

**RELATIONSHIP BETWEEN ATTITUDES, ACADEMIC
PERFORMANCE, GENDER AND CHOICE OF AGRICULTURAL
CAREERS AMONG SECONDARY SCHOOL STUDENTS IN
THIKA DISTRICT, KENYA**

WAIHENYA JUDY NYAGUTHII

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DECLARATION

This research thesis is my original work and has not been submitted for an award of a degree in any other university.

..... **DATE**

WAIHENYA JUDY NYAGUTHII

E55/15859/2005

We confirm that the work reported in this thesis was carried out by the candidate under our supervision:

..... **DATE**

PROF. FREDRICK M. OKATCHA

Department of Educational Psychology

Kenyatta University

..... **DATE**

DR. SAMMY TUMUTI

Department of Educational Psychology

Kenyatta University

DEDICATION

To my husband, Charles

Who has been so supportive and bearing.

He has been a pillar of strength, always encouraging me to cruise on.

To our children, Peter and Delvin

Who bore with me throughout the long hours I was absent.

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I sincerely thank my Creator, the Almighty God, who gave me the physical, mental strength and good health to undertake and accomplish this work.

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ACRONYMS

AAS – Agriculture Attitude Scale

ALE – Associative Learning Experiences

ILE – Instrumental Learning Experiences

SOGs – Self Observation Generalization

SRA – Strategy for Revitalizing Agriculture

WVGs – World View Generalization

ABSTRACT

In this study, the researcher investigated the relationship among selected variables which include; attitudes towards agriculture, agriculture academic performance, gender and choice of agricultural careers. Social learning theory of career decision making and Vocational development theory were used. Social learning theory emphasises learning through observation which can influence the attitude of an individual when making a career choice in future. Vocational development theory posits that career choice is a process in an individual's career life which starts from growth stage (4-14 years) and is tried out in the exploratory stage (15-24 years); this choice also influence interests and attitude during career choice. The study consisted of 240 form two students selected from secondary schools in Thika District. Attitudes towards agricultural careers were measured using an agricultural attitude scale developed by the researcher. Agriculture scores were obtained from the school records to measure agriculture academic performance. Career choices were measured through a questionnaire which also carried students' background information. For data analysis the researcher used both descriptive and inferential statistics. All the hypothesis were tested at $\alpha= 0.05$ level of significance. Tests used included t-test, chi-square and analysis of variance (ANOVA).The study established that majority of the students in Thika District did not express career aspirations in agriculture. This was despite the fact that majority of the students had positive attitudes towards agricultural careers. The study established that only 33.3% of the students were low achievers in agriculture, indicating that academic performance in the subject was not to blame for low number of students who choose agricultural careers. Significantly more boys than girls had chosen agricultural careers, despite the fact that more girls than boys had positive attitudes towards agriculture, and girls performed slightly better than boys in the subject. The findings of the study led to the conclusion that failure by students to choose agricultural careers is neither as a result of poor academic performance in the subject nor by attitudes towards agricultural careers. There could be other factors that cause students' not to choose agricultural careers. More research is needed to find out the role of factors like career guidance in schools, government policies on agriculture, teaching methodologies employed by agriculture teachers, role of mass media in promoting agriculture careers like agribusiness, and other related factors that could impact on students' choice of agricultural careers.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Today the world is under the threat of food crisis and Kenya is not an exception. In a Kenya National Forum session held in Nairobi, the Vice-Chancellors of local public universities linked the food crisis in our country to few university agriculture students. The dons said that the low enrolment in agriculture sector threatens food production as the sector lacked field personnel at the research and technology fields (Konuche, 2008). Some scholars such as, Kings, (1971); Aswani, (1992); Kibera, (1993) noted that Kenyan students show very little interest towards agricultural careers. Students express preference for clerical jobs to manual work Bogonko, (1992); Kibera, (1993).

In spite of this, agriculture is taught as an elective subject in most secondary schools in Kenya. Its teaching is as a result of recommendations made by different education commissions established right from the colonial era. Learning agriculture can lead to various careers for example in plant and animal science, engineering, marketing and economics (Career Guide Book, 2007). In addition agriculture has a number of important elements among them; it's contribution of 25% of the overall gross domestic product in Kenya. Kenya is basically an agricultural economy and the sector has led the country to great development and recognition. Tea, coffee and horticultural production has made Kenya to be recognized through trade in the western world. In addition agriculture provides employment either directly by working in the farm or indirectly by working as a professional. The other major importance of agriculture is the provision of food to the population (Secondary Agriculture, 2007).

According to the National Development Plan 2002-2008, agriculture is the backbone of the country but its full potential has not been realized. This can be attributed to the low number of young energetic persons who enter into the sector per year.

Perhaps this problem of students shunning agricultural careers stems from the history of agriculture in the education system. Formal agriculture practices were introduced in Kenya in 1873 to the freed slaves in Freretown settlement by the European missionaries (Bogonko, 1992). The aim was to improve manual work by the labourers. In 1903, the white settlers came to Kenya and the colonial government was formed thereafter. That government established several commissions to improve the education system. In their reports (Fraser Report, 1909; East Africa Protectorate Education Commission, 1919; Phelps Stoke Education Commission, 1924; Beecher Report, 1949; Binn's Report, 1951/1952), the commissions recommended the teaching of agriculture in schools (Corry, 1970). This was gradually implemented in selected schools in the country; (Jeans School now Kabete Technical Institute, Alliance High School and Mang'u High School). Later, teaching of agriculture was further expanded to several other schools in the country (Maxwell, 1965 & Dunbar, 1965).

After independence, educated people were getting white collar jobs (clerical jobs) which were better paying. Employment syndrome was high among the educated. The non white collar aspect of work as agricultural instructors started to decline in recruitment because most young Africans thought of schooling as providing a way to escape from manual labour (Corry, 1970). In addition, Ominde Report (1964) recommended the absorption of agriculture in the science syllabus giving one reason that as a subject, 'agriculture' had become a disagreeable word associated with punishment and tedious tasks. As such the subject had failed to inspire students to

take an interest in farming and other agricultural careers. Later, the International Labour Organization report (1972) on employment, income and equity and the Gachathi report (1976) endorsed teaching agriculture in schools as a means of helping school leavers find gainful employment in the rural areas. In 1981, Mackay's Report recommended the introduction of education for self-reliance. Agriculture was hence fully introduced in primary and secondary schools the new 8-4-4 system of education in 1981. This implies that academically most of our secondary school students have achieved the necessary knowledge required to fit in agricultural careers.

It is now close to three decades since agriculture was fully introduced in schools; unfortunately few of our students show interest in agricultural careers even after acquiring the skills. For example, in 2006, about 251,092 students sat for their Kenya Certificate of Secondary Education. Approximately 103,720 of them were examined in agriculture and only 7,860 of these agriculture graduates were admitted to undertake courses related to agriculture in our local universities and middle level colleges, leading to degree, diploma and certificate qualifications (Ministry of Education, 2007). This represents about 7% of the students who would probably enter into agricultural related careers after completion of their courses.

Probably, the low enrolment could be the outcome of what students have learnt through observation from yester years. Krumboltz (1979) in social learning theory emphasizes that learning observation experiences are used by an individual when making career choices, while Super (1959) in vocational development theory demonstrates that the choice of a vocation is a process that develops in an individual from growth to decline stages. This implies that our students could have observed the world around them and formed attitudes about agricultural careers. One observation the students could have learnt is the employment syndrome after education where

graduates got white collar jobs away from the manual work. Most agricultural careers involve manual work hence with students shunning agricultural jobs; the sector will lack personnel both at the research and technology level.

In an effort to implement the Economic Recovery Strategies, the Government launched the Strategy for Revitalizing Agriculture (SRA) in March 2004 as a national policy document. It aims at steering development of the agricultural sector in Kenya for the period unto 2014. It also focuses in the transformation of agriculture into a profitable, commercially oriented and internationally competitive economic activity capable of providing income and employment (Economic Survey, 2005). The vision sounds very good but the young energetic youth (both females and males) may not yet be willing to engage in this sector considering the small percentage that entered into agricultural related courses in 2006. The question is who can do these much needed tasks for agricultural produce for export and food for the population? The current Kenya population stands at 37 million people. This implies that agricultural production must also grow fast to significantly produce food for its citizens (National Bureau of Statistics, 2007). With the education taught in secondary schools, our students can greatly improve food production if they choose agricultural careers. This scenario would also alleviate the crime rates and the escalating number of slum dwellers that emanate from lack of employment among the youth. In addition, the aims of Strategy for Revitalizing Agriculture would be attainable.

Although studies have been carried out on students' attitudes, academic performance, and vocational aspirations in subjects like Mathematics and the sciences, very little has been done in Kenya regarding students' choice for agricultural related careers as compared with other African countries. This is despite the fact that researchers such as Aswani (1992) and Kibera (1993) have noted that Kenyan students show very little

interest towards agricultural careers. This study therefore sought to find out the relationship between attitudes, academic performance, gender and choice of agricultural careers among secondary school students.

1.2 Statement of the Research Problem

The overall research problem addressed in this study was that, despite the concerted efforts to teach agriculture in secondary schools, fewer students choose to be in agricultural careers. Studies carried out in Kenya (Aswani, 1992; Kibera, 1993) indicate that fewer students aspire to take up agricultural careers after completion of their secondary school education. Similarly, a report by the Ministry of Education (2007) revealed that only 7% of the Kenya Certificate of Secondary Education agriculture graduates of 2006 opted to take up agricultural related courses in colleges and universities. However, no studies had been conducted to find out the attitudes of students toward agricultural careers, and determine the factors associated with positive and negative attitudes. The current food crisis in Kenya is likely to persist if no action is taken to address this low interest of students in agricultural careers. The issue of attitude towards agriculture as manual work (Kibera, 1993) should change since today's technology is advanced and has eased agricultural operations. In addition, agricultural careers are noble jobs like any other careers and they equally require good academic achievement. If young Kenyans (males and females) do not take up agricultural careers, the much needed tasks in research and technology to facilitate agricultural produce for export would be lacking personnel. In addition, the threatening food shortage in Kenya would become more devastating, unemployment numbers among the youth would continually rise and crime rate would increase. This in the long run would make Kenya not to achieve the 2030 millennium goals since agriculture is the backbone of the country's economy. Similarly, the aims of the

government newly established Strategy for Revitalizing Agriculture (SRA) would be difficult to achieve. Understanding the factors associated with attitudes of students towards agricultural careers would enable teachers and career counsellors to design effective strategies to encourage more students to pursue careers in agriculture.

1.2.1 Purpose of the Study

The primary concern of this study was to investigate the relationship between students' attitude, agriculture scores and agricultural careers. It also sought to establish if there was any relationship between attitudes towards agriculture and academic performance in the subject. Further, the study established the gender differences in relation to both the predictor and criterion variables.

1.3 Objectives of the Study

The objectives of the study were:

- i) To find out the relationship between students' attitude towards agriculture and choice of agricultural careers.
- ii) To investigate the influence of the students' agricultural academic performance and the choice of agricultural careers.
- iii) To find out the relationship between students' attitude towards agriculture and the agriculture scores.
- iv) To find out if there is gender differences in students' attitude towards agriculture, agriculture scores and choice of agricultural careers.

1.4 Research Hypotheses

The following research hypotheses guided the study: -

- i. There is a relationship between students' attitude towards agriculture and the choice of agricultural careers.

- ii. There is a relationship between the students' agricultural academic performance and the choice of agricultural careers.
- iii. There is a relationship between the students' attitude towards agriculture and their agriculture scores.
- iv. There is a gender difference in students' attitude towards agriculture, agriculture scores and the choice of agricultural careers.

1.5 Significance of the Study

The findings of this study may be useful in the following ways;

- i. Policy makers and curriculum developers of agriculture will be able to evaluate the extent to which the agriculture subject has influenced the students' attitude towards choice of agricultural careers.
- ii. Subject teachers and career masters/mistresses will get to visualize attitude taken by students in regard to choice for agricultural careers.
- iii. The study will also act as a springboard for further research in this field and in other related applied subjects.

1.6 Delimitations and Limitations of the Study

The study had the following limitations; due to financial and time constraints the study was limited within a few selected public secondary schools in Thika District. In addition, the sample size in each school was small because agriculture is an elective subject and the numbers of students for the subject in most schools are few. The delimitation of the study was that agriculture can lead to a wide range of careers under agricultural engineering, agricultural economics, soil science, plant and animal science, agribusiness and agricultural marketing but the researcher only addressed

these careers in general as agricultural careers. Only a few agricultural careers were picked from each category for the study.

1.7 Assumptions of the Study

In this study, it was assumed that;

- i. The students had a free choice of their preferred subjects as they joined Form 1.
- ii. Students were knowledgeable about the existing jobs in agricultural sector.
- iii. All the agriculture students in the sample were exposed to the same secondary school agricultural curriculum which had uniform objectives and national goals.

1.8 Theoretical and Conceptual Framework

This section has two subsections. The first subsection has a brief description of two theories which guided the study; Social Learning Theory by Krumboltz (1979) and Vocational Development Theory by Super (1957). In the subsequent section, the conceptual framework showing the anticipated relationship between the study variables is given.

Social Learning Theory: The basic tenet of the social learning theory of career decision making is the work done by Bandura (1969) on the general social learning theory of behaviour. Krumboltz (1979) used the general social learning theory principles of observation and identified instrumental learning experiences (ILE), associative learning experiences (ALE), and vicarious experiences as factors used by an individual in career decision making. In addition to the learning experiences, Krumboltz (1979) also identified task approach skills as a factor in career decision making.

- i) Instrumental Learning Experience (ILE) occurs when an individual is positively reinforced or punished for the exercise of some behaviour and it is associated with cognitive skills. Krumboltz, (1979) further points out that individuals', perfect behaviours which they are positively reinforced for and tend to avoid behaviours for which they are punished. ILE implies that a student's good perform in agriculture examinations, would reinforce the student's interest in the subject and also futures career choice. Poor performance would negatively influence the students towards agricultural related careers.
- ii) Associative learning experience (ALE) occurs when individuals associate some previously affectively neutral event or stimulus with an emotionally laden event or stimuli (Krumboltz, 1979). As regards to agricultural related careers, a student may ascribe a positive or negative attitude to them depending on events or benefits they associate with them. For example, students whose parents have struggled in farming and have not been able to live a moderate lifestyle may ascribe a negative attitude towards agriculture.
- iii) Vicarious experience occurs when learning experience is done through behaviour observation of others or by gaining information and ideas through media (print or electronic), books, movies and television (Krumboltz, 1979). In Kenya today, most students are well exposed to media (print and electronic) and television. What these students observe through the media is received cognitively and then acted behaviourally. As regards agriculture, frequent demonstrations in the media by, for example agricultural workers due to poor working environment in the flower farm may change the students' attitude towards agriculture and choice of agricultural careers.

iv) Task Approach Skill - Krumboltz (1979) says that these are skills which include a variety of means for recognizing and acting on the environment. In career planning, task approach skills include, career decision making behaviours such as value clarification, goal setting, information seeking and weighing and selecting alternatives. Task Approach Skills interact with a set of influences such as self observation generalization (SOGs) and world view generalizations (WVGs) which are explicit or implicit self concepts about our competence or achievement. According to task approach skill, students would choose agriculture related career depending on what they have observed in self and the world around them, for example parents.

In addition, the theory identifies factors that influenced career decision making path for any individual as:-

- i) Genetic endowment and special abilities - According to Krumboltz (1979) genetic endowment and special abilities are inherited qualities that may affect occupational preference. These qualities include sex, physical appearance and characteristics including irreversible physical handicaps. Social Learning Theory points out that certain individuals are born with greater or lesser ability to profit from environmental learning experiences or are offered different experiences all together because of their inherited qualities. Intelligence is one genetic factor that is greatly used in Kenya in career choice, for example, a veterinary doctor should have qualified well in the overall examination and also in certain subject criteria like agriculture.
- ii) Environmental conditions and events - Proponents' of social learning theory of career decision making argue that environmental conditions and events such as social, cultural and economic forces of an individual can determine the career

decision making. These are factors outside the control of an individual. Brown (1990) a proponent of social learning theory points out some of these factors as: number and nature of job opportunities, number and nature of training opportunities, social policies and procedures for selecting trainees and workers, educational system and family training experiences and resources.

iii) Learning experience - Krumboltz (1979) argues that the development of career preference and skills and the selection of a particular career are influenced by the individual's past learning experiences. It is posited that each individual has a unique history of learning experienced that result in the choice of career path. Therefore, Kenyan students will choose agricultural related careers depending on their unique learning experiences.

Summary of the Theory: Krumboltz (1979) theory suggests that career decision making is a process achieved through learning experiences and motivation of the individual as they interact in various life activities. Central to the theory is positive and negative attitudes developed through learning experience. The study used Krumboltz theory (1979) to determine the type of attitudes developed by students through observational learning experiences which later influence their choice for agricultural careers.

Vocational Development Theory: Super (1954), points out that vocational development proceeds through the following stages; growth, exploration, establishment, maintenance and decline. He explains growth as a stage which extends from conception to about fourteen years. It is followed by the exploration stage, which includes the period from about age fifteen to about twenty five years. The establishment stage comes next, including the years from twenty five to about forty five. Then comes, the maintenance stage which ends at sixty five years. The final

stage is that of decline, beginning at sixty five and goes on to the death of a person. The stages of interest in this study were growth and exploration stages because the sample included the form II students who were between age 14 and 16 years.

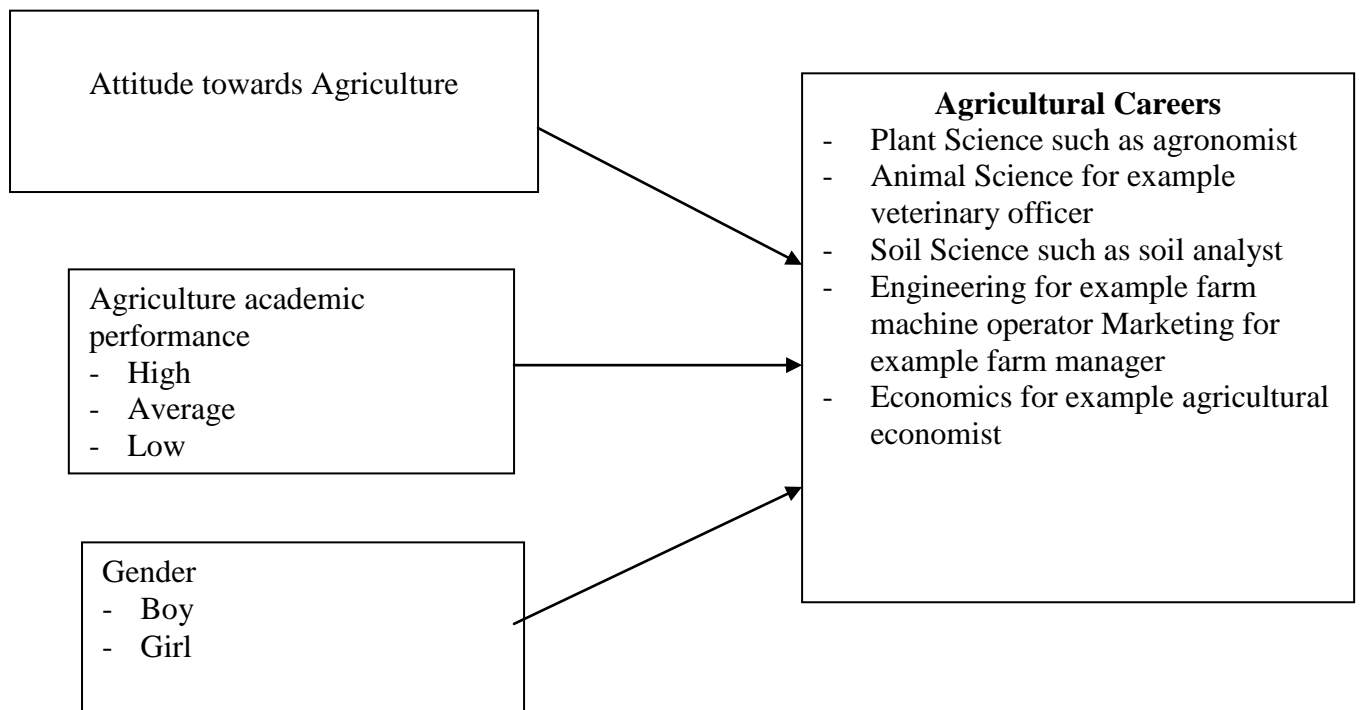
Growth stage (4-14 years) has sub-stages which include fantasy (4-10 years), interest (11-12 years) and capacity (13-14 years). In the fantasy stage, the child begins to develop an orientation to the world of work through home, neighbourhood and school. Super (1957) explains that the child observes and imitates the environment through role playing. The interest sub-stage is usually experienced when the child interacts with the environment. Super (1957) explains an interest as the expression of one's reaction to his environment. This includes the school and home environment. Certain kinds of behaviour are favoured by parents and bring gratification to the child while others are disapproved and bring punishment. Due to this, likes and dislikes become the major determinants of aspirations in this sub-stage depending on the reactions of the significant others to the child. The next sub stage is capacity stage and according to Super, the dynamic needs of the child encourage him to anticipate adulthood by playing adult roles. Boys and girls of 13-14 years often play roles that are congenial to their interests, personalities and aptitude (capacity). In the capacity sub-stage, ability is given more weight and job requirement is considered.

Exploration (15-24 years) involves self-examination of what one wants to be. The sub stages in this stage include tentative (15-17 years), transition (18-21 years) and trial (22-24 years). In tentative stage (15-17 years), the individual makes initial occupational decisions based on personal needs, interest, abilities and values. According to Super (1957) choice is a process that when taken can affect the shape of future occupation. When making a choice, some alternatives are retained while others are eliminated depending on the interest and capacities explored by the individual

earlier. Transition (18-21 years) stage touches on the adolescences who are about to enter the adult sub culture. Trial (22-24 years) stage marks the entry into an individuals' first trial job after making an initial choice earlier. The individual enters the job market after some training in college or direct from school.

Summary of the Theory: Super (1954) demonstrate that the choice of a vocation is a process that develops in an individual from childhood. As the child develops, there are interests and attitudes developed which would influence future career choice. The present study uses vocational development theory as a base to understand dynamics involved in attitudes and academic performance in relation to choice of agricultural careers.

Conceptual Framework



NB: Arrows point where a relationship was anticipated.

The conceptual framework was formulated by the researcher after a review of literature (see the summary on page 22).

1.9 Operational Definitions of Terms

Academic performances in agriculture refers to the performance of individual students as compared with the other students in the agricultural subjects.

Agricultural careers are careers related to plant and animal science. It also includes careers in economics, marketing, engineering and soil science.

Agricultural education: This refers to education related to agricultural practices

Attitudes refer to learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object in this case agricultural careers.

Career development Process, by which an individual develops, adjusts and advances in an occupation.

Gender refers to whether a student is a boy or girl.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is divided into three sections. The first section consists of a brief description of attitudes. The second section comprises of literature from outside Kenya while the last section is on literature from outside Kenya.

2.1 Attitude Definitions, Components and Formation

Attitude is defined in various ways. Attitude is a mental and neural state of readiness, organized through experience exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related (Allport, 1935). Jahoda and Warren (1966) defines attitudes as mental dispositions of the human individual to act for or against a definite object. Oskamp (1977) defines attitude as a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object. Attitude involves three components; cognitive, affective and behavioural. Cognitive component involves the perceptions, beliefs or memories about objects and events. Affective component includes feelings and emotional responses to objects and events. Behavioural component concerns the intentions and predicts the way in which an individual may behave in relation to an object or event. Attitudes are formed through:

- i) Direct experience - To a great extent attitudes that human beings hold are the result of direct experience to the object. This attitude leads to beliefs which then influence the extent of our liking or disliking the object.

- ii) Classical conditioning - Pavlov (1927) defined classical conditioning as the process through which a reflex response becomes associated with a stimulus which would not naturally activate that behaviour.
- iii) Instrumental/Operant conditioning - This is the conditioning of voluntary behaviour through the process of reinforcement and punishment (Thorndike, 1913).
- iv) Observational learning and modelling - This is learning by imitating the behaviour of a model (Bandura, 1963) which was later developed by Krumboltz in the social learning theory.

Attitudes are considered to be very important in relation to schooling and to life in general. They determine ones behaviour either in action or in words (Evans, 1972).

2.2 Review of Related Studies from outside Kenya

Most studies done on student's choice for agricultural careers are done from outside Kenya. Some of these studies used dependent variables like attitudes, gender difference, parental level of education and occupation on the influence of students choice of agricultural careers. For example; Eldeson and Crowe (1960), in their study in Washington on teenagers' occupation aspiration found out that the young people indicated that parents were cited most frequently as influencing their occupational plans. No other group even comes close to parents as vocational choice affecters, although peers, friends, teachers and counsellors sometimes appear as reference groups influences.

Kibwika (1997) carried out a study involving 320 Youth on their participation in agriculture in Iganga District, Uganda. He found out that agriculture was the major occupation that employed most youth. The other occupation that employed many

youth was business other than marketing of farm produce and making of bricks. Unlike the other occupation, the youth who were involved in agriculture did so, largely because they could not find alternatives jobs.

Tatrah (2000) did a study to find out the students attitudes and perception towards agriculture, agricultural careers and agricultural inputs in Central Region of Ghana. Using 235 students in a correlation survey, the study revealed that student's attitudes and perception towards agriculture and agricultural careers was positive. These students also had a more favourable perception towards agriculture. The study also revealed that students whose parents had low levels of education had a more favourable perception of agriculture than those with educated parents. Students who were studying electives agriculture and those who were farming at home were willing to farm after school. They gave reasons for this as interest, good income, knowledge and skills in farming.

Ingole (1991) in a research with 296 senior form four students on factors affecting aspiration for type of agricultural vocation in Uganda found out that students of low mental ability favoured and aspired for vocations in farm machinery maintenance compared to their counterparts with high mental ability.

In the proceedings of the Second Professors World Peace Academy, Eastern African Regional Conference held in Kampala (July 1987), it was reported that in Tanzania, most women were biased towards home economics and commercial subjects for their university education while men were for agriculture and technical courses.

In a study to compare the career mobility of professional men and women agriculturists, Namukasa (1997) in a study comparing the career mobility of professional men and women agriculturists found out that women have not advanced

as fast as men in their career. This was attributed to the societal towards different roles of men and women. His study revealed that domestic versus agricultural career conflict was a problem faced by women and it affected their agricultural career advancement.

Nzarirweki (1999) in a study to determine if there were gender differences in the performance of practical agricultural skills found no statistical significant difference between boys and girls. In his study, he observed each of the 50 students, 25 girls and 25 boys perform a number of agricultural practical skills. Each student was rated using a rating scale constructed by the researcher. He gave a likely explanation for the absence of a significant difference in performance of practical agriculture skills that in most homes in the area of study, boys and girls share responsibilities in performing the majority of agricultural skills.

2.3 Review of Related Kenyan based Studies

2.3.1 Attitudes towards Agricultural Related Careers

Not many studies have been done on the attitudes of students towards agricultural related careers in Kenya. However some studies have addressed attitudes on vocational aspirations. For example; King (1971) found out that secondary school students in Kenya from different geographical regions aspire for different careers. With regards to agricultural occupations, King observed that the pupils from all ethnic backgrounds showed very little interest in them. In fact very few students irrespective of their ethnic background preferred farming or stock-keeping as their primary vocation. Even the Maasai in the sample who largely come from cattle keeping regions emphasized that they were interested in administrative jobs rather than getting involved in cattle keeping.

However, Ndirangu (1985) carried out a study on the attitudes of primary school teachers towards agricultural education with a major objective of finding out teachers' attitudes towards vocational agriculture. He also attempted to determine whether there was a relationship between the teachers' attitudes and their personal qualities in terms of sex, age, academic performance and professional qualifications. The study had a sample of 20 female and 20 male teachers drawn through stratified random sampling from 10 primary schools. The findings of the study were that primary school teachers' in Mukurwe-ini Division had in general positive attitude towards vocational agriculture. He did not find any significant relationship between the teachers' age, sex, academic and professional qualifications. In his recommendations, he suggested that a similar study should be conducted on the primary school pupils' attitude towards vocational agriculture.

Kibera (1993) on the preferred careers by students, points out that majority of secondary school students prefer clerical and professional jobs relative to manual and technical jobs. The largest proportion of agricultural jobs involves manual /technical work and only a small portion call for professionals. She observed that in Kenya majority of the adult society are rural based and engage in agricultural jobs, which by and large have not been aspired for by the youth. Even adults in the rural community do not encourage their children to take up jobs in the rural areas because jobs available in the rural areas do not pay well and are often seasonal. Furthermore it has been casually observed as a less serious occupation. Even when educated parents engage in agriculture or business related activities, it is usually a side-line engagement rather core career. These findings contradict the positive attitudes of primary school teachers in Ndirangu (1985). There exists a gap which may call for more research on parents and students attitudes towards agricultural careers.

2.3.2 Academic Achievement and Agricultural Related Careers

In Kenya studies has been done relating academic achievement and their influence on career aspiration. However, none of these studies addressed academic performance and choice for agricultural career. For example; Rono (1982) in her studies on the effects of peer pressure on educational and occupational aspirations observed that past academic performance in the examinations affected one's future occupational (career) aspiration.

Aswani (1992) in her study on some of the home environmental factors that influence educational and occupational aspirations of standard eight pupils found out that there was a strong relationship between the students occupational aspirations and their parental educational level and occupation. In her findings, only one subject out of 150 subjects aspired to veterinary medicine. No other respondent aspired to agriculture or related professions. She explained this in terms of attitudes held by most people, that farming was for the uneducated persons back in the rural areas.

Ogula (1994) studied the attitude of parents, primary school teachers and pupils in Kenya towards social studies in relation to pupils' achievement. He found out that pupil's attitude towards social studies influence their achievements in the subject.

Maweu (2005) investigated the relationship between attitude towards mathematics and students' preference for mathematics based careers and found that preference for mathematics based careers was significantly related to attitudes towards mathematics.

Loko (2005) in a study which consisted of a sample of 188 form two students from Machakos Central Division, had hypothesized that there was a significant relationship between academic achievement and occupational (career) aspirations of students. The findings showed that there was no significant relationship between the student's

academic achievement and occupational aspirations. She explained her findings by saying that most students were not well informed about the grades that they should attain in order to join the different occupations that they aspired for. This was evident because even the students who got the lowest grades in their examinations also wanted to be medical doctors and engineers of which this were occupations that required one to have a good academic background to get the chance to study them.

2.3.3 Gender Differences in Agricultural Related Careers

With the wake of equality, gender differences and issues have generated great debates world wide. Researchers have in various disciplines tried to find any existing gender difference. This study in a similar way investigated gender differences in the choice of agricultural related careers. Studies on career aspirations have reported different result. For example; Kibera (1993) in her study on the effects of vocationally and agriculturally oriented curriculum on career expectations and aspirations of secondary school students in respect to salaried employment, self employment, training for jobs and the desire to continue with higher education and expectations for specific occupation reported a gender difference. She found a statistically significant difference regarding the career and educational aspirations and expectations of male and female students. With the exception of female students in coeducational schools, female students had a lower career and educational expectation than their male colleagues.

Girls and boys who have been socialized to gender-stereotype for example, will tend to behave differently and hence show different aspirations with respect to what society has appropriately socialized them to prefer (Obonyo, 1994).

Beutel and Marini (1995) did a study on gender and values. They found out that girls tend to concentrate more on jobs historically occupied by women. They are more oriented in occupations that involve working with people and few of them plan to engage in tasks involving working with things.

Loko (2005) in an earlier mentioned study among 188 form two secondary school students found no gender differences in the students' occupational aspiration. In the study, 80 males respondents and 72 female respondents aspired for the same professional based occupations.

2.4 Summary

From the discussions above, it is evident that few studies have been done in Kenya regarding student's choice for agricultural related careers as compared with other African countries. However, few studies done in Kenya have addressed vocational aspiration in general. These studies have reported mixed reactions from the different variables tested. On the student's attitudes towards vocational aspirations, there is a general observation that a few of them would prefer agricultural related careers. This is a sharp contrast from studies from outside Kenya which specifically addressed agricultural careers. Kibwika (1997) and Tatrah (2000) reported a positive attitude of students towards agriculture. Therefore, there was a need to study student's attitude towards agricultural careers in Kenya. Ndirangu (1985) found a positive attitude of teachers towards agriculture and recommended for a similar study among students in Kenya. Whereas the teachers in Ndirangu's study could also be taken as parents of students, Kibera (1993) reported that parents did not encourage their children to take up agricultural related careers. With the new professional jobs available in agriculture today as a result of the development of the world of work, there was a need to find out

in the exploratory part of the study whether the parents have an influence on the students' choice for agricultural careers.

Some studies revealed a gender difference in occupational aspiration while Loko (2005) and Nzarirweki (1999) found no difference. Even as these discrepancies are reported none of the studies had addressed influence of gender on students' choice for agricultural careers. Therefore, this study investigated the gender differences among students' regarding choice of agricultural careers.

The studies discussed revealed a relationship between academic achievement and occupational aspirations. For example in Uganda, Ingole (1991) revealed that students with low mental ability aspired and favoured agricultural careers as compared to students with a higher mental ability. The current study took a deeper investigation in answering the question who among high or low agriculture academic achievers would choose agricultural careers in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter gives a detailed description of the research design, research variables, location of study, target population, sampling techniques and sample size, research instrument, data collection techniques and data analysis.

3.1 Research Design

This study employed the descriptive survey research design. According to Lockesh (1984) descriptive survey research studies are designed to obtain pertinent and precise information concerning the current state of a phenomenon and whenever possible to draw varied general conclusions from the facts discovered. Gay (1992), states that descriptive surveys are conducted to establish the nature of existing condition. Since the events have already occurred or exist the researcher merely selects the relevant variable for analysis of their relationships, without manipulating any variables (Best and Khan, 1993). It is on the strength of the foregoing reasons that the researcher found this design ideal for the study. Thus the design enabled the researcher to investigate the relationship between students' attitude, agriculture scores and agricultural careers.

3.1.1 The Study Variables

The variables to be studied were students' attitude towards agriculture, students' academic performance in agriculture, and gender and choice for agricultural careers.

The independent variables were:

- i) Students' attitudes towards agriculture

- ii) Students' academic performance in agriculture
- iii) Gender

The dependent variable was students' choice for agricultural careers.

3.2 Location of the Study

The study was carried out in Thika District in Central Province of Kenya. Thika District is 40km North East of Nairobi. It has three educational administrative divisions; two of these administrative divisions (Thika-Ruiru and Kakuzi) were used in the study. Thika-Ruiru Division represented a large scale set up with agricultural farms and industries like British American Tobacco (BAT), Delmonte Thika and Thika Tanners. Kakuzi Division represented a small scale setup where agricultural practices are well demonstrated not only by individual small scale farmers but also by Kakuzi Company and Kenya Agricultural Research Institute (KARI). Thika District is generally an agricultural oriented area.

3.3 Description of the Population

The population of the study consisted of year 2008 form two students from public secondary schools in Thika District. Form two students were targeted because they choose their Kenya National Examination subjects as they join Form III. In addition, these students have studied agriculture throughout their primary level education and also in Form I. The researcher thought that this duration in primary and secondary school education with an exposure to agriculture influenced attitudes and consequently their choice of agricultural careers.

3.4 Sampling Techniques and Sample Size

Two types of sampling procedures were employed in this study; stratified sampling and simple random sampling. The population was stratified into two geographical divisions, that is, Thika-Ruiru and Kakuzi Divisions. From each stratum, four schools were randomly selected. There were 39 schools in the selected divisions as shown in Table 3.1. All the schools teach agriculture in Form 1 and 2. Thika-Ruiru administrative division has 4 boys' boarding schools, 6 girls' boarding schools and 18 co-educational schools. Two of these coeducational schools were special boarding schools while the remaining 16 were day schools. The special schools were not included in the frame. In Kakuzi administrative division, there were 11 schools. All the schools in Kakuzi Division were co-educational day.

Table 3.1 Categories of schools in Thika-Ruiru and Kakuzi Divisions (Sampling Frame)

Administrative division	Boarding Schools			Day Schools			Subtotal
	Boys	Girls	Coeducational	Boys	Girls	Coeducational	
Thika-Ruiru	4	6	2	-	-	16	28
Kakuzi	-	-	-	-	-	11	11
Total	4	6	2	-	-	27	39

Using simple random sampling procedures, in Thika-Ruiru administrative division one boys' school, and one girls' school were selected to represent the boarding schools in the study. In the co-educational schools of Thika-Ruiru Division, two schools were randomly selected. In Kakuzi Division, four co-educational schools were randomly selected for the study. Each division, therefore, had four schools selected representing a balanced design in the study. Table 3.2 below shows the expected sample size. Students were selected using the systematic sampling according

to their class register. The K^{th} student was in the sample where $K=N/n$ (N is the class population while n is the sample size). Thirty students were selected in the single sex schools while 15 boys and 15 girls were selected from the co-educational day schools.

Table 3.2 Sample size

Division	School	Boys	Girls	Total
Thika-Ruiru	A	30	-	30
Thika-Ruiru	B	-	30	30
Thika-Ruiru	C	15	15	30
Thika-Ruiru	D	15	15	30
Kakuzi	E	15	15	30
Kakuzi	F	15	15	30
Kakuzi	G	15	15	30
Kakuzi	H	15	15	30
Total		120	120	240

3.5.0 Research Instruments

In this study, there were three measuring instruments; a questionnaire, agriculture attitude scale (AAS) and the school academic records. The questionnaire consisted of three sections, that is, A, B and C. Section A consisted of the students' background information. This included the students' name, name of school, age and gender. Section B consisted of subjects studied in secondary school while Section C comprised of 30 careers systematically placed such that an agricultural career alternates with a non-agricultural career.

3.5.1 Description of Agriculture Attitude Scale (AAS)

Prior to the construction of this scale, a variety of existing and already used attitude scales in other fields were examined (Ogula, 1994; Lema, 1998) to determine whether there was any that could be used to gather relevant information on construction of an agricultural attitude scales. Ogula (1994) and Lema (1998) were found useful and as a result, the researcher was able to design an agriculture attitude scale to elicit responses from the students in relation to the following areas:

1. View of agriculture
2. Usefulness of agriculture
3. Methods of teaching agriculture
4. Enjoyment of learning agriculture
5. Prestige of agriculture

These categories were however not indicated on the agriculture attitude scale to avoid pre-conditioning the students. Table 3.3 shows the distribution of AAS to the 5 areas. Attitude towards agriculture was indicated by responding to one of the five responses possibilities in a summative rating scale.

Strongly Agree	-	5
Agree	-	4
Undecided	-	3
Disagree	-	2
Strongly Disagree	-	1

Table 3.3 Distribution of AAS Items to Five Areas

No.	Area	AAS Item
1.	View of agriculture	12
2.	Usefulness of agriculture	2, 3, 4, 5, 10
3.	Methods of teaching agriculture	9
4.	Enjoyment of learning agriculture	1,6
5	Prestige of agriculture	7, 8, 11

3.5.2 Description of the School Records

Using the agriculture examination scores obtained from the subject teacher, an average of three previously done agriculture examinations were calculated to get the student agriculture academic performance.

3.6 Pilot Study

A pilot study was carried out on a random sample of 40 students from two co-educational schools each division. These schools were not included in the main study. These students included 10 boys and 10 girls in each school.

3.6.1 Reliability

Mugenda and Mugenda (1999) define reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trial. Split-Half technique of reliability testing was employed; whereby the pilot questionnaires were divided into two equivalent halves and then a correlation coefficient for the two halves calculated using the formula given below.

$$R = \frac{\sum Xy - \frac{(\sum x)(\sum y)}{N}}{\sqrt{\frac{[\sum X^2 - (\sum X)^2]}{N} \frac{[\sum y^2 - (\sum y)^2]}{N}}}$$

Where:

R = correlation coefficient

N = total number of scores \sum = summation of scores X = scores Y = scores

A reliability coefficient of 0.68 was obtained and accepted as recommended by Mugenda and Mugenda (1999).

3.6.2 Validity

Validity is defined as the accuracy and meaningfulness of inferences, which are based on the research results (Mugenda & Mugenda, 1999). In other words, validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. Borg and Gall (1989) define validity as the degree to which a test measures what it purports to measure. Face validity refers to the likelihood that a question will be misunderstood or misinterpreted, thus, will help to iron out ambiguity. Pre-testing a survey is a good way to increase the likelihood of face validity. In order to improve the face validity of the instrument, the researcher identified items that appeared ambiguous or unclear to the pilot study respondents, and such items were modified.

According to Borg and Gall (1989), content validity of an instrument is improved through expert judgment. Content validity refers to whether an instrument provides adequate coverage of a topic. Expert opinions help to establish content validity (Best & Khan, 1993). As such, content validity of the questionnaire and the agriculture

attitude scale was determined by the researcher in consultation with her supervisors and fellow Master degree students in Guidance and Counselling Programme (07/08).

3.7 Data Collection procedures

The researcher obtained a letter of introduction from Kenyatta University to the Ministry of Science and technology, from where a permit to conduct research was obtained. Thereafter authority from the District Education office in Thika was sought so as to conduct research from the sampled schools. The sampled schools were then visited by the researcher. The researcher administered the research instruments to the students with the help of the school career mistress/master or the agriculture subject teacher at the start of the school third term, 2008. All data were collected on a Saturday as per the agreement with the school administration. The selected students for the study were given instructions before starting to fill the research instruments (questionnaire and agriculture attitude scale). The school records were used to fill an information sheet prepared by the researcher with the help of the agriculture class teachers or the school examination teacher.

3.8 Data Analysis

The data obtained were coded for statistical analysis by the computer using Statistical Packages for Social Sciences (SPSS). Descriptive and inferential statistics were used. In descriptive statistics, graphs were used to represent data on students' attitudes towards agricultural careers, agriculture scores choice for agricultural careers and gender differences. In the inferential statistics, the following null hypotheses were tested at $\alpha=0.05$ level of significance.

Statistical hypotheses:

Ho₁: There is no relationship between students' attitudes towards agriculture and the choice of agricultural related careers. **Test: t-test** for independent samples to compare the means of the variables.

Ho₂: There is no relationship between the students' agricultural academic performance and the choice of agricultural related careers. **Test:** chi square was performed.

Ho₃: There is no relationship between students' attitude towards agriculture and the agriculture scores. **Test: Analysis of variance** to compare the mean of the variables.

Ho₄: There is no gender difference in attitude, agriculture scores and the choice of agricultural related careers. **Test:** Two tests were performed. **t-test** for independent samples was used on gender and attitude, gender and agriculture scores. A t-test is a parametric statistical test used to determine whether a difference between the mean of two samples is significant. The mean score of boys in the attitude scale and agriculture scores was compared with those of girls. **A chi-square** was performed to establish the relationship between the two variables (gender and agricultural careers) both of which are categorical in nature.

3.9 Logistical and Ethical Considerations

Given below are the logistical and ethical considerations that were maintained during the study.

3.9.1 Recruitment for Participation

None of the members of the target population were forced to take part in the study. In cases where sampled respondents failed to participate, the sampling procedure was repeated to pick another respondent or group of respondents until the desired sample

size was obtained. All members of the target population were informed that there would be no penalty for failure to participate.

3.9.2 Informed Consent

The respondents were informed of the purpose of the study and requested to participate in the study out of their own volition. Only those who willingly agreed to participate were involved.

3.9.3 Confidentiality

The responses to the questionnaires were kept confidential. Respondents were asked not to write their names on the questionnaires, or divulge any personal details that may reveal their identity.

3.9.4 Research permit

A research permit was obtained from the Ministry of Education before embarking on the study. In addition a letter of approval was given by the Thika District Education officer for presentation in the schools involved in the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter contains results and discussion of the major research findings. The purpose of the study was to investigate the relationship between students' attitude, agriculture scores and agricultural careers. It also sought to establish if there was any relationship between attitudes towards agriculture and academic performance in the subject. Further, the study sought to establish the gender differences in relation to both the predictor and criterion variables. This chapter is divided into five sections, with the first section covering the demographic data of the respondents; the other four sections are arranged according to each of the four research objectives guiding the study, which were: -

- i) To find out the relationship between students attitudes and choice of agricultural careers.
- ii) To investigate the influence of the students agricultural academic performance and the choice of agricultural careers.
- iii) To find out the relationship between students' attitudes and the agriculture scores.
- iv) To find out if there are any gender difference in students' attitudes, agriculture scores and choice of agricultural careers.

4.2 Demographic Data of the Study Participants

Data for the study was collected from 240 form two students from secondary schools in Thika District. Out of the 240 students, 120 (50.0%) were boys and 120 (50.0%) were girls. Table 4.1 shows their age distribution.

Table 4.1 Students' Age Distribution

Age	Frequency	Percent
Fourteen years	3	1.3
Fifteen years	16	6.7
Sixteen years	109	45.4
Seventeen years	77	32.1
Eighteen years	24	10.0
Nineteen years	9	3.8
Twenty years	2	0.8
Total	240	100.0

Table 4.1 above shows that the age of the students ranged from 14 years to 20 years, with 109 (45.4%) of them aged sixteen years, 77 (32.1%) were aged seventeen years, while 24 (10%) were aged eighteen years. Career choice is a developmental task. Havighurst (1972) defined a developmental task as “a task that arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks” (p. 2). One of the tasks of adolescence, according to Havighurst (1972), is “to organize one’s plans and energies in such a way as to begin an orderly career; to feel able to make a living” (p. 62). Findings in Table 4.1 indicate that the students in the study were in the adolescence stage, which is the right age for career choice

Table 4.2 shows the occupations of the parents or guardians to the students who participated in the study.

Table 4.2: Parents/guardians' main occupation

Occupation	Fathers		Mothers	
	Frequency	%	Frequency	%
Farmers	71	29.6	70	29.2
Businessmen/ladies	77	32.1	110	45.8
Doctors	4	1.7	3	1.3
Teachers	25	10.4	10	4.2
Engineers	7	2.9	-	-
Casual labourers	3	1.3	22	9.2
Contractors	10	4.2	-	-
Cashiers	9	3.8	9	3.8
I don't know	34	14.2	16	6.7
Total	240	100.0	240	100.0

As shown in Table 4.2, 77 (32.1%) students reported that their fathers were businessmen, 71 (29.6%) were farmers, 25 (10.4%) were teachers while 10 (4.2%) were contractors. Thirty-four (14.2%) students did not know the occupations of their fathers. On the other hand, 110 (45.8%) students reported that their mothers were business ladies, 70 (29.2%) were farmers, 22 (9.2%) were casual labourers while 16 (6.7%) reported that they did not know what their mothers' occupations were.

Based on these findings, it emerges that apart from those who were farmers, none of the parents/guardians were in agricultural careers. This could influence the attitudes of students towards agricultural careers and their choice of agriculture-based careers. Auyeung and Sands (1997) found out that parental careers significantly influenced the careers chosen by their children. Table 4.3 below shows the students' parents' level of education.

Table 4.3: Parents' Level of Education

Level	Fathers		Mothers	
	Frequency	%	Frequency	%
Never went to school	32	13.3	22	9.2
Primary	67	27.9	61	25.4
Secondary	57	23.8	79	32.9
Certificate	22	9.2	31	12.9
Diploma	39	16.3	34	14.2
University	9	3.8	8	3.3
I don't know	14	5.8	5	2.1
Total	240	100.0	240	100.0

As shown in Table 4.3 above, 67 (27.9%) students reported that their fathers had gone up to primary level, 57 (23.8%) to secondary level, 22 (9.2%) certificate level while 14 (5.8%) students did not know the level of their fathers' education. On the other hand, 22 (9.2%) students reported that their mothers never went to school, 61 (25.4%) reported that their mothers reached primary school level, 79 (32.9%) to secondary level, 34 (14.2%) to diploma level while 5 (2.1%) did not know the level of education of their mothers. The education level of parents could have an impact on careers chosen by their children. For example, a study by Tatrah (2000) revealed that students whose parents had low levels of education had a more favourable perception of agriculture than those parents had attained a higher education level.

Table 4.4 shows the subjects that the students were taking in Form 2, and the subjects that they intended to take once they enter Form 3.

Table 4.4: Subjects Students Took in Form 2 and Those Intended for Form 3

Subject	Form II		Form III	
	Frequency	%	Frequency	%
Mathematics	240	100.0	240	100.0
English	240	100.0	240	100.0
Kiswahili	240	100.0	240	100.0
Biology	240	100.0	166	69.2
Chemistry	224	93.3	161	67.1
Physics	224	93.3	79	32.9
Geography	234	97.5	138	57.5
History	206	85.8	90	37.5
Christian Education	223	92.9	203	84.6
Business Studies	221	92.1	81	33.8
Agriculture	213	88.8	160	66.7
Home Science	38	15.8	34	14.2
Computer Studies	23	9.6	23	9.6

What is notable from Table 4.4 is that while 213 (88.8%) of the students were taking Agriculture in Form 2, only 160 (66.7%) intended to take the subject in Form 3, representing a 22.1% decline. This represents a sharp decline in the proportion of students intending to enrol in agriculture. This number declines further when students select courses for university admission.

This was the case in the year 2006, whereby data from the Ministry of Education (2007) indicate that of the 251,092 students who sat for KCSE examinations, only 103,720 (representing 41.3%) were examined in agriculture and only 7,860 (3.1%) of these agriculture graduates were admitted to undertake courses related to agriculture in our local universities and middle level colleges leading degree, diploma and certificate qualifications.

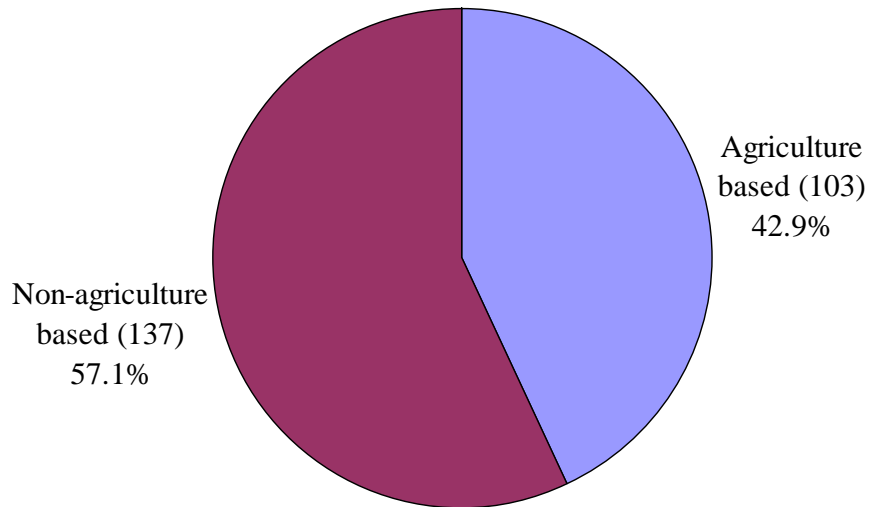
4.3 Relationship between Students' Attitudes and Choice of Agricultural Careers

The first objective of the study was to find out the relationship between students attitudes and choice of agricultural careers.

The students were presented with a list of careers available on the job market in Kenya, out of which they were asked to name the career they would choose to pursue after completion of their secondary school education. Using their responses, the students were grouped into two, that is those who intended to choose agriculture-based careers, and those who intended to choose non-agriculture based careers.

Agriculture-based careers on the list included careers such as Farm manager, Agriculture teacher, Agricultural extension, Agronomist, Agricultural economist, Veterinary doctor, Plant researcher, Beekeeper, Farmer (crop), Animal breeder, Agriculture microbiologist, and Agricultural Mechanical Engineering. On the other hand, non-agriculture based careers included Secretary, Pilot, Computer scientist, Lawyer, Hospital nurse, Carpenter, Bank manager, Police officer, Statistician, Musician, Fashion designer, Dentist, Business man/woman, Sales girl/boy, and Driver. Figure 4.1 shows the proportion of students who aspired to be in Agriculture-based careers.

Figure 4.1: Proportion of Students who aspire to be in Agriculture-Based Careers



The figure shows that 103 (42.9%) of the students aspired to be in Agriculture-based careers while 137 (57.1%) of them aspired to be in non-Agriculture-based careers. While the number of students aspiring to take agricultural careers was high, at 42.9%, it should be noted that very small percentage of students end up taking agricultural based careers at the University level. For example, a report by the Ministry of Education (2007) revealed that only 7% of the Kenya Certificate of Secondary Education agriculture graduates of 2006 opted to take up agricultural related courses in colleges and universities.

The Agriculture Attitudes Scale (AAS) was used to measure students' attitudes toward agriculture. The scale consists of 12 statements with 8 statements measured on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The maximum points a student could get on the scale was 60 while the minimum points would be 12. The mid-point of the scale was 36, with scores above 36 indicating positive attitudes

and scores below 36 indicating negative attitudes towards agriculture. A score of 36 signifies that a student's attitude towards agriculture is neutral (neither positive nor negative). Table 4.5 presents the frequency distribution of the scores obtained by students on the AAS.

Table 4.5: Students' Scores on the Agricultural Attitude Scores

AAS scores	Frequency	Percent
26 - 30	24	10.0
31 - 35	40	16.7
36	13	5.4
37 - 40	72	30.0
41 - 45	63	26.2
46 - 50	27	11.3
56 - 60	1	0.4
Total	240	100.0

The Agriculture Attitudes Scale scores ranged from 26 to 56, with a mean of 38.4 and a standard deviation of 5.89. As shown in Table 4.5, 24 (10%) of the students scored between 26 and 30, 40 (16.7%) scored between 31 and 35, 13 (5.4%) scored 36, 72 (30.0%) scored between 37 and 40, 63 (26.2%) scored between 41 and 45, 27 (11.3%) between 46 and 50, while 1 (0.4%) student had a score of 56.

Based on this findings, it emerges that 64 (26.7%) of the students had negative attitudes towards agricultural careers, 13 (5.4%) were neutral, while 163 (67.9%) of the students had positive attitudes towards agricultural careers. This shows that majority of the students had positive attitudes towards agricultural careers. This contradicts findings by King (1971), who found out that Kenyan secondary school students from different geographical regions showed very little interest in agricultural occupations. In a study to find out the preferred careers by students, Kibera (1993)

established that majority of secondary school students prefer clerical and professional jobs careers to careers that entail manual and technical activities.

To find out the relationship between students attitudes and choice of agricultural careers, t-test was employed, and the findings presented in Table 4.6 obtained.

Table 4.6: t-test results for attitudes and choice of agricultural careers

Career choice	Number of students	Agricultural attitudes mean score	Standard deviation	Standard error
Agriculture based	103	37.97	6.585	0.649
Non agriculture	137	38.80	5.307	0.453
t-statistic		-1.074		
Degrees of freedom		238		
Significance		0.284*		

*Not significant at the 0.05 level

As shown in Table 4.6, the study established that students' choice of agricultural careers did not differ significantly across their attitudes towards agriculture at the 0.05 level. It would be expected that students positive attitudes towards agriculture careers would chose agriculture based courses, but this was not the case. In fact, those who had chosen agriculture based causes had slightly lower agriculture attitude mean scores than those who had chosen non agriculture careers. This shows that there was a discrepancy between students' attitudes and actual behaviour (career choice). This confirms Ajzen's (2001) assertion that attitudes do not always predict behaviour directly. Ajzen notes that there are many factors which moderate the impact of attitudes on behaviour. In case of career choice, moderating factors could be factors like parental influence. The family is a place in which children learn to interpret reality (Way & Rossmann 1996). Parents serve as significant interpreters for children of information about the world and children's abilities (Hall, Kelly, Hansen &

Gutwein 1996). The influence of the family on career choice can therefore not be overlooked. This led Way and Rossmann (1996) to suggest that career counsellors should (1) shift the focus from the individual to the family system; (2) develop a new and richer view of parent involvement in schools; (3) help families become more proactive; and (4) consider ways of duplicating helpful types of family functioning in schools, especially for children whose families are not proactive.

4.4 Influence of Students Agricultural Academic Performance on Choice of Agricultural Careers

The second study objective was to investigate the influence of the students' agricultural academic performance and the choice of agricultural careers.

Students' agriculture examination scores for three previous examinations were obtained from the subject teacher, and an average of the three examinations computed to get the student agriculture academic performance. The average scores obtained ranged from 5 to 95. Students on the upper 33% in a descending order of ranking on the average marks were considered to be high achievers, while the lower 33% were considered low achievers. Students in the middle of the two categories were considered average achievers. Figure 4.2 presents the students' agricultural achievement.

Figure 4.2: Students achievement in agriculture

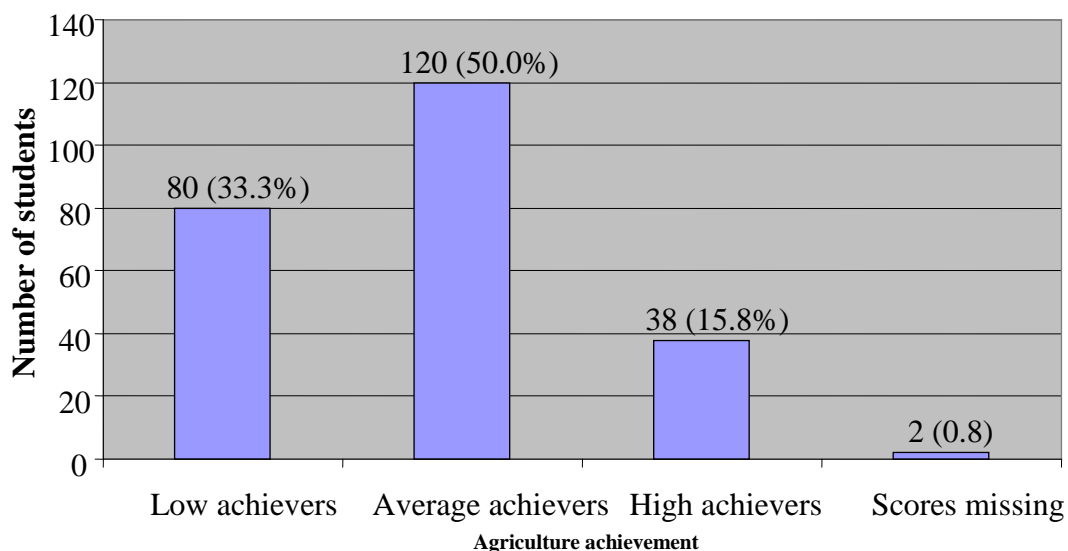


Figure 4.2 shows that 80 (33.3%) of the students were low achievers, 120 (50.0%) were average achievers, while 38 (15.8%) of the students were high achievers in agriculture. Agriculture scores for 2 (0.8%) students were not provided. The findings here indicate that most of the students were average or low performers in agriculture. Rono (1982) established that past academic performance in the examinations affects one's future career aspiration. A student who performs poorly in agriculture is most unlikely to pursue an agriculture based career.

Chi-square test was used to test the hypothesis that there is no relationship between the students' agricultural academic performance and the choice of agricultural related careers. Table 4.7 presents the results of this analysis.

Table 4.7: Relationship between students' agricultural academic performance and choice of agricultural careers

Career choice	Low achievers	Average achievers	High achievers	Total
Agriculture based	35	52	16	103
Non agriculture	45	68	22	135
Total	80	120	38	238
	χ^2 value		0.29	
	Degrees of freedom		2	
	Significance		0.986*	

*Not significant at the 0.05 level

As shown in Table 4.7, students who had chosen agriculture based careers and those who had chosen non-agriculture based careers did not differ significantly in their agriculture academic performance at the 0.05 level. It would be expected that those who had chosen agriculture based careers were performing well in the subject. However, of the 38 high achievers in agriculture, only 16 (42.1%) aspired for agriculture based careers. This discrepancy could mean that the high achievers in agriculture were also performing well in other subjects, meaning that they were not limited by academic performance in their career selection.

4.5 Relationship between Students' Attitudes and Agriculture Scores

The third objective of the study was to find out the relationship between students' attitudes and the agriculture scores.

Table 4.8 shows the agricultural attitude scores of the students across their academic performance in agriculture

Table 4.8: Relationship between agricultural attitudes and agricultural scores

Achievement in agriculture	Number of students	Agricultural attitudes mean score	Standard deviation
Low achievers	80	37.80	6.198
Average achievers	120	38.63	5.870
High achievers	38	39.55	4.985
Total	238	38.50	5.860

As shown in Table 4.8, high achievers had the highest agricultural attitudes mean scores at 39.55, followed by average achievers with an agricultural attitude mean score of 38.63, while low achievers had the lowest agricultural attitudes mean score of 37.8. This suggests that positive attitudes towards agriculture predict high achievement in the subject while negative attitudes predict low achievement. Attitude is an important concept about learning. Attitudes affect everything that one attempts. They affect ones relations with other people and ones openness to new experiences. If a person's attitude toward a task is positive, s/he will most likely enjoy the process of doing it and look for opportunities to do it. If one's attitude is negative, s/he will most likely avoid or delay the occasion of doing it and, if s/he must do the task, s/he will probably not enjoy it or do well at it. Many times, the difficulty experienced by students in agriculture is not related to ability but rather is related to the attitudes that are held about agriculture.

In order to test the hypothesis that there is no relationship between students' attitude towards agriculture and the agriculture scores, Analysis of Variance (ANOVA) test was used. Table 4.9 presents the results of the analysis.

Table 4.9: ANOVA test results for agricultural attitudes and agricultural scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	83.176	2	41.588	1.213	0.299*
Within Groups	8054.320	235	34.274		
Total	8137.496	237			

*Not significant at the 0.05 level

ANOVA test results presented in Table 4.9 indicated that there was no significant relationship between students' attitude towards agriculture and their agriculture scores at the 0.05 level. This therefore indicates that attitudes of students towards agricultural careers were not influenced by their performance in the subject. Past studies have established conflicting findings on academic achievement and attitudes. For example, Rono (1982) established that past academic performance in the examinations affected one's future occupational aspiration. Similarly, Ogula (1994) found out that pupils' attitude towards social studies influence their achievements in the subject. On the other hand, Loko (2005) found out that there was no significant relationship between students' academic achievement and their occupational aspirations. Loko argued that this could be explained by the fact that most students are not well informed about the grades that they should attain in order to join the different occupations that they aspired for.

4.6 Gender Difference in Students' Attitudes, Agriculture Scores and Choice of Agricultural Careers

The fourth study objective was to find out if there are any gender differences in students' attitudes, agriculture scores and choice of agricultural careers.

4.6.1 Gender Difference in Students' Attitudes towards Agriculture Careers.

The cultural role expectations placed upon boys and girls in the African setting can influence their attitudes towards various careers. According to Njenga (1999), girls are expected to assist their mothers in carrying out all the household chores which include, for example, caring for the young ones, fetching water and fire wood, cooking, cultivating the land and washing clothes. In most African cultures, it is the role of women to plant, weed and harvest crops. This could influence the attitudes of students towards agriculture as a career.

An independent samples t-test was used to find out whether there are significant differences in students' attitudes towards agricultural careers across gender. Table 4.10 shows the results of this analysis.

Table 4.10: T-test results for agricultural attitudes across gender

Students' gender	Number of students	Agricultural attitudes mean score	Standard deviation	Standard error
Boys	120	37.59	5.513	0.503
Girls	120	39.29	6.151	0.562
		t-statistic	-2.254	
		Degrees of freedom	238	
		Significance	0.025*	

*Significant at the 0.05 level

The t-test results presented in Table 4.10 indicate that there were significant differences in students' attitudes towards agricultural careers across gender at the 0.05 level of significance. Specifically, girls scored higher (39.29) than boys (37.59) in agricultural attitudes, meaning that girls had more positive attitudes towards agricultural careers than boys. Previous studies on gender differences in attitudes towards agriculture as a subject have yielded contradictory findings. For example, a

study by Movahedi and Chizari (2006) among undergraduate students in Iran established that compared to males, female students had more positive attitudes towards Agri-science. On the other hand, Joshua, Pur and Gwary (2008), in a study conducted in Nigeria to find out the attitudinal difference between male and female students towards agriculture as a subject, established no significant gender differences towards the subject. Joshua et al. (2008) described the implication of this result as that interest and performance in the subject does not necessarily depend on gender as both male and female were both favourably disposed to the subject.

4.6.2 Gender Differences in Students' Academic Performance in Agriculture

Academic performance in a given subject largely determines whether or not a student will select a career based on that subject for university studies. This is because of the university admission criteria that require one to have attained a minimum grade in a set of subjects to be admitted in a given course. The implication of this is that the gender that performs well in a subject like agriculture would be expected to be more represented in agriculture-based courses at the university level. As such, the study sought to find out whether there were gender differences in students' academic performance in agriculture. Independent samples t-test was used to find out whether there are significant differences in students' academic performance in agriculture across gender. Table 4.11 presents the results of this analysis.

Table 4.11: t-test results for agricultural academic performance across gender

Students' gender	Number of students	Agricultural academic mean score	Standard deviation	Standard error
Boys	120	43.67	21.461	1.959
Girls	118	44.26	18.885	1.738
	t-statistic		-0.227	
	Degrees of freedom		236	
	Significance		0.820*	

*Not significant at the 0.05 level

Table 4.11 shows that girls performed slightly better than boys in agriculture. However, the academic performance of the students in agriculture did not differ significantly across gender at the 0.05 level of significance. This finding is consistent with Nzarirweki, (1999), whose study to determine if there were gender differences in the performance of practical agricultural skills found no statistical significant difference between boys and girls. However, with regard to the overall performance at the secondary school level, previous research findings by Eshiwani (1985) and Maritim (1985) show that, generally, girls are lower achievers than boys.

4.6.3 Gender Differences in Choice of Agriculture-Based Careers

Based on the finding that girls had more positive attitudes towards agricultural careers than boys (Section 4.6.1), it would be expected that more girls than boys hold aspirations to agriculture-based careers. Chi-square test was used to find out whether there were gender differences in the choice of agricultural related careers. Table 4.12 presents the results of this analysis.

Table 4.12: Chi-square test results for choice of agricultural careers across gender

Career choice	Boys	Girls	Total
Agriculture based	68	35	103
Non agriculture	52	85	137
Total	120	120	240
	χ^2 value	18.522	
	Degrees of freedom	1	
	Significance	0.000*	

*Significant at the 0.05 level

As shown in Table 4.12, chi-square test results indicate that there were significant gender differences in choice of agricultural careers at the 0.05 level of significance. Out of the 103 students who had chosen agricultural based careers, 68 (66%) were boys while 35 (34%) were girls. This indicates that significantly more boys than girls had chosen agricultural based careers. It is thus surprising that compared to boys, girls were found to have more positive attitudes towards agricultural based careers (Table 4.10). This suggests that attitudes are not strong predictors of choice of agricultural based careers. This discrepancy has been explained by some researchers, for example Brown and Sewart (1993), to result from lack of adequate knowledge of agriculture. In a study with middle school students from Missouri, Brown and Sewart (1993) established that there was no a significant relationship between the agricultural knowledge and the agricultural attitude of the students. Brown and Sewart (1993) concluded that although the students may have good knowledge of agriculture, they may not necessarily have a positive attitude toward the subject. Conversely, they may have a favourable attitude toward agriculture but may not possess good understanding or knowledge of the subject. Brown and Sewart concluded that this finding strengthens the need for agricultural literacy programs for all students, arguing that

improving the agricultural knowledge of individuals may not change their attitude but it should allow them to make competent judgments about the subject. It is imperative that students have the information to fully appreciate the impact agriculture has on our society.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers the summary of the study, conclusions, recommendations and suggestions for further studies. The purpose of the study was to investigate the relationship between students' attitude, agriculture scores and agricultural careers. It also sought to establish if there was any relationship between attitudes towards agriculture and academic performance in the subject.

5.2 Summary of the Study Findings

Given below is a summary of the main study findings in line with the objectives of the study.

5.2.1 Students' Attitudes and Choice of Agricultural Careers

The first objective of the study was to find out the relationship between students attitudes and choice of agricultural careers. On this, it was established that 103 (42.9%) of the students aspired to be in Agriculture-based careers while 137 (57.1%) of them aspired to be in non-Agriculture-based careers. Using the Agriculture Attitudes Scale (AAS), it was established that 64 (26.7%) of the students had negative attitudes towards agricultural careers, 13 (5.4%) were neutral, while 163 (67.9%) of the students had positive attitudes towards agricultural careers. This shows that majority of the students had positive attitudes towards agricultural careers. The study however established that students' choice of agricultural careers did not differ significantly across their attitudes towards agriculture at the 0.05 level.

5.2.2 Students' Academic Performance and Choice of Agricultural Careers

The second study objective was to investigate the influence of the students' agricultural academic performance and the choice of agricultural careers. Using the students' agriculture examination scores for three previous examinations, it emerged that 80 (33.3%) of the students were low achievers in agriculture, 120 (50.0%) were average achievers, while 38 (15.8%) of the students were high achievers in agriculture. Agriculture scores for 2 (0.8%) students were not provided. Chi-square test results indicated that students who had chosen agriculture based careers and those who had chosen non-agriculture based careers did not differ significantly in their agriculture academic performance at the 0.05 level. It would be expected that those who had chosen agriculture based careers were performing well in the subject. However, of the 38 high achievers in agriculture, only 16 (42.1%) aspired for agriculture based careers. This could mean that the high achievers in agriculture were also performing well in other subjects, meaning that they were not limited by academic performance in their career selection.

5.2.3 Relationship between Students' Attitudes and Agriculture Scores

The third objective of the study was to find out the relationship between students' attitudes and the agriculture scores. On this, the study established that high achievers in agriculture had the highest agricultural attitudes mean scores at 39.55, followed by average achievers with an agricultural attitude mean score of 38.63, while low achievers had the lowest agricultural attitudes mean score of 37.8. This suggests that positive attitudes towards agriculture predicted high achievement in the subject while negative attitudes predict low achievement. However, ANOVA test results indicated that there was no significant relationship between students' attitude towards

agriculture and their agriculture scores at the 0.05 level. This means that the study could not conclusively link agricultural attitudes to performance in the subject.

5.2.4 Gender Differences in Attitudes, Agriculture Scores and Choice of Agricultural Careers

The fourth study objective was to find out if there are any gender differences in students' attitudes, agriculture scores and choice of agricultural careers. On gender and attitudes, t-test results established that there were significant differences in students' attitudes towards agricultural careers across gender at the 0.05 level. Specifically, girls scored higher (39.29) than boys (37.59) in agricultural attitudes, meaning that girls had more positive attitudes towards agricultural careers than boys. On gender and academic performance in agriculture, it emerged that, although girls performed slightly better than boys in agriculture, t-test results showed the academic performance of the students in agriculture did not differ significantly across gender at the 0.05 level. Regarding gender and choice of agricultural careers, chi-square test results indicate that there were significant gender differences in choice of agricultural careers at the 0.05 level. Out of the 103 students who had chosen agricultural based careers, 68 (66%) were boys while 35 (34%) were girls. This indicates that significantly more boys than girls had chosen agricultural based careers. This is somehow surprising, based on the fact that compared to boys, girls were found to have more positive attitudes towards agricultural based careers. This could suggest that attitudes are not strong predictors of choice of agricultural based careers.

5.3 Conclusions

Based on the findings of this study, it can be concluded that majority of the students in Thika District did not have career aspirations in agriculture. This was despite the

fact that majority of the students had positive attitudes towards agricultural careers. That only 33.3% of the students were low achievers in agriculture also indicates that academic performance in the subject was not to blame for low number of students who choose agricultural careers. Significantly, more boys than girls had chosen agricultural based careers, despite the fact that more girls than boys had positive attitudes towards agriculture, and girls performed slightly better than boys in the subject.

The findings of the study lead to the conclusion that failure by students to choose agriculture-based careers is not as a result of poor academic performance in the subject or negative attitudes toward agricultural careers. There could be other factors that cause students not to aspire to agriculture-based careers. More research is needed to find out the role of factors such as career guidance in schools, government policy on agriculture, teaching methods employed by agriculture teachers, role of mass media in promoting agribusiness, and other related factors that could impact on students' choice of agricultural careers.

5.4 Recommendations

Based on the findings of the study, the researcher makes the following recommendations:

1. Career guidance teachers and Agriculture teachers should play a more active role in equipping students with knowledge related to agriculture careers and job opportunities available in the agriculture sector. This is important because, as the study established, students already have positive attitudes towards agriculture, meaning that lack of information is the main reason for not choosing agriculture-based careers.

2. Schools should revive the agricultural clubs, such as the 4K clubs, in schools and make them more vibrant in order to attract more students to choose agriculture based clubs.
3. The Agricultural Society of Kenya, in conjunction with the Ministry of Education and Ministry of Agriculture, should consider promoting agriculture projects in schools by giving students incentives such as student projects during agricultural shows, whereby students are encouraged to showcase innovative agricultural projects.
4. Since the study established that more boys than girls choose agriculture-based careers, there is need for school headteachers, teachers, and teacher counsellors to encourage girls to choose agriculture based careers.

5.5 Suggestions for Further Studies

1. Further research is needed to identify the factors that influence the impact of attitudes towards agriculture-based careers on choice of these careers. It will be worthwhile to identify the reasons why students do not choose agriculture-based careers, even when they hold positive attitudes toward the careers.
2. A similar study could be carried out in other districts in Kenya to find out whether similar findings are obtainable in relation to students' attitude, agriculture scores and agricultural careers.
3. A study could be carried out to establish the factors that make more boys than girls choose agriculture based careers.

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APPENDIX ONE: SCORING OF THE QUESTIONNAIRE

To facilitate the scoring of the questionnaire, numerical values of 1-5 will be assigned to the choices listed in the questionnaire. The maximum score to be obtained in each sub-section will vary with the type of information required as indicated below:-

Section A. This section will carry information about the student's background. Occupation of the parent will be used for descriptive purpose on whether the family is from an agricultural background or not.

Section B will also be used for descriptive purpose on the students subjects studied in Form 2 and choice of subject in Form 3.

Section C

Question 12 - This question will measure the choice for agricultural careers. The scale of measurement is categorical hence a student will be for agricultural careers or not for the agricultural careers

Question 13 and 14 - These two questions will be used for descriptive purposes.

Scoring the AAS

This scale consists of 12 statements with 8 statements indicating a positive attitude towards agriculture and 4 statements indicating a negative attitude towards agriculture.

For the positive statements, scoring will be done as follows:-

Strongly Agree	-	5 points
Agree	-	4 points
Undecided	-	3 points
Disagree	-	2 points
Strongly disagree	-	1 point

For the negative attitude statement, scoring will be reversed such that:-

Strongly Agree	-	1 point
Agree	-	2 points
Undecided	-	3 points
Disagree	-	4 points
Strongly disagree	-	5 points

The maximum points a student can get is 60 that is, 8 x 5 for the positive statements plus 4x5 for the negative statements. The minimum points will be 12 that is 1x8 for the positive statements plus 1x4 for the negative statements.

Scoring of academic performance

Students on the upper 33% in a descending order of ranking on the average marks will be indicated as a high achiever while the lower 33% will be indicated as low achievers. Students in the middle of the two categories will be scored as average achievers such that,

Higher achievers	-	3 points
Average achievers	-	2 points
Low achievers	-	1 point

APPENDIX TWO

QUESTIONNAIRE FOR STUDENTS

GENERAL INSTRUCTIONS

1. This is a research study. Through sampling procedures you happen to be included in this study.
2. You may choose to or not accept participate in this study.
3. You are requested to respond to all questions in the questionnaire appropriately after reading the instructions given.
4. Remember this is not an examination of any kind. Therefore any response you give is correct.
5. You are free to ask the researcher for any clarifications in cases where you do not understand what the question or item demands.
6. All the information given will be treated with ultimate confidentiality.

Students' consent for participation: {Put a tick (✓) if you agree to participate}

{ } I agree to participate in this study.

Thank you in advance for your anticipating response of participating in this study.

Respectfully yours,

WAIHENYA JUDY NYAGUTHII

Section A Background Information

1. Name of student
2. Name of school
3. Class
4. Gender Male () Female ()
5. Age Years
6. What is your father's main occupation.....
7. What is your mother's main occupation.....
8. What are your father's other occupation?
9. What are your mother's other occupation?

Section B

Find below a list of subjects offered in secondary schools. Tick the subjects you are studying in Form II and the subjects you intend to study in Form III.

Subject	Form II	Form III
Mathematics		
English		
Kiswahili		
Biology		
Chemistry		
Physics		
Geography		
History		
Christian Education		
Business Studies		
Agriculture		
Home Science		
Music		
Computer		

Section C

The following is a list of careers available in the job market today in Kenya. Study them carefully and answer the questions that follow:

- i) Landscaping
- ii) Farm manager
- iii) Agriculture teacher
- iv) Secretary
- v) Pilot
- vi) Computer scientist
- vii) Agricultural extension
- viii) Agronomist
- ix) Agricultural economist
- x) Lawyer
- xi) Hospital nurse
- xii) Carpenter
- xiii) Veterinary doctor
- xiv) Plant researcher
- xv) Beekeeper
- xvi) Bank manager
- xvii) Police officer
- xviii) Statistician
- xix) Farmer (crop)
- xx) Animal breeder
- xxi) Gardener
- xxii) Musician
- xxiii) Fashion designer
- xxiv) Dentist
- xxv) Agriculture microbiologist
- xxvi) Business man/woman
- xxvii) Farm machine operator
- xxviii) Sales girl/boy
- xxix) Agricultural Mechanical Engineering
- xxx) Driver

12. Name the career you would choose to pursue after completion of your secondary school education

13. Name any other career of your choice (not in the above list) that you would wish to pursue in future.....

14. List three careers you consider most prestigious and you would choose to work in if given a chance.

i)

ii)

iii).....

Agricultural Attitude Scale (AAS)

Read the statements below and indicate how well these statement describe you by assigning numbers **1-5** to the statement; where **5** indicates Strongly Agree, **4** indicates Agree, **3** indicates Undecided (neither agree nor disagree), **2** indicates Disagree and **1** indicate Strongly Disagree.

	Statement	5	4	3	2	1
1	I like Agriculture					
2	I think everyone should learn Agriculture					
3	Knowing Agriculture is not useful at all					
4	I work hard at Agriculture because it is an important subject					
5	Agriculture is useful because it helps me in daily life					
6	Agriculture lessons are very boring					
7	Being in agricultural careers is prestigious					
8	I can earn a lot of money from Agriculture					
9	Agriculture was necessary up to standard 8 but NOT now					
10	Agriculture is significant for career advancement.					
11	Learning Agriculture is an opening to very exciting careers					
12	Agriculture should be taught to bright students only					