as a subject in general secondary schools in selected countries in Africa, found out that many countries offer agriculture as an optional subject at senior secondary level for example; in Botswana it is compulsory in junior secondary level and optional at senior secondary level. In Lesotho, agriculture is optional, while in Ghana it's compulsory at junior secondary level and optional at senior secondary level (Dlamini, 2004). In other countries like Uganda, Zwaziland, Zimbabwe and Kenya it's optional.

According to Dlamini (2004) Botswana is one of the countries that offers agriculture subject as a compulsory subject in junior secondary school level. This was attributed by recommendations made by the national commission of education of 1977, which emphasized the need for inclusion of practical subjects in the school curriculum. Dlamini (2004) stated that the effective teaching of agriculture in the schools was supported by the government of Botswana through provision of necessary facilities like small animal houses, garden areas and other tools and implements required.

2.3 Agriculture Education in Kenya

Prior to Kenya's independence as early as 1924, phelps-stokes commission observed that the African natives were more independent on agriculture and therefore recommended vocational agriculture education to Africans. However the colonial government concentrated on teaching agriculture in primary schools, intermediate schools and primary teachers colleges as reinforced in 1949 and 1952 Beecher and Binns report (Eshiwani, 1993).

Mburu (1996) indicate that the practical teaching of secondary agriculture has been neglected. According to KIE (2002) the theory and practical aspects are complimentary and none should be neglected. In 1985 in Kenya a change occurred in the education system when the 8.4.4 curriculum was introduced (Ngesa, 2006). According to Ngesa, (2006) the government of Kenya

attempted to vacationalize the curriculum by incorporating subjects in the curriculum which would improve skills needed in the field of work. Agriculture was one of the subjects that were given the new initiative, that is all public primary and secondary schools were to offer agriculture as subject. In 2002 the ministry of education initiated reforms to rationalize school curricula when agriculture became an optional subject in secondary schools (Ngesa, 2006).

According to Ngesa (2006) secondary school agriculture in Kenya consists of the following topics: soil and water conservation, water supply, irrigation and drainage, soil fertility, farm tools and equipment, crop production, livestock production and health, agro forestry, farm structures, farm power and machinery and agricultural economics. Ngesa (2006) pointed out that teachers felt uncomfortable with some agricultural topics like agriculture economics and farm power and machinery as a result of inability of resources in the schools and therefore not effectively taught. This study focused on factors influencing students' enrolment in agriculture subject in secondary schools.

According to Mwiria (2005) the number of students choosing agriculture subject in secondary schools in Kenya had decreased from about 70% in the early 1990s to about 40% today and therefore this study will find out the reasons influencing this decrease. Ngesa, (2006) found out that agricultural clubs in secondary schools like the young farmers club are a critical ingredient of quality school agriculture in Kenya, but many students are not engaged in clubs activities apart from farm projects and agricultural shows.

In the early years following the introduction of agriculture as a subject in secondary schools in Kenya, good links existed between the schools, the surrounding farming communities and the extension agents (Ngumy, 2011). According to Ngumy (2011) members of the young farmers clubs in the schools maintained these links through field tours, and participation in

agricultural shows where the members were supported by the agricultural society of Kenya. Members' hand- on involvement in farming activities reinforced what they had been taught in schools, imposing a positive influence on students' perception of agriculture.

Ngugi, Isinika and Kitali (2002) in their study found out that secondary school agriculture in Kenya has been taught in isolation from the real farming situation since the introduction of the 8.4.4 system of education. He attributed this to decline in financial support in schools. According to Ngugi, (2002) teachers are isolated from the practical realities of farming because schools are unable to support travel to places of agricultural interest such as farms, research stations and agricultural information centre where teachers can be updated on the state of agricultural knowledge.

Ngesa (2006), in his study also found out that the in-service teacher training and school inspection as generally weak. He also emphasized that the uniqueness of the subject particularly in the use of school farms and the emphasis of the learner-based instructional methods as not captured during inspection. There was no structured in-service teaching programme available for teachers of agriculture but there was one for science and mathematics teachers. Ngesa, (2006) recommended that this area deserved urgent attention as new models of teaching agriculture keep emerging.

2.3.1 Agriculture Examination in Kenyan Secondary Schools

According to the ministry of education report (2005) agriculture as a subject is examined at the end of the secondary school cycle by three papers which are set and administered by the Kenya national examination council. The papers include: paper 1; Theory, paper 2; practical. Originally this paper was done practically in schools in the laboratory but due changes in the subject in 2005; the paper is a practical written paper which attempts to test practical skills

(Paper 3; project). In this paper students undertake selected projects during the first two terms of their last year in secondary schools. Originally it was supervised by agriculture external supervisors, but due to 2005 changes it is supervised by agricultural teachers in the schools.

Therefore this study has found out the factors influencing students' enrolment in agriculture subject in secondary schools. According to Ngesa (2006) regional differences in the popularity of agriculture subject as an optional subject affected the students' enrolment. In his study he found out that there is a lower interest in agriculture as subject in urban areas and semi-arid and arid areas.

2.3.2 Effect of Teachers Qualification on Enrolment

Bishop (1985) asserts that training of teachers, which is mainly attached to ones qualification, goes a long way in equipping teachers with skills to enable them handle the tasks a head of them. Kathuri, (1996) carried out a study on factors influencing performance of pupils in certificate of primary education and found out that the performance of the pupils was positively significantly correlated with the qualification of teachers. In another study Kathuri, (1996) found out that teachers qualification had a significant contribution to performance in agriculture in secondary schools in Kenya.

According to Irumbi (1998) pupils' performance in Agriculture was significantly affected by teachers professional and academic qualifications. Twoli (1986) observed that trained teachers exhibit less authoritarian mode of teaching and better professional and academic qualification. He further asserted that the effectiveness of any curriculum depends on the quality of the teachers that are there to translate the syllabus into practical, instructional materials in class.

Agwata (1996) found out that students' performance in economics was affected by the teachers' professional and academic qualification. This was supported by Irumbi (1990) who pointed out that a majority of qualified teachers had not attended any in-service course on the teaching of 8-4-4 economics and this had significantly influenced students performance.

The findings of the reviewed literature concentrate on the influence of teachers' qualification on students' performance. There is need therefore to determine the effect of teachers' qualification on students' enrolment in agriculture. This would assist the Ministry of education, science and technology (MOEST) in adjusting the training of teachers in agriculture education.

2.3.3 Effect of Gender in Agriculture

Gender plays a vital role from the farms to the market. A variety of constraints however impinge upon the ability for developing countries to perceive women as agents of food and nutritional security (World Bank, 2009). According to Marilee (1995) in both centralized and decentralized governance systems women tend to lack political voice. Gender inequalities result in less food being grown, less income being earned and higher levels of poverty and food insecurity. Women continue to face inequality in the agriculture. In some countries women provide 70 percentage of agricultural labour produce. More than 90% of the food is produced by women and yet are nowhere represented in budget deliberations(Marilee 1995). In Kenya there are no big gender differences in students who choose agriculture as a subject in secondary schools (Kipkemei, 2001)

2.4 Importance of Agriculture

Agriculture plays a critical role in the overall development of most African economies (Temu, 2003). African agriculture is currently going through significance changes which have implications for post primary agricultural education. According to NEPAD (2002) agriculture provides 60% of all employment, constitutes the backbone of most African economies. It is the largest contributor to GDP; the biggest source of foreign exchange, provider of raw materials and therefore remains crucial for economic growth in most African countries.

Kamla (2009) in his study on teaching agricultural education to youths in Nigeria states that one of the aims of education in a country is the preparation of the youths for effective future living in changing society without loss of those aspects of culture that have been time cherished. Agriculture being the mainstay of Nigeria economy employs high percentage of youths both at peasant and commercial levels.

Tom (2006) identified some of the objectives of post-primary agricultural education, as giving learners knowledge and skills for better agricultural productivity. This objective gives the agricultural educators in post primary agriculture a vocational orientation. Tom (2006) also emphasized on influencing learners' attitude, and giving a positive motivation towards agriculture and rural development. Based on the view that education is an important factor in development, this objective assumes that a school curriculum plays a dominant role in the formation of attitude (Tom, 2006).

According to Kenya Literature Bureau (2008) agriculture is a very important factor in the economics of Kenya. An estimated 80% of Kenya's population is dependent on agriculture and therefore agriculture as subject aims at exposing students to the basic principles of agriculture

that can be put into practice for the benefit of the individual and community in general (KLB, 2008).

Nyangau (2011), in his study on comparison of perceptions of secondary school principals, teachers and learners towards factors influencing implementation of agricultural projects in Kisii district, stated that the centrality of food in life and the fear by the society of food shortages provide the initial importance of offering agriculture education in schools that aims at providing a critical mass of the population educated in agriculture. Nyangau (2011) further emphasized that offering agriculture as a subject is one way of attempting to inculcate values, attitudes, knowledge as well as practical skills in learners needed to improve agriculture education.

Kipkemei (2001) in his study stated that the teaching of agriculture as a subject in secondary schools is one way of overcoming challenges regarding food security as a result of changes in rural land use, coupled with population pressure. Ngesa (2006) identified the importance of teaching agriculture in secondary schools as: to develop an understanding of agriculture and its importance to family and nation, provide background for further studies in agriculture, create an awareness of the role of agriculture in industrial and technological development, promote consciousness of health promoting activities in agriculture production.

Abalu (2001) identified the social and economic objectives of teaching agriculture as subject in secondary schools as: to enhance skills needed in carrying out agricultural practices, promote interest in agriculture as an industry and create an awareness of opportunities existing in agriculture and related sectors, demonstrate farming as a dignified and profitable occupation, enable schools to take part in national development through agricultural activities. Abalu (2001) states that teaching of agriculture subject promotes agricultural activities which enhance

environmental conservation enhance skills needed in carrying out agricultural practices and develop an occupational outlook in agriculture.

2.5 Challenges Facing Agriculture Education

Abalu (2001) identified that food security is a critical issue in most parts of Africa and therefore food production will continue to be a major focus of agricultural education and training. Muguire (2000) in his study identified shift in focus from agricultural to rural development as a challenge facing the post primary agriculture education. He points out that the old curriculum which concentrated on production agriculture only is no longer able to produce educated people who can deal with the wider problems of rural development. He emphasized that post-primary agricultural education to be applied and practical rather than purely theoretical.

Food Agricultural Organization (1997) in their research noted that as the overall population of African countries increased at an accelerated pace, agricultural productivity declined as the absence of appropriate technologies forced farmers to cultivate marginal lands. Therefore they recommended that post-primary agricultural education need to incorporate population education concepts and principles into their curricula. They emphasized that learners need to understand the dynamic interrelationships between food, population, the environment and national social economic development. Learners need knowledge of the substantive content of population education, for example the impact of population growth on agriculture and natural resources.

Food Agricultural Organization (1997) also found out that the ambition of many farming families was to educate their children so that they could attain a better standard of living away from the farm and from rural areas, posing a major challenge in post primary agricultural education. Kamla (2009) in his study also identified curriculum content, funding, attitude

change, home influence and methods of assessment as some of challenges affecting agriculture education in Nigeria.

Mwiria (2005) in his study pointed out that many overlaps across subjects are affecting the students' choice of the subject, for example in agriculture; syllabus repeats many topics covered in biology, chemistry, geography and business education. This may lead to students opting not to enroll in some subjects due to repetition. According to Mwiria (2005) time allocated to the agriculture subject is hardly enough for effective teaching of both theory and practical teaching, as the agriculture teachers pointed out that the syllabus is too broad. Mwiria (2005) further emphasizes that, due to the absence of adequate time to cover the syllabus the pressure to excel in examinations has forced many teachers to use more of their free time at nights and weekends for the teaching of practical subjects particularly agriculture and home science as evidenced by KIE research report (1999) in collaboration with agriculture teachers and home science teachers. This may discourage many students from enrolling in the subject due to the use of their free time.

A study carried out by Ngesa (2006) on agriculture teacher qualification found out that 24% had diploma in agricultural education and extension, 17% had a bachelor's degree, 17% had a diploma in agriculture, as a result of this professional agriculture education graduates were estimated at less than 50% of the teachers. Mwiria (2005) also in his study found out that 29% of agriculture teachers had certificate qualifications and below, which lend to a conclusion as to why agriculture teachers only make use of the school farm, and rarely use learner based-practical instructional models due to their qualifications.

Home backgrounds of students' and parental influence contribute to determining which vocational subjects' students register for (Mwiria 2005). In his study he found out that many

teachers interviewed indicated that many students interested in vocational subjects end up dropping them due to pressure from their parents. He gave an example of Elite parents who were hostile to their children enrolling in any other vocational subject other than computer studies since they associate them with failure to succeed. Ngome (1993) found out the same conclusion with regard to the negative views of parents regarding the teaching of agriculture.

Mwiria (2005) in his study found out that most students opting for a vocational subject have no choice but to select from a range of subjects offered in their respective schools. In his study he found out that weaker students may tend to opt for industrial subjects, as top students for KCSE examination enroll in those subjects that they may perceive would best prepare them for the most rewarding career, in such fields as engineering, medicine, commerce and computer science.

In the study by Ngesa (2006) students and teachers were asked to indicate the extent to which various teaching and learning methods were used in the teaching of agriculture in secondary schools. According to his study a number of observation about the responses of the students were made: there was an emphasis on classroom instruction in the teaching of agriculture in schools; practical are limited; minimal use of resource persons in the teaching of agriculture and there are hardly any visits to the local farms, research stations and farmer training centers. According to Ngesa (2006) teachers of agriculture agreed that they mostly use lecture, class discussions and group discussions methods. Teachers admitted that demonstration practical's experiments and problem solving are hardly used.

Community members interviewed for the same study (Ngesa, 2006) also felt that there is a need for a greater degree of interaction between communities and secondary school departments of agriculture. Ngugi et al (2002) states that due to financial support to schools

secondary school agriculture in Kenya has been taught in isolation from the real farming situations since the introduction of 8.4.4 system of education. He further notes that teachers are separated from practical realities of farming because schools are unable to support travel to places of agricultural interests such as farms, research stations and agricultural information centers where they can be updated on the state of agricultural knowledge.

A survey carried out by Ngesa (2006) with students and teachers on the availability of teaching and learning support materials for agriculture in secondary schools, found out that most secondary schools lack primary basic crop production tools and equipment, livestock tools and farm machinery tools. Ninenty percent of the teachers felt that the text books only provide moderate coverage of the subject matter in the secondary school syllabus. Most students admitted that the quality use of farms were quite low with minimal activities on the school farms. The KNEC which is the examining body, removed the agriculture paper two which was a real practical in the laboratories and replaced it with written theory paper encouraging the subject to be theory oriented instead of practical. Also the examining body mandated the agriculture teachers to supervise the agriculture projects on their behalf, instead of trained external examiners leading lack of seriousness and biasness in the marking (ministry of education report, 2005). Therefore this study focused on factors influencing students' enrolment in agriculture subjects in Kiambu County.

2.6 Solutions to the Challenges Facing Agriculture in Secondary Schools

Curriculum of agriculture teacher training need to focus more on proper use of school farms in particular as a teaching and learning resource site for experiments, demonstrations, and practical (Ngesa, 2006). Some agricultural teachers interviewed by Mwiria (2005) suggested that

agriculture subject be allocated six lessons instead of four each week in order to be able to teach the curriculum effectively.

According to Ngesa (2006) on various discussions held with agriculture extension staff, the following recommendations were made: extension personnel could be invited to schools to talk to learners on various agricultural topics; agriculture teachers to attend functions organized by the extension service regularly; school farms could be used for agricultural demonstrations for the surrounding communities and there should be annual forums for head teachers, agriculture teachers, district agricultural officers and district livestock officers and other extension staff where secondary school agriculture and extension services could be discussed and planned.

2.7 Summary of the Reviewed Literature

Although several studies (Kipkemei, 2001; Mburu, 1996; Abalu, 2001 & Kritsada,2012) have been done on agriculture subject, none has been carried out on the factors influencing students enrolment in agriculture subject in secondary schools in Kiambu East District. This study attempted to come up with viable ideas which were used to improve the students' enrolment in agriculture subject. Kritsada (2012) in his study found that the young generations are not interested in agriculture careers or vocation in Thailand instead they are interested in white collar jobs. This study was conducted here in Kenya and particularly in Kiambu East District to find out if the problem exists. Kipkemei (2001) in his study on the contribution of agriculture knowledge to the rural community found out that despite agriculture knowledge being vital in rural areas few students want to study agriculture and recommended studies to be carried out to find the reason as to why. This study intended to fill this knowledge gap by bringing in the dimension of various factors influencing students' enrolment in agriculture subject and how they impact the enrolment in agriculture subject in Kiambu-East District.

CHAPTER THREE

RESEARCH DESIGN AND METHOGOLOGY

3.0 Introduction

This chapter covers the research design, target population, sampling techniques and sample size. It covers construction of research instruments, data collection procedures and data analysis.

3.1 Research Design

A research design is the plan and structure of investigation, conceived so as to obtain answers to research questions (Kerlinger and Lee, 2000). A research design facilitates the smooth sailing of various research operations thereby making research as efficient as possible (Kothari, 1995). Mugenda and Mugenda (2009) assert that research design is a programme that guides the investigator as he/she collects analyses and interprets observations. The two scholars have added that research design is a logical model of proof that allows the researcher to draw inferences concerning causal relationships among the variables under investigation.

The study used both a combination of Cross-sectional Survey and Naturalistic design to find out the views and knowledge of students, teachers and principals on agriculture subject in Kiambu East District, Kiambu County. A cross-sectional survey design is preferred for it is an efficient strategy of accessing data from a wide range of informants (Orodho, 2004). According to Mugenda and Mugenda (1999) naturalistic design enables the researcher to study the behavior of the respondents as it naturally occurs without control or manipulation of the subjects or their environments.

Nachimias and Nachimias (1996) notes that Cross-sectional survey research is intended to produce statistical information about aspects of education that interest policy makers and educators. According to Gay (1990) cross-sectional survey is a process of collecting data in order to test hypotheses or answer questions concerning the current status of phenomena. Orodho (2004) adds that it is favored by most of the social science researcher because of its ability to determine and report things the way they are.

The two designs were chosen because they complement each other. For example questionnaires associated with survey enable the researcher to gather descriptive information from as many participants as possible. On the other hand, the naturalistic design enables the researcher to collect first-hand information in the schools.

3.2 Target Population

Target population is what Mugenda and Mugenda (1999) call absolute population where the researcher would ideally generalize the results of the study. The study used target population consisting of principals, agriculture teachers and pupils. It is from this population that a representative sample was drawn.

3.3 Description of the Sample and Sampling Procedure

Sample is a smaller group obtained from accessible population. Sampling is a technique of selecting a representatives or sample from the whole population for the study (Mugenda and Mugenda 1999). The researcher selected participants for the study by employing two techniques of sampling namely: Stratification Sampling and Simple Random Sampling. The student sample consisted of five randomly selected secondary schools in the District from which 130 respondents were sampled from the selected schools which represents 10% of the total population of the selected schools.

The sample consisted of five schools, three which were mixed schools, one boys' school, and one girls' school. From the 25 schools in Kiambu East district, 20 are public schools and five are private schools. The study confined itself to the public schools. Five schools were sampled. The sample was composed of 5 principals, 5 agriculture teachers and 130 students from the five sampled schools. In total the entire sample was 140 respondents. The study focused on public secondary schools where the government was easier to implement the findings. Therefore 5 schools out of twenty schools were sampled which is 25% of the twenty schools. This is higher than the minimum requirement of 10% as stated by Mugenda and Mugenda (1999).

Table.3.1 Sampling Frame

Categories	Secondary Schools	Total number of students	Sample percentage	Sample Size
Boy school	Kanunga	172	15	26
Girls school	Senior Chief	201	13	26
Mixed	Gacharage	140	19	26
school	Gachie	188	14	26
	Kihara	199	13	26
TOTAL	**5**	**900**		**130**

Source: DEO Office Kiambu. October 2012

Table 3.1 shows the sampling frame that the researcher used in the study. The researcher used five secondary schools and a sample size of 130 students. Mugenda and Mugenda (1999) confirm that a sample size of 10-20% as appropriate.

3.3.1 The Schools

Stratified random sampling was used to select the schools to be included in the study. This is because the researcher was dealing with the heterogeneous population; stratification allowed the researcher to create a set of homogeneous sample based on gender. The population was first divided into strata of girls' secondary schools, boys' secondary schools, and mixed

secondary schools. Simple random sampling procedures were used to draw random samples from each stratum. For example, if there are a total of twelve mixed secondary schools in Kiambu East District, therefore the researcher assigned a number to the schools and places the number in a box. The researcher then picked any number at random to get the three schools needed for the study. The same was done for the girls' schools and boys' schools. This method was preferred because it ensures that each member of the population has an equal chance of being sampled. The proposed sample schools were five (5): who were 1 boys' secondary school, 1 girls' secondary school, and three mixed secondary schools.

3.3.2 Students

Form three students were selected for the study because most schools offer agriculture subject as a compulsory subject in form one and two and do subject selection in form Three. Also form three students are fresh from subject selection and therefore expected to give the best results. Twenty six students from each school were selected giving a total of 130 students in the study.

The researcher used stratified random sampling and simple random sampling procedures. In the mixed schools, the researcher stratified the pupils into their gender and then employed simple random sampling to select the respondents in the schools selected. Stratified sampling was used to select a proportion of boys and girls students from each school. In cases where the number of boys was not equal the number of girls the researcher made sure that the number of students in each class had the representation according to gender. This helped the researcher to have an equal representation of boys and girls. According to Gay (1990) a sample size of 10% or 20% of the total population is adequate for survey study though the bigger the sample size the better Simple random sampling was used in girls and boys schools where lottery technique was

used to select the respondents in each school. Small pieces of paper were folded into equal size and shape with a symbol yes and were placed in a container, mixed well and then the students were allowed to pick each piece at a time. Those who picked yes were included in the study.

3.3.3 The Sampling of Principals

All the five principals from the sampled schools were included in the study because of their position of administration in the schools and the provision of agriculture materials and supervision of the subject. They also have a record of appraisals of each teacher and are in a position of producing a report of each subject.

3.3.4 The Agriculture Teachers

The agriculture teachers were selected using stratified sampling from a list that was provided by the principals in the sampled schools making a total of five teachers. Every school despite its number of streams had a sample size of one teacher from form three classes. Teachers were stratified according to their gender to ensure that each gender is equally presented.

Table 3.2 Summary of the Respondents Sampled

Respondents	Sampling Procedure	Target Population	Sample Size	Percentage (%)
Principals	Automatic Inclusion	20	5	25
Teachers	Stratified	20	5	25
Students	Stratified and Simple Random	900	130	15

Table 3.2 represents a summary of the respondents sampled. Out of 20 principals in the twenty public secondary schools in Kiambu East District, Kiambu County 5 (25%) were sampled which is more than 10% as stated by Mugenda and Mugenda (1999). The sampling procedure which was used was automatic Inclusion since all the five principals of the sampled schools were included.

3.4 Description of Data Collection Instruments

The researcher used the questionnaires for the students and Agriculture teachers, and interview guide for the head teachers, to collect data from sampled population at different points in time. The researcher used Observation guide to collect data on agriculture resources used by schools. These instruments were administered to students, teachers, and principals in five (5) schools in Kiambu East District. The mode of survey administration was personal. In addition, the researcher also employed observation guide to evaluate the school agricultural equipment.

3.4.1 Questionnaire

A questionnaire is a collection of items to which a respondent is expected to react usually in writing. According to McMillan and Schumacher (2001) a questionnaire is a set of questions or statements that assess attitudes, opinions, beliefs and biographical information. Mugenda and Mugenda (1999) say that a questionnaire is a collection of written questions which are usually answered in order to obtain information from the participants. The purpose for using the questionnaire is to enable the participants to answer freely as they fill the questionnaire forms. These instruments were necessary for this survey study as the students and teachers had time to provide well thought information.

The importance of questionnaire was to facilitate collection of large data which was more dependable and reliable as they were able to provide information or answers to five research questions. The study used questionnaires because the populations under study were literate.

3.4.2 Questionnaire for Students

The students' questionnaire was structured with close ended value scale items and open ended questions which consisted of five sections. Section A solicited information on characteristics of the participants regarding gender, and school status. Section B comprised of

the factors influencing students' enrolment in agriculture subject. Section C dealt with teaching and learning resources used in agriculture subject. Section D comprised of the students' perception towards the agriculture subject while Section E dealt with challenges influencing student enrolment and Section F dealt with solutions to these challenges.

3.4.3 Questionnaire for Teachers

Questionnaire for teachers also comprised both close ended and open ended structured questionnaire with five sub sections. Section A was about demographic information of the participants such as gender, level of qualification and professional qualification. Section B was about factors influencing students' enrolment in agriculture subject. Section C comprised the teaching and learning resources used in agriculture. Section D dealt with the perception of the students towards agriculture while Section E comprised the challenges influencing students' enrolment and Section F dealt with the solutions to the challenges influencing student enrolment.

3.4.4 Interview Guide for Principals

Punch (2005) contends that interview is one of the main data collection tools in qualitative research. The interviews are either structured or semi structured as they generally yield highest cooperation and lowest refusal rates that is offering high response quality as it takes advantage of interviewer presence as well as their multi-method data collection (Owens, 2002). The purpose of the interview guide in this study was to collect data from those with responsibility over the learners. This instrument was used in face to face dialogue between the researcher and the respondents. The researcher targeted principals of the sampled schools.

The interview guide comprised of two sections; sections A and B. Section A comprised of items such as gender, academic qualifications, and the status of the school. Section B consisted of open-ended questions. The research questions were structured into open ended

questions in order to elicit answers from the principals as experienced and knowledgeable about factors influencing students' enrolment in agriculture subject in secondary schools.

3.4.5 Observation Guide

Observation guide is a research instrument that guides the researcher in gathering data from key areas through sight. It involves direct observation of the phenomenon or objects or form of behavior that are indicated in the instrument from which meanings are extracted or analyzed (Brown, 2004). The researcher used direct observation on the teaching learning resources used in the teaching of agriculture for example agriculture projects, tools and equipment, textbooks, and agriculture laboratory.

3.5 Validity and Reliability of the Instruments

Validity and reliability are essential to the effectiveness of any data gathering procedure. In the research design, the method of collecting data has been discussed and how this data was collected and what types of instruments were used. In other word quality research depends on how accurate is the collection of data in terms of procedures, especially the tools (questionnaires and interview guides) used to collect data must yield the result that answers the research questions. Mugenda and Mugenda (1999) stated that, in research, we try to maximize the reliability and validity of data collection. Therefore in order to establish reliability and validity of instruments, the data collection techniques must yield information that is not only relevant to research hypothesis, but also correct.

3.5.1 Validity of Research Instruments

Validity: This is that quality of a data gathering instrument or procedure that enables it to measure what it is supposed to measure (Best and Kahn,2007). To ensure that research instruments elicited significant information (content validity); the researcher used critical

judgment from the supervisors and consulted other experts in the field of research and agriculture education to review the instruments. Validity is the accuracy and meaningfulness of inferences based on the research result.

It is the degree to which results obtained from the analysis of data actually represent the phenomenon under study. To measure validity of an instrument, there are three degrees in which the instrument can be validated and these include; construct validity, content validity and criterion-related validity (Mugenda and Mugenda 2003). In this study content validity has been chosen to test the validity of the research instruments. Content validity is a measure of degree to which data collected using a particular instrument represents a specific domain of indicators or content of a particular concept. Therefore an instrument is said to have content validity if it covers all the possible aspects of the research topic.

The researcher ensured the content validity of the instruments by seeking assistance from the experts in the research department of Catholic University of Eastern Africa, Supervisors and peers. The research instruments were given to them and their feedback and comments were used to readjust and improve the instruments validity.

3.5.2 Reliability of Research Instruments

Reliability: According to Best and Kahn (2007) reliability is the degree of consistency that the instrument or procedure demonstrates. Whatever it measures it does it consistently. Taiwo (1995) indicates that as a rule of thumb, the following can be said about the signs and magnitudes of reliability coefficients: +0.60 to +0.79 are appreciable coefficients and +0.80 to +1.00 to be high reliability coefficients.

Mugenda and Mugenda (1999) define reliability as a measure of degree to which a research instrument yields consistent results or data after repeated trials. To establish the reliability of an instrument, there are four techniques or different methods of assessing reliability of research instruments. They are: test-retest, equivalent-form, split-half and internal consistency. In this study the researcher will use split-half technique to test the reliability of the research instruments.

According to Mugenda and Mugenda (1999) split half is determined by scores obtained from a single test administered by the researcher to a sample subjects. In this approach each instrument was divided into two parts using even and odd numbers. The scores of the odd numbered items were correlated with those of even numbered items and corrected using spearman-Brown prophecy formula.

The researcher randomly selected one school from the twenty public schools in Kiambu East which was not to be included in the sample and with the help of the form three class teacher stratified the students according to gender. The researcher then used simple random sampling to select ten students who were used in the pre-test study.

The SPSS window computer programme, version 17.0 was used to determine the reliability of the instruments after pilot testing.

Table 3.3 Reliability Statistics of Split Half

Realibity Coefficients =10
Correlation between forms = .8189
Spearman Brown Coefficients
Equal Length .9005
Unequal Length .9000

Results from table 3.3 for reliability statistics of split half for the pilot questions shows that the items have a strong correlation of 0.82. This implies that the responses provided by the respondents were consistent and the items in the instrument were understood. Therefore the researcher accepted the instruments as reliable for the study. Pilot testing enabled the researcher to identify sensitive or ambiguous items in the instruments and modified them thus increasing their validity. The reliability of the interview guide depends on its credibility that is when the supervisor and the experts in research said the interview guide is good. For observation to be reliable it also depends on its credibility.

The researcher correlated the data using the automatic split half technique and the instrument were considered reliable since the coefficient of the instrument was close to one (1).

3.6 Data Collection Procedure

Prior to data collection, the researcher obtained a letter from the Catholic University of Eastern Africa stating that the researcher was a student in CUEA and currently pursuing a master's degree in curriculum studies and development. The researcher also obtained permission letter from the Ministry of Education, District Education Officers' office to conduct research in Kiambu-East, Kiambu County. After getting the permit, the researcher obtained a list of all secondary schools in Kiambu East District where he stratified the schools into girls and boys schools and finally mixed schools where a school sample was obtained.

The researcher then visited the sampled schools to give the two letters and explain the importance and the purpose of the study. The form three class teachers were asked to help the researcher get a list of form three students in each of the sampled schools. The researcher then made an appointment with the sampled school principals so as to agree when to administer the

questionnaires to students and teachers in person. Each respondent was expected to respond to the questionnaire items independently.

3.7 Ethical Considerations

On the day of administering the questionnaires, the researcher, before administering explained to the respondents, especially the students that the questionnaire is not an examination, the purpose and the importance of the study and why they have been selected for the study. Besides, their confidentiality was assured by not writing their names or even the names of their schools and also highlighting that whatever information they give was used for the purpose of the research. The researcher did the same to the interviews in order to obtain their free consent to be interviewed.

This approach established a rapport between the researcher and the respondents and also helped to boost their confidence. The researcher also labeled the questionnaires according to the schools for easy follow up. The researcher ensured that there was no plagiarism in the work. All the secondary information (other people's work) was acknowledged or cited and since there was no writing of names or schools, anonymous names or codes were used to identify the schools or individuals in case of follow-up for particular information.

The respondents were not forced in any way to participate in the study. The researcher also ensured that the findings were reported as they were obtained without changing or altering or falsifying the information.

3.8 Data Analysis Procedure

Data analysis refers to examining and structuring of what has been collected to make inferences (Kombo, 2006). Mugenda and Mugenda (1999) add that, data analysis is the process of bringing order, structure and meaning to the mass of information collected. The researcher

analyzed the data collected through questionnaire and interview guide items using the statistical procedures.

Analysis of the data was based on research questions. All answered questionnaires and interview guide items were organized through coding by categorization and quantification. The data was subjected to statistical analysis and then was summarized into frequencies and percentages with the help of SPSS software. This was presented using frequency tables and graphic representation. The frequencies and percentages were used to present, discuss and interpret the findings.

CHAPTER FOUR

PRESENTATION, DISCUSSION AND INTERPRETATION OF THE RESEARCH FINDINGS

4.1 Introduction

This chapter presents the findings of the research study. The quantitative data are presented in frequencies and percentages and the qualitative data are summarized in narrative reports. The schools in the analysis were referred to as school A,B,C,D and E while the principals were referred to us principal one for school A, principal 2 for school B, principal 3 for school C, principal 4 for school D and Principal 5 for school E. The findings are discussed and interpreted in relation to research questions.

4.2 Demographic Characteristics of the Respondents

In this section, the researcher presents the total number of the respondents who took part in the study according to gender, highest academic achievement,

Professional background, number of years spent in the service and the status of the school taught.

4.2.1 Target Population

Table 4.1: The Expected and Actual Population

Population	Expected	Actual
Teacher	5	7
Students	130	128
Principals	5	5
Total	**140**	**140**

Table 4.1 shows that there is a difference between the actual and expected target population in the teachers and students, the expected total target population was not affected. The number of teachers increased because some schools had more than one agriculture trained

teachers. The researcher did not get two questionnaires from the students making the total number less by two.

4.2.2 Respondents Distribution by Gender

In Table 4.2 the researcher studied respondents according to their gender and showed how many male and female took part in the study.

Table 4.2 Respondents Distribution by Gender

Category	Students (f)	Percentage (%)	Teachers (f)	percentage %	Principals (f)	(%)
Male	56	43.8	3	42.9	4	80.0
Female	72	56.2	4	57.1	7	20.0
Total	**128**	**100**	**7**	**100**	**140**	**100**

Table 4.2 shows that a total of 128 respondents were students, of whom 56 (43.8%) were male and 72 (56.3%) were female. Teacher respondents were 7 where female were 4 constituting (57.1%) while the male counterparts were 3(42.9%). A total of 5 were principals whereby there was a gender disparity with 4(80%) males and 1 (20%) females. This agrees with Marilee (1995) when she stated that majority women support agriculture.

Majority were students who are the immediate beneficiaries of agriculture curriculum, followed by teachers and principals who are the implementers of agriculture curriculum in the schools and whose information are important for the improvement of agriculture education in Kiambu county.

4.2.3 School Category

The study also sought to know the category of the schools of the respondents participating in the study. The schools that participated in the study were 5 with 1 boys only, 1 girls only and 3 mixed boys and girls. Respondents were therefore required to indicate the type and category of their schools. Table 4.3 summarizes the results.

Table 4.3 Distribution of Schools by Type and Category

Type of school	Category of school Provincial	District	Total
Girls boarding	1		1
Mixed day		3	2
Boys boarding	1		1
Total	**2**	**3**	**5**

Table 4.3 shows that respondents were drawn from three district schools and two provincial schools with most of them coming from mixed secondary schools. This was important because majority of the schools in the District are mixed schools which are day schools. It shows a good representation of all schools in the District.

4.2.4 Respondents by School Category

The researcher was also interested in ensuring that respondents were fairly selected from the different categories of schools. The students' teachers and principals were therefore required to indicate their category of school. Table 4.4 gives a summary of the results.

Table 4.4 Distribution of Respondents by School Category

school category	Students Frequency	%	Teachers Frequency	%	Principals Frequency	%
Boys	26	20.3	2	28.6	1	20
Girls	26	20.3	2	28.6	1	20
Mixed	76	58.4	3	42.8	3	60
Total	**128**	**100**	**7**	**100**	**5**	**100**

Table 4.4 shows that majority of the students 76 (58.4%), teachers 3 (42.9%) and principals 3 (60%) were from mixed secondary schools. This information was vital because majority of the schools in Kiambu East District are mixed schools. This ensures that each school category was well represented in the study with the respondents well distributed according to the number of schools in each type of school.

4.2.5 Academic Qualification of Teachers and Principals

Information about the academic qualification of the teachers and principals is of interest to this study as it has a bearing on the level of preparedness and use of various teaching methods in teaching and learning agriculture in schools. A question was asked where they were required to indicate their academic qualifications. Table 4.5 depicts the outcome of their responses.

Table 4.5 Academic Qualification of Teachers and Principals

Academic qualification	Teachers Frequency (f)	Percentage (%)	Principals Frequency (f)	Percentage (%)
Diploma	2	28.6		
Degree	5	71.4	3	60
Masters Degree			2	40
Total	**7**	**100**	**5**	**100**

Table 4.5 clearly shows that the majority of the teachers 5 (71.4%) and the principals 3 (60%) had a bachelor's degree as their highest level of academic qualification. It means that the teachers and the principals were well qualified to deliver the agriculture curriculum. These results disapprove Ngesa (2006) and Mwiria (2005) on agriculture teachers' qualification where they found that less than 50% were graduates. However this difference may be attributed to the difference in years where majority of the teachers may have upgraded their grades.

4.2.6 Teaching Experience of Teacher Respondents

In a study of this nature, information about the teaching experience of teachers is crucial in determining the factors that influence students' enrolment in agriculture subject. In order to obtain this type of data, a question was posed to the teacher respondents to indicate the number of years they have been in the teaching profession which yielded the results summarized in Table 4.6

Table 4.6 Teaching Experience of Teacher Respondents

Years	Frequency (f)	Percentage (%)
Less than 1 year	1	14.3
1-3	1	14.3
4-6	1	14.3
7-9	2	28.55
10 years	2	28.55
Total	**7**	**100**

Table 4.6 clearly shows that majority of the teacher respondents 4 (57.2%) had served as teachers for a period of 7-10 years while the remaining (42.8%) had teaching experience of 6 years and below. This clearly shows that data was collected from respondents who formed a reliable source since their teaching experience is long enough to demonstrate how conversant they are with agriculture syllabus.

4.3 Factors That Influence Students Choice of Agriculture Subject

The factors covered in this study include the subject selection and its considerations, why Students do not select agriculture, school preparedness to students in subject selection, what influences the subject one selects and the coverage of agriculture syllabus.

4.3.1 Subject Selection and its Considerations

The researcher wished to find out the subjects the respondents had selected and the reasons as to why they selected the subjects. A question was asked to the students on the subject they selected in group IV in form three. Table 4.7 gives a summary of the student's responses.

Table 4.7 Students Response on Subject Selection

Subject	Frequency (f)	Percentage (%)
Agriculture	34	26.6
Home science	22	17.2
Business studies	72	56.3
Total	**128**	**100**

From Table 4.7 majority of the students selected Business Studies 72 (56.3%) while 34 (26.6%) selected Agriculture and 22 (17.2%) selected Home science. From the students' response above its clear that the enrolment in agriculture subject is low compared to Business Studies. This was further supported by the teachers' response on the number of agriculture students in form three in the sampled schools as depicted in Table 4.8

Table 4.8 Teachers Response on the Number of Agriculture Students in Form Three

School Category	Total number of students	Frequency (f)	Percentage (%)
A	131	21	16.0
B	201	31	15.4
C	143	18	12.5
D	89	17	19.1
E	105	15	14.3

Table 4.8 confirms that the number of students selecting agriculture subject in schools is quite low. From the five sampled schools the percentages are quite low below 20% therefore this study sought to find out the factors influencing student enrolment in Agriculture subject in public secondary schools. The findings agree with Mwiria (2005) when he stated that the number of students choosing agriculture subject in Kenya had decreased from 70% in early 1990s to about 40% today.

Students were further asked on the reasons why they preferred a particular option and gave out their responses according to table 4.9

Table 4.9 Reasons for Preferring a Particular Subject

Reason	Frequency (f)	Percentage (%)
Career	76	59.4
Interest	13	10.2
Family influence	18	14.1
I perform well in the subject	21	16.4
Total	**128**	**100**

Majority of the students pointed out Career 76 (59.4%) as a main reason for selecting a particular subject. This is a clear indication that Business Careers are more preferred by students than Agriculture. Performance also had a notable percentage (16.4%) which also shows that students select subjects that they perform well in. Family influence (14.1%) shows that some parents or students background influence the subject selection. Others also indicated interest (10.2%) as a factor influencing subject selection. The findings in this study agree with Ngome (1993) and Mwiria (2005) when they stated that home backgrounds of students and parental influence contribute in determining which vocational subjects' students register for. They further stated that many students interested in vocational subjects end up dropping them due to pressure from the parents. This is an indication that these factors highly influence the subject selection as indicated by both teachers and students responses." Principal two from school B also confirmed that many students are influenced on subject selection by their parents".

A question was asked to the students who did not select agriculture subject on the reasons as to why they opted not to select the subject and their responses were as indicated in table 4.10

Table 4.10 Reasons for Not Selecting Agriculture

Reason	**Frequency (f)**	**Percentage %**
There are no teachers to teach the subject	8	6.2
Agriculture is a difficult subject	14	10.9
There are other options like business studies and home science	32	24.8
Agriculture involves a lot of farming	22	23.4
No agriculture teaching resources	18	14.0
Total	**94**	**72.9**

Table 4.10 reveals that, students did not like agriculture subject because majority of those who did not select it 32 (24.8%) felt that other options like business studies and home science were better while 22 (23.4%) felt that agriculture involves a lot of farming 18 (14.0%) reported

that there was unavailability of agricultural resources. The rest 14 (10.9%) reported that agriculture is a difficult subject. This concurs with the student responses in subject selection where majority (56.3%) was in business studies. The findings agree with Mwiria (2005) when he stated in his study that most students opting for a vocational subject have no choice but to select from a range of subjects offered in their respective schools.

4.3.2 How Do Schools Prepare Students in the Subject Selection?

A question was asked to the students, teachers and principals on whether the schools prepare students in subject selection and how they prepare them. The researcher sought to find out if the students were well prepared during subject selection. The responses were indicated in Table 4.11 and Table 4.12

Table 4.11 Responses on Whether the Schools Prepare Students On Subject Selection.

Response	Student (f)	%	Teacher (f)	%	Principal (f)	%
Yes	39	30.2	5	71.4	5	100
No	89	69.8	2	28.6	0	
Total	**128**	**100**	**7**	**100.0**	**5**	**100**

Table 4.11 shows that most students 89 (69.8%) reported that the schools do not prepare them during subject selection which was in contrast with the principals and teachers response where majority teachers 5 (71.4%) and 5 (100%) principals reported that they do prepare students for subject selection. The results concur with the researchers' topic on the factors influencing students' enrolment in agriculture subject. Principals and Teachers should employ better strategies on subject selection to students to be on consensus.

The researcher asked the students, teachers and principals how they prepare the students for subject selection. Data on the same was collected and analyzed and presented on Table 4.12

Table 4.12 Responses on how Schools Prepare Students for Subject Selection

Responses	Students (f)	%	Responses	Teacher (f)	%	Response	Principal (f)	%
Teachers are too busy	19	14.8	Performance in the subject	3	42.8	Career teachers	1	20
I do not know my career teacher	35	27.3	Career teachers and experts	2	28.6	Guidance and counseling department	1	20
Student choose what they want	22	17.2	Students select what they want	2	28.6	Teachers	3	60
Somebody is invited to talk to us	15	11.7						
Teachers campaign for their subjects	13	10.2						
Our career teacher help us	24	18.8						
Total	**128**	**100**		**7**	**100**		**5**	**100**

Table 4.12 shows the students, teachers and principals' response on how schools prepare students for subject selection. Majority of the students (69.5%) reported that teachers are too busy, they do not know their career teachers, student choose what they want and teachers campaign for their subjects which clearly shows that schools do not prepare them for subject selection. Only (30.5%) reported that career teachers help them in subject selection and somebody is invited to talk to them. The findings in this item concurred with the students response on whether schools prepare them for subject selection where (69.8%) responded N0. The findings agree with Rock Off (2004) in his study when he stated that teacher preparation is a challenge influencing student enrolment as he found that many teachers do not prepare their students well for career choices since they do not engage in any formal preparation or professional development programs

Majority of teachers agreed that subject selection is based on the performance of the subject 42.8% while 28.6 % reported that career teachers help in subject selection while 28.6 % reported that Students choose what they want. Majority of the Principals delegate the work to the class teachers (60%) to help in subject selection while others 40% delegate the work to career teachers and Guidance and Counseling Department.

This is an indication that Principals need to do a thorough follow up on students' guidance on subject selection which may be a reason why some subjects like Agriculture are registering low enrolment.

4.3.3 What influences Subject Selection?

The researcher asked the students and teacher what influences the kind of subject one selects. The responses were analyzed in table 4.13

Table 4.13 Responses on What Influences the Kind of Subject One Selects

Responses	**Students (f)**	**Percentage (%)**	**Teachers (f)**	**%**
Career	56	43.8	3	42.9
Performance	21	16.4	2	28.5
Peers	22	17.2	1	14.3
Teachers	15	11.7		
Parents	14	10.9	1	14.3
Total	**128**	**100**	**7**	**100**

Majority of students 56 (43.8%) and teachers 3 (42.9%) reported that career greatly influences the subject one selects. Performance also influences subject selection with 2 (28.5%) teachers and 21 (16.4%) students. Teachers and students also reported that parents influence subject selection with 14 (10.9%) students and 1 (14.3%) teachers. None of the teachers'

influences students' performance as per the data but (11.7%) students reported that teachers influence subject selection.

The above result concurs and responds to the researcher's research question number one on factors influencing students enrolment in public secondary schools in Kiambu East District. The factors here include career, performance, parents, peers and teachers. These findings agree with (Chee, 2003) when she argued that students interest in the subject depends on how they perceive agriculture in terms of what they are learning in this subject and the type of career they can pursue in future.

4.3.4 Number of Agriculture Lessons per Class

A question was asked to identify the number of agriculture lessons recommended in each class and all the teachers gave a similar answer as it was the MOEST directive. The response was indicated below.

Form One.....3 lessons per week

Form Two.....3 lessons per week

Form Three.....4 lessons per week

Form Four.....4 lessons per week

Teachers were further asked if the number of lessons were enough to cover the recommended syllabus. The researcher sought to find out the factors influencing students' enrolment in agriculture and the results were analyzed in Table 4.14

Table 4.14 Views on the Recommended Number of Lessons.

Views	Teachers (f)	Percentage (%)
Yes	1	14.3
No	6	85.7
Total	**7**	**100**

Table 4.14 reveals that, majority of teachers 6 (85.7%) said that the number of the lessons allocated to agriculture are not enough to cover both theory and practical lessons effectively. These findings agree with Mburu and Thuku (1996) when they stated that practical teaching of secondary school agriculture has been neglected due to inadequacy of time. Mwiria (2005) in his study also pointed out that time allocated to the agriculture subject is hardly enough for effective teaching of both theory and practical teaching.

A follow up question was asked to the students and teachers whether the agriculture syllabus is covered at the end of the year and the following response were given in Table 4.15 the researcher sought to find out the factors influencing students' enrolment in agriculture.

Table 4.15 Responses on syllabus coverage

Response	Student F	%	Teachers f	%
Yes	12	9.4	2	28.6
No	116	90.6	5	71.4
Total	**128**	**100**	**7**	**100**

Table 4.15 shows that majority of the students 116 (90.6%) reported that syllabus is not covered by the end of the year which was supported by the teachers 5 (71.4%). This is clear evidence that the numbers of lessons per class are not enough to complete the syllabus. The findings in this item agree with Mwiria (2005) when he stated that time allocated to the agriculture subject is hardly enough for effective teaching of both theory and practical teaching.

The finding of this question fills the knowledge gap identified by the researcher Kipkemei (2001) study where the researcher found that specific factors influencing students' enrolments in Agriculture were missing in literature which poses a knowledge gap which this study has filled by identifying the factors influencing students' enrolment in Agriculture subject.

4.4 Resources Available for the Teaching and Learning Agriculture Subject

The second research question sought to find out resources available for the teaching of agriculture subject.

4.4.1 Resources Available for the Teaching of Agriculture

These are the findings on the resources used for the teaching of Agriculture and indicated in Table 4.16

Table 4.16 Responses of Students on Agriculture Teaching Resources

Resources	Frequency	%
Jembes	35	27.3
Pangas	24	18.7
Slasher	4	3.1
Wheelbarrow	9	7.0
Secateurs	7	5.5
Mattock	6	4.7
Forked jembes	40	31.3
Hammer	3	2.4
Total	**128**	**100**

The respondents disclosed several resources used in agriculture lessons. However the major ones were; forked jembes (31.3%) Jembes (27.3%) and Pangas (18.7%). Majority of tools mentioned by the students are the simple farm tools and equipment. Agriculture subject involves a variety of tools which are categorized as livestock tools, workshop tools farm tools and farm machinery. From the list mentioned by the students most schools are able to provide simple farm tools which is a small fraction of agriculture resources.

4.4.2 Availability of Teaching Learning Resources for Agriculture

The study also sought to find out the availability of these resources in the secondary schools. The table below reveals the views of principals and teachers.

Table 4.17 Responses of Principals and Teachers on Agriculture Resources.

Resources	**Teacher**				**Principals**			
	Yes		No		Yes		No	%
	F	%	F	%	F	%		
Availability	3	42.9	4	57.1	3	60.	2	40
Enough	1	14.3	6	85.7	1	20.	4	80
Use of resources from the surrounding	2	28.6	5	71.4	2	40.	3	60
Principals supplies them	1	14.3	6	85.7	2	40.	3	60
MOEST supplies	2	28.6	5	71.4	2	40.	3	60

Majority of the Principals (60%) agree that Agriculture resources are available, (40%) disagreed. By contrast (42.9%) teachers agreed that the resources are available while (57.1%) disagreed. Most t.eachers (85.7%) revealed that agriculture resources are not enough and only (14.3%) confirmed that the resources are enough. The same was applied to the principals where majority (80%) also confirmed the scarcity of the resources but (20%) of them said the materials are enough. These results contradict the findings on the availability of the agriculture resources. Here the respondents may mean that the resources are there but not adequate. Agriculture resources are categorized into different categories like farm tools, Farm machinery, livestock tools, workshop tools, water equipment where just a fraction of them may be available in schools.

Most of the teachers (71.4%) revealed that agriculture resources are not supplied by the Ministry while (40%) principals agreed that Ministry supplies agriculture textbooks and Guides but not tools and equipment. Therefore 60% of the principals disagreed on the supply of

agriculture resources apart from books. The researchers observation also confirmed the findings as indicated on the observation Table 4.18

Table 4.18 Observation Table

Rating scale: 3= Very adequate, fully available, well distributed

2= partially available, Adequate, Enough

1= Not adequate, Not Enough, Well Distributed

0= Not available, none, rarely

School category	Text books	Teaching Aids	Agric Clubs	land	Tools	Agric lab	Agric staff	Lessons	Timetable
A	3	1	0	1	1	0	2	1	3
B	3	1	0	1	1	0	2	1	3
C	3	1	0	1	1	0	1	1	3
D	3	1	1	2	1	0	2	1	3
E	3	1	0	1	1	0	2	1	3

Table 4.18 shows the researcher's observation on the five sampled schools A, B, C, D and E where the researcher observed that in all the schools the textbooks were very adequate. This may be attributed to the factor that the Government supplies textbooks as indicated by the principals. The researcher also observed that the teaching aids in the schools are partially available and not enough. All schools had few agricultural charts and teachers drawings on the blackboard. The students also used the drawings in the textbooks as illustrations. Schools A, B, C, and E did not have Agriculture club reports meaning that the clubs do not exist or are in active. These findings agree with Ngesa (2006) who found out that agricultural clubs in secondary schools are a critical ingredient of quality school agriculture in Kenya, but many students are not engaged in club activities apart from agricultural shows.

The researcher also observed that land was not enough in most schools as the available land was used for form four K.C.S.E examination projects. This was a clear indication that other

agriculture students apart from form fours do not do practical in the field. The tools and equipment are not enough in all the five schools as the researcher observed that all the schools had simple tools and equipment like jembes, pangas, spade , wheelbarrow and forked jembes. No school had an agriculture laboratory except the agriculture stores where the equipment are kept. The findings in this study concurred with Ngesa (2006) where he stated that most secondary schools lack primary basic crop production tools and equipment, livestock tools and farm machinery tools. There schools should find ways of providing students with basic tools to make the subject more interesting.

The researcher finally observed that there are three agriculture lessons in form one and two and four agriculture lessons in form three and four. The teachers and students in other questions reported that the number of lessons as inadequate. The lessons were well distributed in the timetable. The findings agree with KIE research report (1999) which stated that due to the absence of adequate time to cover the syllabus the pressure to excel in examination has forced many teachers to use more of their free time at night and weekends for the teaching of practical subjects particularly agriculture and Home science.

4.5 Responses on Students Perception towards Agriculture Subject

The researcher wanted to establish whether students' perception towards agriculture influences the enrolment. Results yielded are presented in Table 4.19

Table 4.19 Students Responses on Perception Towards Agriculture Subject

Statement	SA	A	N	DS	SD
Agriculture syllabus is too wide to complete	97(75.8%)	22(17.2%)	5(3.9%)	3(2.3%)	1(0.8)
People cannot survive without agriculture	65(50.8%)	22(17.2%)	9(7.0%)	18(14.1%)	14(10.9%)
I want to work in agriculture related fields	25(19.5%)	15(11.7%)	7(5.5%)	52(40.6%)	29(22.9%)
Agriculture means only working in the farm	55(43.0%)	27(21.1%)	17(13.3%)	19(14.8%)	10(7.8%)
Learning agriculture is for those who want to become farmers	73(57.0%)	24(18.8%)	5(3.9%)	14(10.9%)	12(9.4%)
All types of agriculture related careers are dirty	73(57.0%)	24(18.8%)	5(3.9%)	14(10.9%)	12(9.4%)
I do not know much about careers in agriculture	85(66.4%)	31(24.2%)	4(3.1%)	5(3.9%)	3(2.3%)
Agriculture jobs have low pay	53(41.4%)	41(32.0%)	13(10.1%)	11(8.6%)	10(7.8%)
My parents don't want agriculture related careers	78(60.9%)	22(17.2%)	5(3.9%)	10(7.8%)	13(10.2%)

Table 4.19 shows that majority of the students 119 (93%) felt that agriculture syllabus is too wide for them to complete. Very few students 4 (3.1%) felt that the syllabus is not wide for them. These results concur with students response on syllabus coverage where (90.6%) reported that the syllabus is not covered by the end of the year. This was still confirmed by teachers (71.4%) who supported the student response.

Most students' (68%) felt that people cannot survive without agriculture while (25%) felt that still without agriculture life will just go on. These finding confirms that the students are aware of the importance of agriculture to the Nation. Majority of the students (90.6) reported that they do not know much about agriculture careers with very few students (6.2%) reporting that they are aware of careers in agriculture.

The findings are further supported by students' responses in other questions where majority (75.8%) reported that all agriculture related careers are dirty while (61.4%) reported that agriculture is for those who want to become farmers. These results approve the first research

question on factors influencing students' enrolment where career (59%) was the main reason influencing students' choice of a subject.

Most students' (78.1%) reported that their parents did not want agriculture related careers. These findings again agree with (Mwiria, 2005) when he stated that home backgrounds of students' and parental influence contribute to determining which vocational subjects students register for. A follow up question was asked to the teachers regarding the perception of the students towards agriculture subject and the results were analyzed in Table 4.17

Table 4.20 Teachers Response on Student Perception Towards the Agriculture Subject

Statement	SA	A	N	DS	SD
Students do not know much about agriculture careers		1(14.2%)		3(42.9%)	3(42.9%)
Agriculture subject content is too wide to cover	2(28.6%)	2(28.6%)		2(28.6%)	1(14.3%)
Parental influence on career choice	4(57.1%)	3(42.9%)			

Majority of the teachers (85.8%) disagreed that those students who take agriculture have no career future. This is in total contrast with students (90.6%) who felt that they are not aware of agriculture careers. These results raise a point of concern why the teachers and students do not agree on a very wide margin. This is interpreted to mean that teachers assume that students are aware of careers associated with a subject yet they may not be aware.

Majority of the teachers (57.2%) agreed that agriculture subject content is too wide while (42.8%) disagrees. The results agree with the students' response (93%) who also felt the same. The results agree with Mwiria (2005) when he stated that time allocated to the agriculture subject is hardly enough for effective teaching of both theory and practical teaching, as the agriculture teachers pointed out that syllabus is too broad.

4.6 Challenges Facing Agriculture

In this research questions the researcher was interested in establishing the challenges facing agriculture students in schools which may influence their enrolment. The students were asked the challenges they faced and responded as represented in Table 4.21

Table 4.21 Students Responses on Challenges Affecting Them in Agriculture Subject

Statement	SA	A	N	DS	SD
Few agriculture teachers	47(36.7%)	23(18.0%)	7(5.5%)	21(16.4%)	30(23.4%)
Discouragement from parents	77(60.2%)	21(16.4%)	6(4.7%)	11(8.6%)	13(10.2%)
Agriculture is the subject of the weak students	51(39.8%)	23(17.8%)	9(7%)	22(17.1%)	23(18%)
Agriculture involves a lot of work	55(43%)	23(18%)	11(8.6%)	19(14.8%)	20(15.6%)
Agriculture syllabus is too wide	77(60.2%)	19(14.8%)	5(3.9%)	13(10.2%)	14(10.9%)
Time allocated to the subject is not enough	63(49.2%)	21(16.4%)	7(5.5%)	17(13.3%)	20(15.6%)
The school has no adequate agriculture resources	65(50.8%)	27(21%)	7(5.5%)	19(14.8%)	10(7.8%)
Teachers strike	47(36.7%)	34(26.6%)	5(3.9%)	21(16.4%)	21(16.4%)

Table 4.21 shows that Majority of the students (54.7%) agreed that there are few agriculture teachers in the schools while (39.8%) disagreed. This is in contrast to the researcher target population where she targeted five agriculture teachers but ended up with seven. This is interpreted to mean that some teachers have agriculture and another subject combination but opt to teach the other subject other than agriculture. In school B principal 2 respondent said:

"Agriculture students are handled by one teacher from form one to four because the populations of the students in form three and four are very few." This means that in the absence of one teacher either through sickness or personal issues students are left unattended therefore the interpretation of few teachers.

Majority of the students (76.6%) have their parents as farmers and are discouraged from the subject from home as compared from (18.8%) that are not influenced by the Parents. Kiambu East District is highly agricultural potential area therefore majority of the homes practice some form of agriculture. In school C visited, principal three responded that "Some students' are not

able to pay even the K.C.S.E registration money because their parents practice farming which is not reliable."

The results disapproved Ngesa (2006) in his study when he stated that regional differences in the popularity of agriculture subject as an optional subject affected students' enrolment as there is a lower interest in agriculture subject in urban and semi arid areas. This means that even in agriculture potential areas there are still challenges.

Majority of the students (71.8%) agreed that the schools have no adequate agriculture resources. This concurs with teacher's responses (85.7%) who reported that agriculture resources are not enough. The results agree with Mburu (1996) when he stated that the practical teaching of secondary agriculture has been neglected. This is because without agriculture resources it will be difficult to perform practical.

About (57.8%) of the students agreed that agriculture subject is left to the weak students while (21.1%) disagreed. This may be the cause of low performance in the subject in the area as indicated in Table 3. Most students (63.3%) agreed that Teachers strike is a challenge affecting them as it may makes the syllabus coverage impossible.

A follow up question was asked to the teachers on the challenges experienced by agriculture students and their responses were analyzed in Table 4.19.

Table 4.22 Responses on Challenges Experienced by Agriculture Students

Statement	SA	A	N	DS	SD
Discouragement from parents	2(28.6)	1(14.3%)	1(14.3%)	2(28.6%)	1(14.3%)
Agriculture is the subject of weak students	2(28.6%)			3(42.9%)	2(28.6%)
No adequate agriculture resources	3(42.9%)	1(14.3%)		2(28.6%)	

An equal number of teachers (42.9%) agreed and disagreed with parental influence in agriculture subject selection. This is in contrast with (76.6%) students who agreed that parents

influence them. This means that the teachers might not be aware of some factors influencing students' subject choice.

Majority of the teachers disagreed (71.5%) that agriculture is the subject of the weak students. This is in contrast with (57.8%) who agreed that agriculture is left to the weak students. This means that teachers appreciate the academic ability of all the agriculture students without biasness. The results of the findings disapprove Mwiria (2005) when he stated in his study that weaker students may tend to opt for industrial subjects as top students for K.C.S.E examination enroll in those subjects that they may perceive would best prepare them for the most rewarding career, in such fields as engineering, medicine, commerce and computer science.

Most teachers (57.2%) agreed that there are no adequate agricultural resources in schools which confirm students' responses (71.8%). The same question was asked to the principals of the sampled schools and principal one and two from school A and B stated that:" Lack of adequate agricultural resources, Changes in weather patterns and changes in diversity in job markets are some of the challenges facing agriculture in schools. In two schools visited two principal stated that many young people are not interested in agriculture related careers but just want business to do jobs". (principal 1and 2; personal communication; July 3rd 2013)

The results agree with Kritsada (2012) who stated in his study that the younger generation is not much interested in agriculture career instead many would opt to have white collar jobs.

4.7 Solutions to the Challenges Facing Agriculture Students

In this research question the study sought information on the various solutions to the challenges influencing agriculture student enrolment in public secondary schools in Kiambu East District, Kenya.

Table 4.23 Students Response on Solutions to Challenges Influencing Student Enrolment.

Statement	Frequency	Percentage
Agriculture should have more lessons	12	9.4
Schools should be provided with agricultural resources	22	17.2
Schools should invite more agriculture experts	21	16.4
Agriculture clubs should be improved in schools	28	21.8
Agriculture students should be encouraged to participate in agriculture shows	32	25
Schools should organize agriculture symposiums like in other sciences.	13	10.2
Total	**128**	**100**

Findings from Table 4.23 show that most students 35 (25%) suggested that agriculture students should be encouraged to participate in agricultural shows instead of just visiting the shows. 28 (21.8%) said that there was need to improve agriculture clubs in schools. Also schools should be provided with agricultural resources by 22 (17.2%) while schools should invite more agricultural experts was advocated by 21 (16.4%). Other students felt the need for schools to organize agriculture symposiums like other sciences (10.2%) while the rest said that there was need to increase the number of lessons in agriculture.

The same question on solutions was posed to the teachers and the findings were presented in Table 4.24

Table 4.24 Teachers Responses on Solutions

Statement	Frequency	Percentage
Career guidance and counseling should be done to both students and parents	2	28.6
Students need more exposure to agriculture related firms and industries	1	14.2
Modern method of teaching should be provided like use of slide and videos	2	28.6
Government should help schools with agriculture resources	2	28.6
Total	**7**	**100**

Majority of the teachers (28.6%) felt that career guidance and counseling should be done to both students and parents, (28.6%) indicated that modern method of teaching agriculture should be provided like use of slides and videos. The need to expose students to agriculture related firms and industries was pointed out by (14.2%) while the rest (28.6%) said that the government should provide schools with agricultural resources. The findings concur with Dlamini (2004) in his study when he stated that effective teaching of agriculture in schools in Botswana was supported by the government through provision of necessary facilities like small animal houses, garden areas and other tools and implements required.

Principals of the sampled schools were also asked the same question on solutions and gave the following: "The government should assist the schools with agriculture resources like farm implements and modern technique of teaching resources to teachers. They also suggested frequent workshops for agriculture teachers to update them on new events in agriculture." (Principal 1,2,3,4,and 5: personal communication; July 5th 2013)

The findings concur with Kritsada (2012) when he stated in his study that agriculture teachers should be given opportunity to attend trainings in the field of agriculture to be updated on recent trends in agriculture technology and be provided with adequate learning resources.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, SUGGESTIONS AND RECOMMENDATIONS OF THE STUDY

5.0 Introduction

This chapter presents a summary of the research findings, conclusions, recommendations and finally gives suggestions for further studies. This is the final section giving main issues the researcher found on the factors influencing students, enrolment in agriculture subject in public secondary schools in Kiambu East District, Kiambu County Kenya.

5.1 Summary of the Findings

The purpose of this study was to establish the factors influencing students' enrolment in public secondary schools in Kiambu East District, Kiambu County Kenya. From the background information it is clear that agriculture subject enrolment is influenced by many factors, despite agriculture being the backbone of the country' economy. This study was guided by five research questions.

The theoretical framework of the study was system theory which utilized a systems view of education. The theory stress on the need identification, problems selected, requirements for the problem resolution determined and actual methods and means obtained and implemented. The conceptual framework of the study recognized background of the students, teaching resources, time allocated to the agriculture subject, student' guidance on career choice and students attitude towards the subject may influence student enrolment in agriculture subject.

The researcher reviewed related literature and found out that study on the factors influencing students' enrolment in agriculture subject has not been done in most parts of Kenya and in

Kiambu East District of Kiambu County in particular. The literature reviewed was basically on global situation of agriculture education, agriculture education in Africa, agriculture education in Kenya, importance of agriculture and challenges facing agriculture education and their solutions.

The study used Cross-sectional survey design and naturalistic design. The study targeted 20 public secondary schools which 5 were sampled. The study had a total of 140 participants which were made of 128 students, 7 teachers and 5 principals. The instruments used for data collection were questionnaires for students and teachers, interview guide for teachers and observation guide. The researcher used the statistical package Software for social sciences (SPSS) version 17.0 windows to process the data collected. Descriptive statistics such as frequencies and percentages were used to summarize the data. The analysis of the data enabled the researcher to come up with five major findings based on the five research questions.

It was found that the enrolment in agriculture subject in public secondary schools was low. Career was the main reason why many students did not enroll in agriculture. Other factors like family influence, performance in the subject and interest were also indicated as the factors influencing agriculture subject enrolment in schools. However, it was found that schools do not prepare students adequately during subject selection which may also have an influence on subject enrolment. Time allocated to the subject had an influence as many respondents felt that time were not enough for both theory and practical teaching. Attitude towards the subject was also a contributing factor as many students felt that agriculture involves a lot of farming.

On teaching and learning resources the study found out that there were enough textbooks and guide books as they were provided by the government. On other resources most schools had just the simple tools and implements that are used in the school compound like pangas, slashers, Jembes, secateurs, wheelbarrows spade and hammer this is because they are cheap to buy. Most

schools did not have other agriculture implements like livestock production tools, workshop tools and other agricultural implements.

From the researchers observation there was presence of agriculture land in all schools but available only to the form fours for KCSE examination projects. Agriculture laboratories were not present in many schools visited except the stores where the implements are kept. Charts were the main teaching aids that are used in the schools. The findings also revealed that agriculture staff was enough in most schools only one that had a board of governors employed teacher. The results also revealed that agriculture clubs need to be emphasized in schools as they are not active. Agriculture lessons were well distributed in the time table in most schools but no practical lessons are assigned to the subject.

On the perception of the students towards agriculture subject in public secondary schools, the study found that students felt that agriculture related careers involve a lot of dirt and they are only meant for those who want to be farmers. Others perceived that their parents did not want agriculture related careers because they have low pay. Wide syllabus was also noted by students who felt that it is very bulky for them.

On challenges influencing students' enrolment in agriculture subject, the study found that home background highly influenced students' subject choice. Many students having been brought up in agriculture practiced backgrounds did not want anything to do with agriculture. Lack of resources for agriculture in schools was also a challenge influencing enrolment. Changes in weather pattern affected agriculture production which may discourage students in venturing to the field of agriculture as noted by some principals. Job diversity where business to do jobs have gained popularity amongst the young generation is also a big challenge.

Poor guidance to students on agricultural careers was attributed to be one of the causes of low enrolment in agricultural subject in secondary schools. The research established that the low perception of agriculture jobs from parents is highly passed on to their children in schools. Therefore many agriculture practicing families are not happy with what they do and therefore discourage the students.

To overcome the challenges, it was found that career guidance and counseling be employed to both parents and students so that they can be educated on agriculture related careers. Modern methods of teaching agriculture like use of videos, slides, projectors should be employed to make the subject more interesting and realistic. Also government should provide the schools with agriculture resources like farm tools and equipment that are set in curriculum in order to integrate theory teaching and practical teaching to make the subject holistic. To change the parents' attitude towards agriculture, the Ministry of Agriculture in the counties should host more seminars and workshops to educate the community on various diversities of agriculture.

5.2 Conclusions of the Study

The study concluded that the enrolment of agriculture subject in public secondary schools in Kiambu East District was low and career choice was one of the major factors influencing student' enrolment. Agriculture careers are rewarding but many students and parents are not aware of them. The implication of this finding is that students in this District appreciated the importance of agriculture to the nation but were not certain of the careers they would take in agriculture other than farming.

It was concluded that many schools have resources in terms of text book and students guide, but lack the farm tools and implements that are used for practical classes and inadequate land for practical. Also the studies concluded that students had a negative perception towards agriculture

and poor career guidance in schools to students highly influenced students' agriculture subject enrolment in schools.

5.3 Recommendations of the Study

The study recommends the strengthening of career guidance and counseling departments in the schools so that students are guided through every subject from form one to avoid home background influence. Also students in respective schools need to be provided with career information books and electronic research engine through computers and internet by the school management in collaboration with parents of these secondary schools. This will ensure that students have sufficient information during career decision making process.

The study also recommends that the stake holders who are the principals and Board of Governors and Parents Teachers Association in secondary schools in Kiambu East to invite agriculture mentors to talk to students on the issues of agriculture careers. This will ensure that students make informed career choices. The study further recommends the Ministry of Agriculture Department in various Counties to host more seminars and workshops for parents in the communities in order to educate them on various ways of generating income through agriculture.

Finally there is need by the government to provide the schools with adequate agriculture resources so that effective teaching of subject can be practiced. In as much as parental guidance to students in order to pursue certain careers is encouraged, care must be taken by parents to ensure that the students discover their potentials without being influenced to follow their families' career jobs.

5.4 Suggestions for Further Research

Since this study established career choice as a factor influencing agriculture subject enrolment, the researcher suggests future studies on the Impact of career choice in subject selection in secondary schools. Further studies need to be done on How parental influence on career choices influence subject selection. Finally further studies need to be done on the Impact of the Ministry of Agriculture Department in the Counties to the local communities. Also the researcher recommends the same study to be carried out in other areas to find out if the problems exist.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE FOR STUDENTS

Dear Student,

The purpose of this questionnaire is to assist the researcher in finding out the factors influencing students' enrolment in agriculture in secondary schools in Kiambu County. Your responses will highly be appreciated. The information provided will be treated with utmost confidentiality. **Please tick where appropriate or write a brief statement.**

SECTION A: Biographic Information

1. Status of the school. Girls ( ) Boys ( ) Mixed ( )

2. State your gender:

Male ( ) Female ( )

SECTION B: Factors Influencing Students Choice of Agriculture

3. (a) Which of these subjects have you chosen in form three?

(i) Agriculture ( )

(ii) Home science ( )

(iii) Computer ( )

(iv) Business studies ( )

(v) Any other specify ( )

(b) Give a reason why you prefer a particular option.

……..……

……

……..……

4. If you do not take agriculture which of the following reasons best explain why you do not take the subject. **You can tick more than one.**

i) There are no teachers to teach the subject ( )

ii) There are no textbooks for agriculture ( )

iii) Agriculture is a difficult subject ( )

iv) There are other options like business studies, computer and home science ( )

v) Agriculture involves a lot of farming ( )

vi) No agriculture teaching resources like tools and equipment ( )

vii) Any other reason_____

5. (a) In your own opinion ,has the school prepared you adequately in the subject selection, for example career teachers guide you on how the selection is done?

Yes ( ) No ( )

(b) Kindly explain your answer.

……

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6. (a) What influences the kind of subject one selects?

i) Performance in the subject ( )

ii) Teachers ( )

iii) Parents ( )

iv) Peers ( )

v) Career choice ( )

vi) All the above ( )

7. (a) In your own observation, should agriculture subject be made compulsory or elective?

i) Compulsory ( ) (ii) elective ( )

(b) Give a reason for your answer above.

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8.(a) Is agriculture syllabus covered at the end of the year?

Yes ( ) No ( )

(b) If the answer is No, give likely reasons why they are not covered.

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SECTION C: Teaching and Learning Resources:

9) list the tools and equipment available for the teaching of agriculture subject.

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10. What comments would you give on the availability of materials used for teaching agriculture in schools?

	Yes	NO	Uncertain
They are available			
They are enough			
Use of resources from the surrounding			
Principals supplies them			
MOEST supplies them			

SECTION D: Students Perception towards Agriculture Subject

11 Would you agree or disagree with the following statement as related to students' attitude towards agriculture subject? 5=strongly agree, 4=Agree, 3= Neutral, 2=Disagree, 1=strongly disagree

#		SA	A	N	DS	SD
1.	Agriculture syllabus is too wide to complete					
2	People cannot survive without agriculture					
3	I want to work in agriculture related fields					
4	Agriculture subject should start at primary school level rather than secondary school					
5	Agriculture means only working in the farm					
6	Learning agriculture subject is for only those who want to become farmers					
7	All types of agriculturally related careers are dirty					
8	I do not know much about careers in agriculture					
9	Agriculture jobs have low pay					
10	I want to have a job with a title rather than work in the farm					
11	My friends will laugh at me if I do vegetable growing in school					
12	My parents do not want me to work in agriculture related career					
13	Students should be made aware of the type of jobs in the agriculture field					

SECTION E: Challenges Facing Agriculture Students.

12 Would you agree or Disagree with the following statement as related to challenges facing enrolment in Agriculture subject? 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1= Strongly Disagree

	Challenges	SA	A	N	DS	SD
1	There are no Agriculture teachers					
2	My parents are farmers and discourange me from the subject					
3	Agriculture is the subject of weak students					
4	Agriculture involves a lot of work					
5	Agriculture syllabus is too wide					
6	Time allocated to the subject is not enough					
7	Agriculture Careers are limited					
8	People who do agriculture don't get jobs					
9	The school has no adequate agriculture resources					

b) List the challenges experienced by agriculture students in schools.

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SECTION F: Strategies to Improve Agriculture Enrolment in Schools

13Would you agree with the following statement as related to strategies which can be employed to improve agriculture enrolment in schools? 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1=strongly Disagree

		SA	A	N	DS	SD
1	Agriculture should have more lessons					
2	Schools should be provided with agriculture resources					
3	Schools should invite more agriculture experts to talk to the students					
4	Agriculture clubs should be improved in schools					
5	Agriculture students should be encouraged to participate in agriculture shows.					
6	Schools should organize agriculture symposiums like in other sciences.					

b) Suggest some ways of improving agriculture subject enrolment in schools.

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APPENDIX 11: QUESTIONNAIRE FOR AGRICULTURE TEACHERS

I am carrying out a study to establish the factors influencing students enrolment in Agriculture in secondary schools in Kiambu-East District, Kiambu County. Information given will be highly confidential and will be used for the purpose of this study. To enhance confidentiality do not write your names.

SECTION A: Biographical Data

1. Status of the school:

i) Boys ( ) ii) Girls ( ) iii) Mixed ( )

2. Gender: i) Male ( ) ii) Female ( )

3. Highest academic qualification:

i) Masters Degree ( ) ii) Degree ( ) iii)Diploma ( )

iv) Others specify ……..…

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4. Professional qualification and training:

a) Master in Agriculture education ( )

b) Bachelor of science in Agriculture education ( )

c) Diploma in Agriculture education ( )

d) Any other specify ( )

5. Number of years as a teacher of Agriculture in secondary school:

a) Less than 1 year ( )

b) 1-3 year ( )

c) 4-6 years ( )

d) 7-9 years ( )

e) 10 years ( )

f) More than 10 yrs ( )

SECTION B: Factors Influencing Agriculture Subject Enrolment

6. How many form three students take Agriculture this year?

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7. Who influences the students' subject choice?

i) Subject performance ( )

ii) Teachers ( )

iii) Parents ( )

iv) Peers ( )

v) Any other specify

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8a) Do teachers prepare students on subject selection?

Yes ( ) No ( )

b) If the answer is yes briefly explain how you prepare them.

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9a) State the number of Agriculture lessons recommended in each class per week.

i) Form 1----------lessons

ii) Form 2----------lessons

iii) Form 3.....lessons

iv) Form 4----------lessons

b) In your own opinion, are the numbers of lessons enough to cover the recommended syllabus?

Yes ( ) No ( )

c) If the answer is no give reasons.

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10a) . How many Agriculture teachers are there in the school?

One ( ) Two ( ) Three ( )

b) In your own opinion is the number of Agriculture teachers in the school adequate?

Yes ( ) No ( )

c) Are you able to complete agriculture syllabus in each class by the end of the year?

Yes ( ) No ( )

d) If the answer is no give reasons for your answer.

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SECTION C: Teaching and Learning Resources

11a) Comment on the availability of the teaching learning resources used in teaching agriculture

	Yes	NO	Uncertain
They are available			
They are enough			
Use of resources from the surrounding			
Principals supplies them			
MOEST supplies them			

12a) Does the school have an Agriculture workshop/ laboratory?

Yes ( ) No ( )

b) If the answer is yes, probe for its adequacy and condition.

Adequacy.....

Condition.....

13a) Does the school have enough agriculture textbooks and reference books?

Yes ( ) No ( )

b) If the answer is no how do you carry out teaching without the textbooks?

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SECTION D: Student Perception towards Agriculture Subject

14. Please indicate how you feel about Agriculture by ticking ( ) under the appropriate column to show your agreement using **Strongly Agree (SA), Agree (A), Neutral (N), Disagree (DS), Strongly Disagree (SD).** There is no correct or wrong answer

		SA	**A**	**N**	**Ds**	**SD**
1	Student who take agriculture have no career future					
2	Agriculture subject content is too wide to cover					
3	Agriculture jobs have low pay					
4	My parents don't want me to work in agriculture related careers					

SECTION E: Challenges Facing Students Enrolment in Agriculture Subject

15 Would you agree or disagree with the following statement as related to challenges facing students' enrolment in Agriculture Subject in schools? 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1= Strongly Disagree

	Challenges	SA	A	N	DS	SD
1	Many parents don't want their children to do agriculture					
2	Agriculture careers have no markets					
3	Students don't want to work in the farms					
4	Agriculture resources are expensive					
5	Agriculture is left to weak students					
6	Students associate the subject with farms					

15b) list the challenges experienced by agriculture subject that may influence the enrolment

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SECTION F: Strategies of Improving Agriculture Subject Enrolment in Secondary Schools

16) List the strategies of improving agriculture subject enrolment in schools.

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APPENDIX 111: INTERVIEW GUIDE FOR SCHOOL PRINCIPALS

SECTION A: General Information

1. a) Status of the school Girl ( ) Boys ( ) Mixed ( )

b) Gender Male ( ) Female ( )

c) Highest academic qualification

i) Masters ( ) ii) Degree ( ) iii) Diploma ( )

SECTION B: Questions Based on Five Research Questions

2.a) What is the status of the textbooks in technical subjects especially Agriculture

Adequate ( ) Not adequate ( )

b) If they are not adequate what are the reasons for inadequacy?

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3.a) Are there Workshops/ seminars organized either locally at school or outside school for Agriculture teachers?

Yes ( ) No ( )

b) If the answer is Yes how frequent is it?

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4.a) What is the status of staffing in Agriculture in your school?

Adequate ( ) Not adequate ( )

b) Give a reason for the inadequacy.

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6. What is the school policy on subject selection?

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7. Are the students guided on subject selection?

Yes ( ) No ( )

b) Briefly explain how you prepare the students.

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8. What challenges do you face in implementing Agriculture curriculum?

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9. Suggest ways of overcoming the challenges faced above.

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Thank you for the response

APPENDIX IV: OBSERVATION GUIDE

Rating scale: 3 = very adequate, Fully Available, Well distributed.

2 = Partially Available, adequate, Enough

1 = satisfactory, not adequate, Not enough, Not well distributed

0 = Not available, unsatisfactory, rarely.

Agriculture Teaching and Learning Resources

No.	**Statement**	**0**	**1**	**2**	**3**
1.	Agriculture textbooks				
2.	Agriculture teaching aids				
3.	Agriculture projects				
4.	School Agricultural land				
5.	Tools and equipment				
6.	Agriculture laboratory				
7.	Agriculture staff				
8.	Agriculture Time table				
	Agriculture lessons				
	Distribution of Agriculture lessons.				
	Agriculture club reports on the notice boards				