UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE

STUDENTS' PERCEPTIONS ON THE LEARNING OF AGRICULTURE SCIENCE IN SENIOR HIGH SCHOOLS IN THE AKUAPEM NORTH DISTRICT IN THE EASTERN REGION OF GHANA

KONADU VIVIAN

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BY

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THESIS SUBMITTED TO THE DEPARTMENT OF AGRICULTURE EDUCATION, FACULTY OF EDUCATION, UNIVERSITY FOR DEVELOPMENT STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF EDUCATION DEGREE IN AGRICULTURE

APRIL 2016

DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidates Signature…… Date……

Name: Konadu Vivian

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of thesis laid down by the University for Development Studies.

Supervisor's Signature…… Date……..…

Name: Rev. Father Dr. Thomas Asante

DEDICATION

To Mr. Yamoah Bright and Maame Grace Boahemaa

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I would like to express my sincere gratitude to my Supervisor, Rev. Father Dr. Thomas Asante for his supervisory role that ensured the completion of this work. Special thanks also go to all the lecturers in the Faculty of Education, UDS, especially Dr. Olalere Olaewe from the Navrongo Campus for their useful advice during my period of study. I owe much gratitude and appreciation to my children and husband, Mr. Bright Yamoah for his understanding, support and the encouragement that made it possible for me to further my education.

ABSTRACT

The study sought to evaluate Senior High School students' perceptions on the studying of Agriculture Science subject in the Akuapem North District in the Eastern Region of Ghana. The study adopted a descriptive survey research design using questionnaires as the main data collection instrument. Data were provided by 203 students who were purposively sampled from 4,045 Senior High School students in the district. The data were analysed using descriptive statistics aided by the Statistical Package for Service Solution (SPSS version 2015) software programme. The study revealed that although enrolment trends in Agriculture Science in Senior High Schools were declining in the Akuapem North District, the enrolled students had positive attitude towards the study of Agriculture Science. The study also revealed that learning resources such as school farm, agricultural tools and equipment and text books were either inadequate or unavailable in some of the schools studied. In addition, punishment given to students such as weeding the school compound and digging influenced their perceptions towards the learning of Agriculture Science. The study recommended that teachers must desist from using weeding as disciplinary action for students, as this practice discourages students from pursuing Agriculture Science in the Senior High Schools.

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CHAPTER ONE

INTRODUCTION

Background of the Study

Agriculture has an immense impact on humanity in terms of global food supplies, hunger alleviation, economic development and provision of employment (Nova, 1996). Building capacity through formal agricultural education is needed for the development and production of skilled manpower to serve the agricultural sectors in the world (Lindley, Van Crowder & Doron, 1996). Mochoge and Zziwa (2007) indicated that there is a global demand for skilled labour in agricultural production practices to increase global food production. Mochoge and Zziwa opined that it will ensure the re–emergence of food security as a global imperative. However, many countries have seen declining numbers of students choosing to pursue the study of physical sciences (Tomei, 2007).

Agricultural Education plays a major role in agricultural development and is concerned with the provision and maintenance of quality education and training to support environmentally and economically appropriate and sustainable agriculture (Pingali, 2007; Mutambara, Zvinavashe, & Mwakiwa, 2013). It is obvious that agricultural productivity can be improved through Agriculture Education and Training Outreach. Thus, sufficient and relevant agricultural knowledge and competence is required, not only to improve farming systems and technologies, but also for processing, marketing of produce and for the implementation of good agricultural policies in the country (Bawden, 1992; Sundstøl, 2004). In secondary schools, the objective of agricultural education is to provide the required background for further

studies in various agricultural education areas of science, engineering and technology (Vandenbosch, 2006; Ozge & Omer, 2012).

In sub-Saharan Africa, the Agricultural sector is still the dominant provider of employment, and it remains crucial for economic growth. However, in most parts of Africa, food security is still a critical issue and therefore food production will continue to be a major focus of Agricultural Education and Training Institutions (Vandenbosch, 2006). Anamuah-Mensah (2000) and Darko, Offei-Ansah and Yuan (2015) showed that agriculture has a poor image as a career choice in the eyes of most students in the Senior High schools in Ghana. Students' decisions to pursue Agricultural Science as a field of study or career, and their involvement and success there in may be predictable by investigating students' perception towards Agricultural Education.

Some of the factors that have significant effect on Agricultural Education are the attitude and perception of the people, especially the students towards Agricultural Education, as it has been discovered in some parts of the world that student willingness to pursue agriculture as a career was related to student's attitudes towards agricultural education and science (Darko, Offei-Ansah & Yuan, 2015; Ilenloh, Onemolease & Erie, 2012; Radhakrishna, Leite & Domer, 2003). Some recent work has indicated that student' decisions to study agriculture science and their performance can be determined by assessing students' attitude towards Agriculture Education and Training (Bassey, Ime, & Shirley, 2012; Ilenloh, Onemolease & Erie, 2012).

Statement of the Problem

Agriculture is the source of livelihood for more than half of the world's population (Mochoge & Zziwa, 2007). It forms the backbone of most economies in sub-Saharan Africa including Ghana. Agriculture Science as a subject has been taught before and since independence, with the overall purpose of it being the development of basic agricultural skills that are relevant to the nation's development with regards to food security and growth of national income. Studying Agricultural Science as a subject in Senior High Schools is very important (Mwangi & Mwai, 2002). Mwiria (2002), considers the aims of teaching and learning Agricultural Science in Senior High Schools as reinforcing interest and awareness for opportunities existing in agriculture and demonstrating that farming is a dignified and profitable occupation, to expand the students' knowledge on basic principles and practices in Agriculture, develop students understanding of the values of agriculture to the family and community with a view of promoting self-reliance, resourcefulness, poverty reduction, improved food security, problem solving abilities, an occupation outlook in Agriculture and promote Agricultural activities which enhance environmental conservation.

Much research has been done in the field of students' attitudes towards certain subjects and their subsequent enrolment in those subjects and academic achievement (Orodho, 2014; Sherry, 2010). Many of these authors have given their suggestions about the factors that influence students within the school environment (Broughton, 2003; Sherry, 2010; Orodho, 2013, 2014; Kenya Ministry of Education and Human Resource Development, 1999, 2010, 2011). Two of these factors include student attitudes and school context

(Orodho, 2014). Richlin and Cox (2004) have shown that large number of students performances are affected by their attitudes and perception towards specific subjects, education and academics in general. They also suggested that when students demonstrate weak commitment to their academic work, then they are bound to underperform.

Darko, Offei-Ansah and Yuan (2015) indicate that the major economic activity in Ghana from the pre-colonial, colonial, up to the present is Agriculture. Despite the fact that Agriculture is considered as the backbone of Ghana's economy, the teaching and learning of Agricultural Science in Senior High schools has not received much emphasis as it should (Only few students enrol in it as an elective subject area of study in the Senior High Schools in Ghana as compared to other disciplines. This therefore justifies the need to investigate the perception of students on the studying of Agricultural Science in Senior High Schools in the Akuapem North District in the Eastern Region of Ghana.

From the foregoing discussion on the background information, it can be argued that despite the growing awareness of the significant role agriculture plays in the economies of countries including Ghana, and that students interests in this sector are low, there has not been much work done on the causes of this problem with appropriate recommendation to inform policy in Ghana. Vandenbosch (2006) conducted a study based on Sub-Saharan Africa and other parts of the world. However, differences in culture and geographical locations, the findings of the study may not be applicable to the policy formulation in Ghana. Thus, there is the need for a local study.

Besides, most of the studies available in Ghana were also carried out about a decade or two ago (Anamuah-Mensah, 2000). With time, there may be some changes in the factors that affect the study of Agricultural Science in the Senior High Schools in the country. This can only be unearthed through regular studies which will help in amending old policies and formulating new ones. This present study will update policy makers. Additionally, there have not been many studies on the subject under discussion in the Akuapem North District. Since the factors affecting the study of Agricultural Science may be location specific (Ramdwar & Ganpat, 2001), there is the need to study this topic in the District.

Purpose of the Study

The purpose of this study was to investigate the perception of Senior High School students on the study of Agricultural Science as a subject with specific emphasis on Adukrom Presbyterian Senior High, Mount Sinai Senior High, Nifa Senior High, Okuapeman Senior High and Mamfe Methodist Senior High Schools, all in the Akuapem North District in the Eastern Region of Ghana.

Objectives of the Study

The general objective of the study was to investigate the perception of Senior High School students on the study of Agricultural Science in the Akuapem North District in the Eastern Region of Ghana.

Specifically, the study sought to:

1. Analyse the enrolment trend in Agriculture Science Students from 2009/ 2010 to 2013/ 2014 academic years in Senior High Schools in the Akuapem North District.

2. Examine the adequacy of learning materials for Agricultural Science subjects in Senior High Schools in the Akuapem North District.
3. Find out the perceptions of Students on the study of Agricultural Science as a subject in the Senior High Schools in the Akuapem North District.
4. Make recommendations that influence policies on agricultural education.

Research Questions

The following questions were posed in the research:

1. What is the trend of enrolment in Agriculture Science Students from 2009/ 2010 to 2013/ 2014 academic years in Senior High Schools in the Akuapem North District?
2. How adequate are the learning materials for Agricultural Science subjects in Senior High Schools in the Akuapem North District?
3. What are the perceptions of students on the study of Agricultural Science as a subject in the Senior High Schools in the Akuapem North District?
4. What recommendations will influence policies on Agricultural Science education in senior high schools in Ghana?

Significance of the Study

The study examines the perceptions of Senior High School students and how this affects the study of Agricultural Science. At the micro level, the study will bring out the perception of the students that negatively affect the study of Agricultural Science. The management of the Senior High Schools

can use the information to make decisions that will help disabuse the misconceptions that negatively affect the study of Agricultural Science. The findings will also be useful to Ghana Education Service (GES) in implementing policies that will enhance the study of Agricultural Science in the Senior High Schools. The recommendations will be useful to Ghana Education Service to designate some Senior High Schools to offer Agriculture Science and also educate students to change their perceptions about agriculture. The Ministry of Agriculture can also make use of the findings of the study to bring innovations in agricultural production throughout the country.

Delimitation of the Study

The study focused only on the learning of Agricultural Science in selected Senior High Schools. It does not include the teaching of the subject; hence, data were not collected on teaching of Agricultural Science in Senior High School. Only students offering Agricultural Science as a programme of study were included in the study. Students who have some background knowledge from their integrated Science lessons were not included in the study. This helped achieve the objective of exploring the enrolment trends of Agricultural Science students over the period 2009-2014 academic years. The study was restricted to only five out of the thirteen (13) Senior High Schools in the Akuapem North District of the Eastern Region. The five schools that were purposively selected for the study were Adukrom Senior High, Nifa Senior High, Okuapeman Senior High, Mount Sinai Senior High and Mamfe Methodist Senior High Schools.

Limitations of the Study

Indeed, various challenges were encountered during this study. However, measures were established to curtail the challenges. Some of these challenges were difficulty in retrieving data for the study and inaccurate provision of answers. In order not to disturb students during teaching and learning hours, questionnaires were given to students to be sent home. When the time came for them to submit the completed questionnaires, some students could not find where they had put their own. These students had to be given another questionnaire and they were asked to take it home to complete but they decided to complete them in the presence of the researcher without taking much time to read through. Some students were just ticking without paying serious attention to the items in the questionnaire.

This became evident in some few inconsistencies in the information they provided. Additionally, hypotheses were not formulated to test for the significance of the differences in the observed frequencies. This would have confirmed the strengths of the effects of the independent variables on the dependent variables. The absence of this may raise some doubts in the findings.

Organization of the Study

The study is divided into five chapters. Chapter One is the general introduction to the study, and it focuses on the background of the study, statement of the problem, purpose of the study, specific objective, general objectives of the study, research questions, significance of the study, delimitation, limitation, and organization of the study. The second chapter consists of a review of related literature. Chapter Three deals with the research

methodology, specifying the research design, population, sample and sampling procedure, research instruments, pre-testing of the research instrument, data collection procedures and data management and analysis. Chapter Four presents the analysis and discussion of the results that emerged from the study. The final chapter, which is chapter five focuses on the summary, key findings, conclusion and recommendations of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents a review of related literature under the following subheadings; Concept of Agricultural Education in Ghana, the impact of Agriculture on the Economic growth of Nations, the prospects of Socio – Economic Development through Education and the Attainment of food security and Agricultural productivity through Agricultural Education.

Concept of Agricultural Education in Ghana

Globally, education today is widely recognized as the most effective development investment a country can make (World Bank (2007). It further posits that it is one of the critical pathways to promote social and economic development. It is central to the development of a better life and better world. It raises economic development, reduces fertility rate, lowers infant and maternal mortality, improves the wellbeing of families, and ensures better prospects of education for children (Gachukia, 1999). Bargetuny (1999) asserts that education promotes sound management of environmental resources such as water fuel, and is closely associated with the reduction of absolute poverty. He also argues that education increases participation in community and national affairs and in democratization of societies. Thus, education has an important influence on the quality of life. The development of human resource fundamentally depends on the level and intensity of formal and informal society but also for building human capabilities and opening up employment opportunities. Without education development can either be broad based or sustained (Orodho, 2014; Orodho, Waweru, Ndichu, & Nthinguri, 2013; Shery, 2010).

Secondary education in Ghana aims at achieving the national goals of education. According to Ministry of Education Science and Sports (2008), firstly, education in Ghana aims at promoting a sense of national unity among the diverse tribes, races and religions of Ghana. A sense of national unity will enable different people to live together in harmony, resulting in maximum contributions to the development of the country. Secondly, the purpose of education is also to produce citizens with appropriate knowledge, skills, and personal qualities that are necessary for economic growth. For the country to become industrialized and independent economically, it requires highly trained/skilled citizens (Ministry of Education Science and Sports, 2008).

Thirdly, education provides opportunities for students to develop desirable attitudes and interpersonal relations that create the necessary social environment for the growth of the economy. Fourthly, education also aims at promoting social equality and a sense of social responsibility. In this regard, the education system attempts to provide equal learning opportunities for all. It also provides opportunities for competition for individual benefits and challenging opportunities for collective development of individual student's talents, potential interests and abilities, characters, personality, moral, and religious beliefs (Darko, 2005).

The Ministry of Education Science and Sports (2008) asserts that the teaching of agriculture in secondary schools should be aimed at ensuring that the learner is exposed to and taught the basic principles that are important of agricultural production in the country, exposing and involving learners in various practical projects that will help them develop the necessary skills and abilities required in agricultural production. By the end of the agriculture

courses, the student should be able to develop interest and awareness of opportunity that exist in the agriculture sector, create an understanding of agriculture and its importance at the household and national level, and demonstrate that farming is a profitable and dignified occupation, develop and improve the knowledge and skills of basic agricultural practices.

Other objectives for studying agriculture science at the secondary school are to provide a background for further studies in agriculture, develop self-reliance, resourcefulness, problem solving abilities and an occupational outlook on agriculture, promote good agriculture activities to enhance environmental conservation and good health, and take an active part in rural development by integrating agricultural activities in the curriculum (Ministry of Education Science and Sports, 2008). Zwanembegy (1972) asserted that since the establishment of formal schools in Ghana by European missionaries and colonial administrators in the early 1900s, there had been concern that education has not been sufficiently related to the practical needs of societies.

After the achievement of independence in the 1957, most African countries concentrated on rapid expansion of their educational systems. This expansion aimed at attaining self-sufficiency in high level manpower to Africanize the public service and later the private sector, as well as to respond to the overwhelming popular demand for more education. The pressures of quantitative expansion precluded major qualitative or structural reforms for most countries, but by the mid-1960s educators had again turned their attention to the problem of relating school systems to the needs of predominantly rural societies. Ministry of Education, linked the growing concern over unemployed school leavers, to rural development needs. This led

to the introduction of agriculture as a subject in secondary schools in Ghana (Ministry of Education Science and Sports, 2008).

Upon completion of this study the research may lay out clear causes of academic failure particularly in certain elective subjects like Agriculture, thus facilitating change in school environments. The research may assist teachers in formulating strategies to deal with attitudinal and contextual problems. Additionally, the research will transform traditional ways of thinking about education. It might remove stereotypical notions or ideas held by stakeholders in education. The research may also encourage greater investment in the psychological development of the student because it will review some of the pre-existing psychological attitudes that could be hindering academic excellence in agriculture.

The Impact of Agriculture on the Economic Growth of Nations

It is a fact that Agriculture has played a very significant role in man's Civilization. Products such as foods, fibres, fuels, raw materials for many products came from Agriculture. Many nations' economy has depended on Agriculture. For instance, Nigeria in the early 1960's before the 'oil boom' depended on Agriculture for her economic sustenance (Mukhtar, 1987). Agriculture is undeniably the mainstay of most developing countries including Ghana. In Ghana, the agriculture sector is among the major contributors of the country's gross domestic product (GDP). In terms of employment, many of the country's economically active population are found within the Agricultural sector. Briefly, Agriculture employs over 60% of the nation's economically active population. These include farmers, farm labourers, traders of

agricultural produce, and workers of agricultural processing companies among others.

The Ministry of Food and Agriculture [MoFA] (2009) asserts that the Agricultural sector is particularly critical for women. About half (48.7%) of the economically active women population are employed in the various sections within the Agriculture sector with the majority of them being engaged in food production. Change in attitude is therefore needed to increase agricultural production. Attitude is important and is often used to predict and understand people's reactions to an object or change and how behaviour can be influenced.

Rameela (2004) opined that attitude is the liking or disliking of an object based on what is known about it. People's interest to participate or not in an activity could be based on the person's knowledge, observations, or other relevant information about the issue or occasion. Attitudes therefore relate to the way we act or react. The way we perform our thinking (perceptions) is what results in our attitudes. Our actions therefore depend on our attitudes.

Agriculture is the traditional foundation of Chinese society and China is facing a great challenge in restructuring its system to meet the needs of the market economy. The country's economic system is shifting from a centrally planned to a market–driven system (Xiarong & Thomas, 2002). Particularly, agriculture education is playing an important role in preparing people for a new phase of rural development. Xiarong and Thomas (2002) were of the view that China's economic reform movement proposed Agriculture curriculum and strategies to meet the needs of the new economic realities in Chinese Agricultural education.

Some students find it difficult to grow or develop because they tend to resist change and this impedes their academic progress. Perceptual selectivity is the ability of an individual to filter sensory experience. Perceptual selectivity is influenced by both external and internal factors. External factors relate to stimuli and contexts in which people find themselves interacting while internal factors relate to for example, learning, personality and motivation. It involves active engagement with the environment such that the perceiver constructs it in the most appropriately informative manner (Oakes, Haslam, & Turner, 1994).

Sometimes out of necessity, perceptual selectivity takes over and individuals see only what they expect and want to see. In a sense, the individual pays attention only to a small part of the sensory stimuli and therefore remains uninformed of those things he doesn't expect. How Agriculture is perceived depends on what students themselves think Agriculture is. So because people are limited in what they can perceive, they are highly selective in whatever they choose to perceive and that which is relevant to them.

Perceptions refer to an individual's current appraisal of an object or programme (Hinkson & Keith, 2000). Perception is therefore the subsequent selection, organization, and interpretation of sensory input .It is the process of obtaining information about both the external and internal environments, which results, through integration utilizing memory, in the conscious experience, recognition, and interpretation of objects, object relationships, and events (Prasad, 1994). Duncan (2004) found that secondary educators either

agreed or strongly agreed that the agricultural technology programme curriculum will contribute to a student's success in the agricultural industry and that the programme offers a valuable education for students. Akinsorotan (2001) viewed it as a sort of psychological reasoning or conclusion drawn from observed phenomena. It is an active cognitive process on one hand, and on the other, a mechanistic system fixed by inherent structure of the nervous system.

Allo and Schwass (1982) found that unless agricultural students have been effectively trained, they may not be able to perform the task that an efficient service will require from them to reach rapid and sustained agricultural growth. Training and transfer of technologies form the core of the process of development and the effectiveness of the agricultural services could be markedly reduced if the quality of agriculturist is poor. It has been observed also that agricultural transformation cannot take place in developing countries unless there is improved technical knowledge in the sector (Oloruntoba, 2006). In terms of training, Oloruntoba (2006) reported that this is vital in any organization because it ensures improvement in job behaviours and brings about higher standard of competencies.

Prasad (1994) posits that training in general include acquisition of knowledge, skill and attitude, no matter what type of, level or length of training under consideration. This means that, perception, learning and training of students is not simply restricted to production aspects but an application of knowledge, skill and attitude needed to improve employer's ability in solving production problem and adopting improved practices and techniques at the field level. Youdeowei and Kwarteng (1995) found that

training is useful only when designed to meet training needs, and is offered to people who will benefit from it. Hence, training needs are the competencies that must be acquired by trainees to enable them perform their jobs at the optimal level.

Anyanwu (1997) indicated that the idea of participation in practical work implies that success is ensured where efforts of the apprentice are supplemented or aroused by the direction of authorities involved. Edozien (2002) believed that Ghana future lies in the participation of youths in agriculture and in the empowerment of youths. In a related issue, Gidden (1997) posits that individual perception in social structures and through their participation produce and reproduce these structures. Agboola (1998) reported that people perception in things affect them as a basic need for human beings.

Again, Okorley (2001) reported that the Head of Departments of three Faculties of Agriculture in Ghana were of the opinion that the present curricula for training students on agriculture in schools were not adequate to address the training needs for self-employment in agribusiness. Others have advocated for education that produces university graduates who can create rather than seek employment (Munowenyu, 1999). Consequently, the traditional classroom lecture-based delivery systems provide limited opportunity to acquire the necessary skills and experience to explore careers like agricultural science (Perry & Smith, 2004).

Helmholtz (1894) is considered as one of the founders of perceptual research and a constructivist. He argued that between sensations and our conscious perception of the real world, there must be intermediate processes. Such processes would be for example, ‘inferential thinking’ which allows us

to go beyond the evidence of the senses (these inferences are at an unconscious level). He believed that perception is more than direct registration of sensations, and that; other events intervene between stimulation and experience.

Agriculture contributes tremendously to the economic growth of most nations. The sector contributes about 21 per cent Gross Domestic Product (GDP). Despite occasional shortages of food due to deficiency in rainfall during certain years, Agriculture guarantees food security to the nation. Agriculture contributes over 60% of exports and provides 80% of all industrial raw materials (Ministry of Education Science and Sports, 2008).

The Prospects of Socio-Economic Development through Education

Education is seen as a key to national development in many countries, and this cannot be achieved without sustainable investment in human capital through teaching and learning. This is why education reforms in Ghana have been committed to making the issue of teacher and student quality and its development the cornerstone of the strategy to improve education quality and increase learning outcomes (Anamuah- Mensah, 2000).

Agriculture is the source of livelihood for more than half of the world's population. It forms the backbone of most economies in sub-Saharan Africa of which Ghana is not an exception. Agriculture Science as a subject has been taught before and after independence, with the overall purpose of it being the development of basic Agricultural skills that are relevant to the nation's development (Mwangi & Mwai, 2002).

Many studies have shown that the teaching and learning of Agricultural Science consists of learning facts, rules, laws formulae, problem

solving, understanding of basic scientific principles of concepts and explanation of concepts and observed phenomena (Ampiah, 2002). It is therefore of utmost significance for the teacher to use the appropriate pedagogy to bring to good understanding and learning of a particular learning task. It is important that aspects of Agricultural Science like understanding of basic scientific concepts, problem solving based on observed phenomenon require a good understanding as well as explanatory and problem solving ability of the student concerned. Unfortunately, students tend to memorize concepts that require analytical thinking and basic knowledge in the concept concerned due to the subject been more theoretical than practical (Resmick, 2000). Facts, rules and laws are memorized but often this information is not connected in a coherent framework that would allow students to make sense of it and therefore learning does not take place

Learning Agriculture as a subject in Senior High Schools effectively is very important (Mwangi & Mwai, 2002). Mwiria (2002) considers the aims of teaching Agriculture in Senior High Schools as reinforcing interest and awareness for opportunities existing in Agriculture and demonstrating that farming is a dignified and profitable occupation, to expand the students' knowledge on basic principles and practices in Agriculture, develop students understanding of the values of Agriculture to the family and community with a view of promoting self-reliance, resourcefulness, poverty reduction, improved food security, problem solving abilities, an occupation outlook in Agriculture and promote Agricultural activities which enhance environmental conservation.

Education today is widely recognized as the most effective development investment a country can make. World Bank (2004) posits it is one of the critical pathways to promote social and economic development. It is central to the development of a better life and better world. It raises economic development, reduces fertility rate, lowers infant and maternal mortality, improves the wellbeing of families, and ensures better prospects for children (Gachukia, 1999).

Bargetuny (1999) asserts that education promotes sound management of environmental resources such as water bodies and is closely associated with the reduction of absolute poverty. He also argues that education increases participation in community and national affairs and in democratization of societies. Thus, education has an important influence on the quality of life. The development of human resource fundamentally depends on the level and intensity of formal and informal society and also for building human capabilities and opening up employment opportunities. Without education, development can either be broad based or sustained (Orodho, 2013; Orodho, Waweru, Ndichu, & Nthinguri, 2013; Shery, 2010). A sense of national unity will enable different people to live together in harmony.

Secondary education in Ghana aims at promoting a sense of national unity among the diverse tribes in contributions to the development of the country. Secondly, the purpose of education is also to produce citizens with appropriate knowledge, skills, and personal qualities that are necessary for economic growth. For a country to become industrialized and independent economically, it requires highly trained/skilled citizens. Thirdly, education provides opportunities for students to develop desirable attitudes and

interpersonal relations that create the necessary social environment for the growth of the economy. Furthermore, education also aims at promoting social equality and a sense of social responsibility. The Ministry of Education and Human Resource Development (1999) observes that quality education cannot be achieved and sustained if the resources and facilities are not available in sufficient quantities.

In this regard, the education system attempts to provide equal learning opportunities for all. It also provides opportunities for competition for individual benefits and challenging opportunities for collective development of individual student's talents, potential interests and abilities, characters, personality, moral, and religious beliefs (Orodho, Waweru, Ndichu, & Nthinguri, 2013). There are many factors that are responsible for successful agricultural education. Sweeter (1984) asserted that, successful and safe field trips are determined by explicit planning. Hazards do occur or exist on field trips, but with good planning and purposeful directions, pupils could have a safe and worthwhile experience.

Tatto (2007) asserts that success in teaching and learning has been determined largely by the ability to motivate both students and teachers along productive lines. As part of the motivational devices, they suggested that Agricultural and Science clubs should be provided for a wide range of student capabilities, interests and individual differences for students to share and exchange valuable learning in the course of these co-curricular activities. Tamakloe, Amedahe and Atta (2005) also indicated that the learning experience which the learner grapples with must be such that he derives self-satisfaction from it. This serves to provide the necessary motivation for

wishing to undergo the same or similar experiences.

The Attainment of Food Security and Agricultural Productivity through Agricultural Education

Agricultural Education plays a major role in Agricultural development and is concerned with the provision and maintenance of quality education and training to support environmentally and economically appropriate and sustainable Agriculture (Department of Agriculture, 2005). The purpose of Agricultural education in high schools in the United States is to provide students with the personal academic and career experiences essential for success in the fields of science, business and technology (Schultz, Wiekert, Olson, Howard & Dickson, 2008).

It is obvious that Agricultural productivity can be improved through Agriculture Education. Thus, sufficient and relevant Agricultural knowledge and competence is required, not only to improve farming systems and technologies, but also for processing, marketing of produce and for the implementation of good Agricultural policies in the country (Sundstøl, 2004). The Ministry of Education in Ghana asserts that, teaching of Agriculture in secondary schools should aim at ensuring that the learner is exposed to and taught the basic principles that are important in Agricultural production in the country, and involving learners in various practical and projects that will help them develop the necessary skills and abilities required in Agricultural production.

Other objectives are to provide a background for further studies in Agriculture, develop self-reliance, resourcefulness, problem solving abilities and an occupational outlook on Agriculture, promote good Agriculture

activities to enhance environmental conservation and good health, and take an active part in rural development by integrating Agricultural activities in the curriculum.

Dlamini and Miller (1997) established that at the secondary education level in Swaziland, the goal of junior level Agricultural education is to develop in students an appreciation for and a positive attitude towards Agriculture, while the goal of the senior level Agricultural education program is to prepare interested youth to gain entry to the college of Agriculture at the university of Swaziland. Secondary School education together with other enabling factors contributes significantly to increasing the productivity of Agriculture (Cabraal, Anil, Barnes, Douglas, Agarwal, Sachin, 2005). The subject is taught in schools so that the youth can appreciate the role that Agriculture plays in the economy of the country. In the USA, formal programs in Agricultural education are conducted at secondary schools, community colleges and Universities.

As a vocational educational program, Agricultural education focuses on three major components: formal classroom instruction, career experience programs and leadership development. These components are delivered through a competency based curriculum in the context of Agriculture in the USA (Osborne & Dyer, 1995). Beyond the secondary Agriculture program, community colleges and universities provide excellent opportunities for students to specialize and gain skills and knowledge in Agriculture (Williams & Dollisso, 1998).

Agriculture Education and training is special in comparison with other forms of education and training in that, Agriculture cannot be learned solely in

the field or solely in the classroom (Vandenbosch, 2006). Practical training such as traditional apprenticeship training should ideally be complemented by formal learning to enable many aspects of Agriculture and rural development to be seen in their true perspective (Vandenbosch, 2006).

Agriculture has an immense impact to humanity in terms of global food supplies, hunger alleviation, economic development and provision of employment (Nova, 1996). Therefore Agriculture can be considered to be a pillar for human survival and hence the importance of Agriculture being taught as a separate course at all levels of education. In some countries in sub-Saharan Africa, Agriculture has been introduced into the general school curriculum at secondary education levels as a compulsory or as an optional subject.

The rationale for offering Agriculture to secondary school students, counter the apparent negative attitude to farming by many secondary school students, whose occupational choices are often limited, and thus exposing them to the knowledge and skills that they would require in Agricultural production, should they choose to become farmers (Abalu, 2001). At present, Agricultural Science as a core subject, has been excluded from the primary and secondary schools curriculum, and has been integrated into the science curriculum (Kenya Institute of Education, 2006). Agriculture is one of the elective subjects right from form One to form three in the senior high schools in Ghana but few people enrol into it. However, if the importance of Agriculture is to be realized, as many students as possible should be encouraged to offer it as an elective area of study. This is only possible if the students have positive attitude and the right perception of how useful

Agriculture is as a subject. However, there is limited information on the perceptions which students have on the usefulness of Agriculture as a subject in the school curriculum.

Agriculture is a useful subject in the secondary school curriculum. One of the objectives of teaching the subject in secondary schools is for students to develop an understanding of Agriculture and its importance to the family and the nation. A second objective is to promote interest in Agriculture as an industry and create awareness of opportunities existing in Agriculture and its related fields (Kenya Institute of Education, 2006).

These objectives have both the educational and socio- economic dimensions. Achievement of these objectives can assist the country towards realization of Vision 2020. They can also assist the country towards realization of Millennium Development Goals (MDGs). The first MDG is to eradicate extreme poverty and hunger (United Nations, 2000). Hunger and poverty can partly be eradicated by increasing food production to ensure food security in the country. Sufficient quality food to a nation is viewed as dependent on a large number of individuals being adequately educated in Agriculture (Talbert, Vaughun, Croom & Lee, 2007). However, this has not been realized, there are still high levels of unemployment due to rural-urban migration, school leavers aspiring to get white collar-jobs, high levels of poverty and food insecurity in most African countries (Abalu, 2001).

School Agriculture is viewed as a major component to this education. Research findings indicate that secondary school Agriculture broadens the farmer's capacity, makes them more effective, self-reliant, resourceful and capable of solving farming problems (Saina, Kathuri, Rono, Kipsat, 2012).

Classroom curriculum and laboratory exercises provide students with foundation knowledge in Agricultural practices, preparing them for careers in food, fibre and natural resource industries. Supervised Agricultural experiences provide students the opportunity to experience ownership of their own Agricultural enterprises or work in the industry. Supervised Agriculture experience also enables students to develop skills in Agriculture related career areas (Schultz, Wieket, Howard & Dickson, 2008).

The importance of Agriculture can be realized if students have positive perceptions of the subject. Studies show that few students are willing to take up Agriculture careers because of the formed attitude and perception towards the subject. Most African countries have low production in Agriculture even though skills and knowledge for better Agricultural production are learnt in both primary and post – primary education levels (Ngesa, 2006).

Apori, Zinnah and Annor (2003) in reference to Cape Coast in Ghana, established that a student's decision to choose Agricultural Science subjects at the Senior High School level is influenced by gender and socio-economic background of students such as occupation of parents, communities, towns or cities in which they live, facilities and the pedagogy used in teaching Agriculture, the level of knowledge about prospects in choosing Agriculture as vocation, the terminal nature at Agricultural colleges, where trainees are awarded certificates in Agriculture, the influence of parents, guardians and peers who accord Agriculture low recognition compared to other professions. In many schools, students are sent to work on the school compound and the school farms as a punishment. Bergman (1980) indicated that this is bound to

create a negative attitude to farm work rather than fostering positive attitude. It highlights the hardships of farm work and policy more than anything else.

During the colonial era, the subject was held in low esteem by both parents and students (Stabler, 1969). The subject was perceived as preparation for farm work and also for keeping children economically backwards (Ngumy, 1984; Sifuna, 1990). Such perception was and still is detrimental to the economic growth of the country. This therefore justifies a need to investigate into the current status of Agriculture education in the Senior High Schools in Ghana. A thorough understanding of student's perception and attitude towards the subject could help improve implementation of Agriculture curriculum.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter deals with the methodology that was adopted for the study. It contains the discussion of the Research Design, the Study Population, and Sampling Procedure, the Research Instrument, Data collection procedure and analysis.

Research Design

The study was a descriptive survey. Fraenkel and Wallen (2000) assert that a descriptive survey involves asking the same set of questions often prepared in a written questionnaire to a large number of individuals. Thus, a descriptive survey is directed at determining the nature of a situation as it exists at the time of the study. This design is appropriate in identifying conditions present and points out future needs. The purpose of a survey is to generalize from a sample population so that inferences can be made about the characteristics being sought.

Fraenkel and Wallen (2000) posited that descriptive survey aims at describing the social system, relations, or social events, providing background information to the issues in question as well as stimulating explanation. They further indicated that descriptive research is also employed to explain the causes of social phenomena such as exploring the perceptions of a population sub-group; and the consequences between variables so that one is the cause of the other (Fraenkel & Wallen, 2000). This study employed descriptive analysis to find out the perception of students on the learning of Agriculture Science Subjects in the Senior High Schools in the Akuapem North District. Any

research undertaking involves a lot of cost implications; hence this design was deliberately selected for the study because it allows for quick data collection at a comparatively cheap cost.

Population

The target population for the study was all public Senior High School students in the Akuapem North District of the Eastern Region of Ghana for the 2014/2015 academic year. The population of the study refers to all the members of the real or hypothetical set of people, events or objects to which a researcher wishes to generalize the results of a research (Borg, 1993).

Sample and Sampling Procedure

A purposive sampling procedure was used to select schools that offer Agricultural Science as an elective subject for the study. In purposive sampling, researcher handpicks the cases to be included in the sample on the basis of their judgment of their typicality or particularly knowledgeable about the issues under study (Sarantakos, 1997). The sample size was 203 for the study, which was made up of students from the sampled schools in the Akuapem North District. These students were purposively selected from five (5) Schools (Adukrom Presbyterian Senior High School, Okuapeman Senior High School, Nifa Senior High School, Mount Sinai Senior High School, and Mamfe Senior High School) that offer Agriculture Science as an elective area of study out of the thirteen (13) Senior High Schools in the District-using the quota (5%) sampling technique. This forms about 38.5% of the total number of Senior High Schools in the District.

Sarantakos (1997) was of the view that a sample size of five to twenty per cent of the population should be able to provide a better option to a

complete coverage as the population, in a short period of time as well as produce equally valid results. The sampled schools, population and the sample of students that offer Agriculture Science as elective subject are presented in Table 1.

Table1: Population of students in selected Senior High Schools in Akuapem North District

Sample School	Population (N)	Sample (n)	%
Adukrom Presbyterian Senior High	706	35	17
Okuapeman Senior High	1001	50	25
Nifa Senior High	902	45	21
Mount Sinai Senior High	651	33	16.3
Mamfe Methodist Girls Senior High	785	39	19
Totals	4,045	203	100

Source: Field Data, 2015

Schools that offer Agriculture Science as an elective subject were purposively sampled for the study. The Population represents the total number of students in the various schools during the period of study whiles the sample, represents the total number of students that offer Agriculture Science as an elective area of study in the sampled schools. The total student population for the five sampled Schools as at the time of the study was 4045. Purposive Sampling procedure was used to select 203 students out of 4045 students as those that offer Agriculture Science as elective subject for the study.

Research Instruments

The researcher designed and used questionnaires because they are considered economical, easy to formulate and analyse. In addition, questionnaires elicit a lot of data and give greater depth of response (Sarantakos, 1997). Two different sets of questionnaires were designed, one for students and one for the Headmasters/ Headmistresses in the Senior High Schools. The Headmasters/ Headmistresses' questionnaire basically solicited information on the enrolment trends in Agriculture Science in their school for 2009/2010 to 2013/2014 academic years while the students' questionnaire had four sections based on the research questions that guided the study. The students' questionnaires had both closed and open ended items and 4-point Likert-type scale rating items. Some of the scales were rated on agreement level as strongly agree, agree, uncertain, disagree, strongly disagree. Some were also rated on frequency and adequacy levels as very frequent, frequent, not frequent, not at all, don't know; and adequate, inadequate; while others were rated on satisfaction level as strongly satisfied, satisfied, dissatisfied, and strongly dissatisfied. The instrument was used to collect data from students and a headmaster on the perception of students on the studying of Agricultural Science in Senior High Schools.

The students' questionnaire had three sections. Section requested information on students' background information such as gender, course of study, what influenced the selection of their course of study and if they practice farming at home. Section B sought information on the adequacy of essential learning resources and how frequent they are used in their schools.

Section C solicited information on the students' perceived level of difficulty of Agriculture Science.

Pre-testing of Instrument

The research instruments were pre-tested by piloting them to determine their validity. Piloting refers to pre-testing of the research instrument by administering it to a different selected sample, which is similar in characteristics to the actual sample which the researcher plans to use in the study. Reliability is a measure of degree to which research instruments will yield constant results after repeated trials. Orodho (2009) observes that reliability of an instrument is its consistence in producing similar results over a period of repeated trials. To test the reliability of the students' questionnaire, test and retest method was used. Following the procedure by Orodho (2008), the following steps were followed to test the reliability of the students' questionnaire:

1. The developed questionnaires were administered to 30 students each from Benkum Senior High and Mampong Presbyterian Senior High Schools to solicit information. These schools are in the same District and have similar school environment with the sampled schools.
2. The completed questionnaires were scored manually.
3. The same questionnaires were administered to the same group of students after a period of one month to reduce regency effect on the responses.
4. The second set of questionnaire responses were also scored manually.

5. A comparison between answers obtained in 2 and 4 above was made.

The Pearson Product-Moment Correlation Coefficient formula was used to determine how the items correlated. The computed coefficient (R) was 0.69. The observations made in the pilot testing led to the revision of the student questionnaire. The final revised version was administered to the sampled population of the study.

Data Collection Procedure

The copies of the questionnaire were administered by the researcher herself to the selected students. The researcher sought permission from Headmasters/ Headmistresses of the sampled schools through letters, and permission granted before administering the questionnaire to the sampled respondents at the scheduled time. The researcher explained the purpose of the study and the procedure for responding to the questions in the questionnaire to the respondents. The reason why the researcher did that was to help the respondents to get better understanding in order to provide their independent opinions on the questions. The researcher administered the questionnaire to the respondents who were given ample time (maximum of one hour) to respond to the questionnaire and return them. All the 203 students selected to participate in the study completed and returned their questionnaires (100% return rate). In all, one week was used for the distribution and the collection of the completed questionnaires from the heads and students.

Data Analysis

After data collection, the researcher cross-examined the data to ascertain accuracy and completeness. The researcher used Statistical Package

for Service Solutions (SPSS version 16.0) computer software to analyse the data. The data were analysed and interpreted using measures of central tendency and measures of dispersion. The findings were presented in frequency and percentage tables.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This chapter presents analysis of data and the discussion of findings. The data has been analysed with respect to the research questions of this study.

Research Question 1: What is the trend of enrolment in Agriculture Science Students from 2009/ 2010 to 2013/ 2014 academic years in Senior High Schools in the Akuapem North District?

The responses are presented in Table 2

Table 2: Trend of enrolment in Agriculture Science from 2009/2010 to 2013/2014 academic years in sampled schools

Academic Year	Enrolment in Agricultural Science	Total Student Enrolment	Percentage of Agricultural Science Students Enrolled
2009/2010	64	279	23.0
2010/2011	54	298	18.0
2011/2012	84	592	14.0
2012/2013	29	301	10.0
2013/2014	21	287	7.0

Source: Field Data, 2015

Table 2 reveals that the total number of students enrolling in for Agriculture Science as an elective area of study in the selected Senior High School increased from 64 in 2009/2010 academic year to 84 in 2011/2012 academic year, but the percentages dropped from 23% to 7% over the period under review. The table shows that less than 24% of all the Senior High School Students who enrolled in between 2009/2010 and 2013/2014 academic years chose Agriculture Science. From these data, it is discovered that few students take Agriculture Science as an elective subject as compared to the number of students that study other disciplines despite the importance of

Agriculture to this country. Stabler, (1969) asserted that during colonial era, the Agriculture Science course was held in low esteem by both parents and students. Student-respondents were asked to indicate the reasons why they chose Agriculture Science as their elective area of study. This was to unearth the factors affecting the choice of Agriculture Science as a program of study. The findings are presented in Table 3.

Table 3: Reasons why students chose Agriculture Science

Reasons for choosing Agriculture Science	Frequency	Per cent
Personal Interest	29	58
School Policy	3	6
Influence from parent and teachers	2	4
Students' gender	3	6
Students performance	13	26
Totals	50	100

Source: Field Data, 2015

Table 3 shows that twenty Nine of the Student -respondents, representing fifty eight per cent of the total student- respondents in 2012/ 2013 and 2013/ 2014 academic years chose Agriculture Science as an elective area of study because of their personal interests in the subject. It was also realized that two of the Students respondents representing four per cent of the total students. Population in 2012/ 2013 and 2013/ 2014 academic years indicated that they were influenced by their parents and teachers to study Agriculture Science. From the findings of the study, it can be said that the major factors influencing students' choices for Agriculture Science as an elective area of study in Senior High Schools were their personal interest in the subject and their performance. However, socio-demographic factors such as the sex or gender of the student and school policies have also been recorded. The

findings are supported by Apori, Zinnah and Annor (2003), in Ghana where they established that students decisions to choose Agricultural Science subjects as an elective area of study were influenced by gender and socio-economic background of student, the level of knowledge about prospects in choosing Agriculture as vocation, the influence of parents, guardians and peers who accord Agriculture low recognition compared to other professions.

Research Question 2: How adequate are the learning materials for Agricultural Science subjects in Senior High Schools in the Akuapem North District?

Students were asked to rate the level of adequacy and availability of some learning resources used in their schools. The findings are presented in Table 4.

Table 4: Adequacy of learning resources in the schools

Resource	Adequate		Inadequate		Not in usable condition		Not Available		Totals	
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)
Teachers	174	85.7	29	14.3	0	0	0	0	203	100
Text book	65	32.0	91	44.8	5	2.5	42	20.7	203	100
School farm	10	4.9	20	9.9	9	4.4	164	80.8	203	100
Agriculture tools	35	17.2	108	53.2	15	7.4	45	22.2	203	100
Agriculture rooms/classes	99	48.8	24	11.8	20	9.8	60	29.6	203	100
Computers	75	36.9	87	42.9	20	9.9	21	10.3	203	100
Livestock unit and tools	5	2.5	65	32.0	10	4.9	123	60.6	203	100
Agriculture laboratory	30	14.8	30	14.8	12	5.9	131	64.5	203	100

Source: Field Data, 2015

Results in Table 4 shows that 174 (85.7%) of the student- respondents indicated that they have adequate teachers in their Schools and 99 (48.8%) of the student- respondents also indicated that they have adequate Agriculture rooms/ classes in their Schools. In addition, the respondents indicated that Textbooks (44.8%), agricultural tools (53.2%) and computers (42.9%) were inadequate. School farms, livestock units/tools and agricultural laboratories were not available in most (4) of the five schools studied. From the findings of the study, it can be argued that inadequacy and unavailability of some learning resources in Senior High Schools in the Akuapem North District is a major cause of the wrong perception and poor attitude towards the learning of Agriculture Science by the students.

Students' respondents were asked to indicate the frequency of the usage of some learning resources in the schools. The findings of the study are as shown in Table 5.

Table 5: Frequency at which learning resources are used in the schools

Resources	Most frequent		Frequent		Not frequent		Rarely or never		Totals	
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)
Chalk/marker boards	123	60.6	70	34.5	10	4.9	0	0	203	100
School farm	0	0	10	4.9	50	24.6	143	70.4	203	100
Laboratory	45	22.2	40	19.7	76	37.4	42	20.7	203	100
Computers	65	32.0	50	24.6	72	35.5	16	7.9	203	100
Resource person	39	19.2	25	12.3	67	33.0	72	35.5	203	100
Text books	55	27.0	29	14.3	72	35.5	47	23.2	203	100
Visual aids	30	14.8	35	17.2	48	23.6	90	44.4	203	100

Source: Field Data, 2015

Table 5 shows that chalk/marker boards were most frequently used for learning as indicated by 123(60.6%) of the students-respondents. Also laboratory, computers and text books were not frequently used as indicated by 76 and 72 of the student- respondents representing 37% and 35.5% of the total population of the study respectively. It also turned out that resources such as School farm, models/ visual aids and resource persons, were rarely or never used as indicated by 143 (70.4%), 90 (44.4%) and 72 (35.5%) of the student-respondents respectively. The researcher went ahead to find out from the students respondents if they are satisfied with the resources used for the learning of Agricultural Science in their Schools. This was done to find out if the inadequacy and unavailability of some learning resources could be a cause to low enrolment in Agriculture Science. The results are presented in Table 5.

Table 6: Students level of satisfaction with the availability of garden tools

Responds	Frequency	Per cent
Very satisfied	10	4.9
Satisfied	27	13.3
Dissatisfied	64	31.5
Very dissatisfied	102	50.2
Totals	203	100.0

Source: Field Data, 2015

Data carried in Table 6 shows that 102(50.2%) of the student-respondents were very dissatisfied and 64 (31.5%) of the student-respondents were also dissatisfied about the availability and the adequacy of garden tools and equipment in their schools. This shows that a total of 166 (81.7%) student-respondents were dissatisfied with the availability and/or adequacy of garden tools and equipment in their schools. This indicates that most of the schools

have inadequate or do not even have garden tools and equipment necessary for Agriculture practical and demonstrations. Lack of such facilities could be one of the causes that lead to the low enrolment in Agriculture Science. This was obvious that the unavailability of some resources, negatively affected the perceptions of students towards Agriculture Science subject.

In addition, 50.2% (n=102) of the student- respondents indicated that they were very dissatisfied about the availability of garden tools in their schools. From their satisfaction level, it can be argued that they were not able to use garden tools effectively because the ratio of students to garden tools was too much. Similarly, the student- respondents were requested to indicate the level of their satisfaction with the adequacy of Livestock Production Tools and Equipment for learning in their Schools. Their responses are captured in table 7.

Table 7: Students' level of satisfaction with the availability of livestock production tools

Response	Frequency	Per cent
Very satisfied	20	9.7
Satisfied	29	14.1
Dissatisfied	35	17.0
Very dissatisfied	119	57.8
Totals	203	100.0

Source: Field Data, 2015

The results in Table 7 indicate that 119 (57.8%) of the student-respondents, were very dissatisfied and 35 (17.0%) of the student-respondents, were also dissatisfied with the availability of the livestock production tools and equipment in their Schools. This shows that a total of 154 (74.8%) of the

student-respondents indicated that livestock production tools and equipment were inadequate or not available. This means that most of the schools do not have adequate livestock production tools and equipment necessary for practical and demonstrations. It can therefore be concluded that, in most of the schools, livestock production tools and equipment are either inadequate or not even available at all.

Lack of such facilities can negatively affect students' perceptions towards Agriculture Science subject thereby leading to the low enrolment of Students in Agriculture Science as an elective area of study in the Senior High Schools. The student- respondents were also asked to indicate their level of satisfaction with their schools' proper maintenance and care for the available tools and equipment. Table 8 presents the students' response on the issue.

Table 8: Students' level of satisfaction with proper maintenance and care for the available tools and equipment

Respond	Frequency	Per cent
Very satisfied	20	9.9
Satisfied	61	30.0
Dissatisfied	77	37.9
Very dissatisfied	45	22.2
Totals	203	100.0

Source: Field Data, 2015

Table 8 shows that 77 (37.9%) of the student- respondents were dissatisfied and 45 (22.2%) of the student- respondents were very dissatisfied about the way and manner of which Agriculture Tools and Equipment were maintained and cared for. This means that there are no measures put in place

by some schools to ensure proper care and maintenance of the available tools and equipment.

Finally, concerning the Agricultural learning resources and other related facilities, student- respondents were asked to indicate their level of satisfaction with the adequacy of Agricultural learning facilities, that is, Agricultural rooms, stores and workshops in their schools. The findings are presented in Table 9.

Table 9: Students' level of satisfaction with the adequacy of agriculture learning facilities

Response	Frequency	Per cent
Very satisfied	30	14.8
Satisfied	30	14.8
Dissatisfied	59	29.0
Very dissatisfied	84	41.4
Totals	203	100.0

Source: Field Data, 2015

Findings in Table 9 shows that 84 (41.4%) of the student- respondents and 59 (29.0%) of the student- respondents were very dissatisfied and dissatisfied respectively that the number of Agriculture rooms, stores and workshops in their schools. This implies that most schools do not have adequate rooms, store and workshops to improve performance in the Agriculture Science subject. It was realized that inadequacy of Tools and Equipment affects the perceptions of students towards the learning of Agriculture Science subject.

The study further aimed at establishing the effect of the availability of Agricultural land on students' perceptions towards Agriculture Science

subject. Student- respondents were asked to indicate their level of satisfaction with the amount of land set aside for Agricultural practical and project work in their schools. The findings are presented in Table 10.

Table 10: Students' level of satisfaction with land set aside for agricultural practical work

Response	Frequency	Per cent
Very satisfied	0	0
Satisfied	10	4.9
Dissatisfied	55	27.1
Very dissatisfied	138	68.0
Totals	203	100.0

Source: Field Data, 2015

Table 10 shows that 138 (68.0%) of the student- respondents, were very dissatisfied, 55 (27.1%) of the student-respondents were dissatisfied about land allocated for Agricultural practical work in their schools. From Table 10, it was realized that majority of the student-respondents were dissatisfied with the land allocated for Agricultural practical work in their respective schools.

Based on the results from Tables 4, 5, 6, 7, 8, 9, and 10, it can be concluded that learning resources for Agriculture Science in most of the Senior High Schools in the District are either inadequate or unavailable at all. These are strong factors that could have probably caused the reducing enrolment trend in Agricultural Science as an elective area of study in Senior High Schools. These findings are in agreement with those of the Government of Kenya report (Ministry of Education and Human Resource Development,

1999), which states that quality education cannot be achieved and sustained if the resources and facilities are not available in sufficient quantities.

Research Question 3: What are the perceptions of students on the study of Agricultural Science as a subject in the Senior High Schools in the Akuapem North District?

Student-respondents were asked to determine their levels of agreement to the statement that Agricultural Science Subjects are difficult to study at the Senior High School levels. Findings on Table 11 show that 79 (38.9%) of the student-respondents disagreed whiles 39 (19.2%) also disagreed strongly with the notion that Agriculture Science Subjects are difficult to study. The results indicated that 58.1% (n=118) of the student- respondents agreed that Agriculture Science Subjects is not difficult to study and post good results. This implies a positive attitude towards Agriculture Science subjects by the students. The findings are presented in Table 11.

Table 11: Level of difficulty of Agriculture Science subjects

Response	Frequency	Per cent
Strongly agree	35	17.2
Agree	50	24.6
disagree	79	38.9
Strongly disagree	39	19.2
Totals	203	100.0

Source: Field Data, 2015

Despite the fact that more than half of the student- respondents disagreed that Agriculture Science subjects are difficult to study, 85 of the student- respondents, representing 41.8% of the total population for the study

also agreed that Agriculture Science Subjects are indeed difficult to study at the Senior High School levels. This also indicates a negative attitude and wrong perception towards the study of Agriculture Science Subjects. In view of this, the study further looked out for some of the factors that are likely to be responsible for Agricultural Science Subjects being perceived as difficult to study at the Senior High School. Student- respondents were asked to indicate whether their teachers send them to weed or dig as punishment on the school compound. The findings of the study are presented in Table 12.

Table 12: Weeding or digging as punishment in school

Response	Frequency	Per cent
Yes	144	70.9
No	59	29.1
Totals	203	100.0

Source: Field Data, 2015

The results in Table 12 show that 144 (70.9%) of the Student-respondents indicated that they were given such punishments while 59 (29.1%) of the respondents also indicated that they were not given such punishments. From the findings of the study, it can be said that punishment methods such as digging or weeding in Schools affected students perceptions and attitudes towards Agriculture Science Subjects.

These findings agree with Bergman (1980), who reported that in many schools, students are sent to work on the school farms as punishment which is bound to create a negative attitude to farm work rather than fostering positive attitude towards Agriculture Science subjects. The student- respondents who indicated that they were given punishments to dig or to weed were further

asked to indicate the frequency with which they were given such punishments. The findings of the study are presented in Table 13.

Table 13: Frequency of punishment

Frequency of punishment	Frequency	Per cent
Very often	45	31.3
Often	59	41.0
Rarely	40	27.7
Totals	144	100.0

Source: Field Data, 2015

Table 13 shows that 59 (41.0%) of the student- respondents indicated that they were often punished by either weeding or digging on the School compound. The study also found out that 45 (31.3%) of the student-respondents indicated that they were given such punishments very often and 40 (27.7%) of the respondents indicated that they were rarely punished. To find out for some of the factors that are responsible for Agriculture Science being perceived as difficult course to study at Senior High Schools, student-respondents were asked to indicate whether Agriculture Science has many branches as compared to other courses at the Senior High Schools. The results are presented in Table 14.

Table 14: Scope of Agricultural Science posing difficulty to study

Response	Frequency	Per cent
Yes	158	77.8
No	45	22.2
Totals	203	100.0

Source: Field Data, 2015

Results in Table 14 indicate that 158 (77.8%) of the student-respondents said Agriculture Science has so many branches which make the course difficult to study whiles 45 of the student- respondents, representing 22.2% of the total population for the study also said Agriculture Science do not have so many branches. The study further looked at whether the subjects under Agriculture Science make the course difficult to study. Student-respondents were asked to indicate their level of agreement to the statement that some Agriculture Science subjects make the course difficult to study. The results are presented in table 15.

Table 15: Subjects under Agriculture Science posing difficulty to study

Responds	Frequency	Per cent
Strongly agree	25	12.3
Agree	87	42.9
Disagree	50	24.6
Strongly disagree	41	20.2
Totals	203	100.0

Source: Field Data, 2015

From Table 15, 112 (55.2%) of the respondents strongly agreed to the statement that some subjects under Agriculture Science make the course difficult to study. Ninety-One (91, 44.8%) of the student-respondents also disagreed that some subjects under Agriculture Science make the course difficult to study. Student-respondents were further asked to indicate their level of difficulty in some subjects under Agriculture Science. The results were as shown in Table 16.

Table 16: Perceived level of difficulty in some subjects under Agriculture Science

	Very difficult		Difficult		Not difficult		Not certain		Totals	
Subject	f	(%)	F	(%)	f	(%)	f	(%)	f	(%)
General Agriculture	5	2.5	25	12.3	103	50.7	70	34.5	203	100
Animal husbandry	5	2.5	55	27.1	63	31.0	80	39.4	203	100
Crop husbandry & horticulture	5	2.5	30	14.8	36	17.7	132	65.0	203	100
Fisheries	15	7.3	30	14.8	31	15.3	127	62.6	203	100
Forestry	25	12.3	17	8.4	29	14.3	132	65.0	203	100
Physics	32	15.8	91	44.8	10	4.9	70	34.5	203	100
Chemistry	49	24.1	70	34.5	9	4.4	75	36.9	203	100
Elective mathematics	47	23.2	25	12.3	9	4.4	122	60.1	203	100

Source: Field Data, 2015

From Table 16 it was realized that 103 (50.7%) of the student-respondents stated that General Agriculture is not difficult to study and 70 (34.5%) of the student-respondents said they were not certain about General Agriculture being difficult or not. For the Animal Husbandry, 63 (31%) of the student- respondents stated that it is not difficult to study whiles 80 (39.4%) of the student- respondents said they were not certain. The Table 16 also revealed that 36 (17.7%) of the student- respondents stated that Crop Husbandry and Horticulture were not difficult to study whiles 132 (65.0%) of the student-respondents said they were not certain about it. With Fisheries, 45 (22.1%) of the student-respondents stated that it was difficult to study whiles 127 (62.6%)

of the student- respondents said they were not certain about it. Forty Two (42, 20.7%) of the student- respondents stated that Forestry was difficult to study and 132 (65%) of the student- respondents said they were not certain about it.

With Physics, 123 (60.6%) of the student- respondents stated that it was difficult to study whiles 70 (34.5%) of the student- respondents were not certain. In addition, 119 (58.6%) of the student-respondents stated that Chemistry was difficult to study whiles 75 (36.9%) of the student- respondents were not certain. The study discovered that 72 (35.5%) of the student-respondents perceived Elective Mathematics to be difficult to study whiles 122 (60.1%) of the student- respondents, were not certain about it being difficult or not. It can be concluded from the responses that, students perceive the inclusion of Physics, Chemistry and Elective Mathematics has made Agricultural Science difficult to study for students in the Senior High Schools. The study further found out from the student- respondents whether inadequate Agriculture practical lessons make the course more difficult to study. The findings were as shown in Table 17.

Table 17: Inadequate practical lessons make Agriculture Science more difficult to study

Response	Frequency	Per cent
Strongly agree	117	57.6
Agree	66	32.5
Disagree	15	7.4
Strongly disagree	5	2.5
Totals	203	100.0

Source: Field Data, 2015

From Table 17, 183 (90.1%) of the student- respondents agreed to the statement that inadequate practical lessons make Agricultural Science more difficult to study. It can be deduced that inadequate or lack of practical lessons

in Agriculture Science Subjects might be one of the leading factors that are responsible for the development of poor attitude towards the course. This result is confirmed by Vandenbosch (2006) who stated that agriculture education and training is special in comparison with other forms of education and training in that agriculture cannot be learned solely in the field or in the classroom. This is because the practical work makes the study of the subject both interesting and easier. Tamakloe et al. (2005) have attested to this fact. Student- respondents were further asked to indicate their level of agreement to the statement that the availability of School Farm makes Agriculture Science Subjects more practical and interesting. The results were as shown in Table 18.

Table 18: Availability of school farm makes Agriculture Science Subjects more practical and interesting

Response	Frequency	Per cent
Strongly agree	153	75.4
Agree	45	22.2
Disagree	5	2.4
Strongly disagree	0	0.0
Totals	203	100.0

Source: Field Data, 2015

From Table 18 it can be seen that 198 (97.6%) of the student-respondents were in agreement that the availability of school farm makes Agriculture Science Subjects more practical and interesting as against five (2.5%) of the students who disagreed that the availability of school farm makes Agriculture Science Subjects more practical and interesting to study.

the findings of this study do not agree with the findings of Selmes (1974), Sweeter (1984), Seawell (1990) and Resmick (2000).

The study went further to find out from the student-respondents if the knowledge gained from Agricultural practical enhances their skills in farming. The results were presented in Table 19.

Table 19: Knowledge gain from Agricultural practical enhances students' skills in farming

Response	Frequency	Per cent
Strongly agree	148	72.9
Agree	45	22.1
Disagree	5	2.5
Strongly disagree	5	2.5
Totals	203	100.0

Source: Field Data, 2015

From Table 19, it can be seen that 193 (95%) of the student-respondents stated that the knowledge gain from Agricultural Science practical lessons enhance their skills in farming, whiles only 10 (5%) of the student-respondents disagreed to that statement.

Based on the results from Tables 17, 18 and 19, it can be concluded that the availability of School Farm in the Senior High Schools can make the learning of Agriculture Science Subjects more practical and interesting and can also help students gain more knowledge and skills in Agriculture. Schultz, Wieket, Howard & Dickson (2008) confirmed this in a similar finding. They stated that supervised Agriculture experience enables students to develop skills in Agriculture related career areas.

From the findings, it can also be concluded that, adequate Agricultural practical lessons in Senior High Schools can help Students gain more knowledge and have good attitude towards Agriculture Science Subjects and make them capable of solving farming problems. These results confirm those of Saina, Kathuri, Rono and Kipsat (2012) who stated that Secondary School Agriculture broadens the farmers' capacity makes them more effective, self-reliant, resourceful and capable of solving farming problems.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the summary of the study, key findings, conclusions and recommendations.

Summary of the Study

The purpose of the study was to examine the perceptions of students on the studying of Agriculture Science in Senior High Schools in the Akuapem North District. To achieve the objectives of the research, the study sought to analyse the enrolment trend in Agriculture Science from 2009/ 2010 to 2013/ 2014 academic years, examine the availability of learning resources for Agricultural Science subjects, determine the perception of students on the study of Agricultural Science as a subject in the Senior High Schools in the Akuapem North District and finally make recommendations for policies in agricultural education.

Descriptive survey design was used for the study. The target population for the study was the students from Senior High Schools in the Akuapem North District. In all, 203 students were purposively sampled from five Senior High Schools. The main instrument used for the collection of data for the study was questionnaire which was mainly made up of closed-ended items. Descriptive statistic was used to analyse the data. The researcher presented the findings in frequency and percentage tables.

Key Findings

The major findings of the study were:

1. Agriculture Science as an elective area of study now attracted few students as compared to other areas of study. Students from the

Junior High Schools choose Agriculture Science based on their interest for the subject and their performance in the subject.

2. Students who are offering Agriculture had interest in it because they considered Agriculture Science as an applied subject and therefore perceived it to have better career options after school.
3. Concerning the availability of learning resources for Agriculture Science, the study reported that inadequacy and unavailability of learning resources such as school farms, agriculture tools and equipment, and text books in the Senior High Schools, have made the subject very difficult to study, probably contributing the low enrolment trends in Agriculture Science.
4. Students perceive Agriculture Science to be very difficult because they have to study Physics, Chemistry and Elective Mathematics in addition to pure Agricultural courses.
5. Punishment given to students such as weeding school compound and digging makes students develop negative perceptions towards the learning of Agriculture Science.

Conclusions

The study concludes that few students now read Agriculture Science as an elective area of study at the Senior High School in Akuapem North District of Ghana because of the perceived difficulty in studying subjects such as Physics, Chemistry and Elective Mathematics. The inadequacy of agricultural tools/equipment and school farms for practical lessons in some of the Senior High Schools have also made many students not to pursue the course. Lack of these important learning facilities negatively affected the perceptions of

students towards Agriculture Science. The students therefore perceive Agriculture Science to be too abstract to learn instead of it being more practically oriented. The study concludes that the nature of punishment in schools whereby students are made to weed or dig makes students develop negative perceptions about Agriculture Science. They, therefore, perceive the course to be difficult to practice in nature, hence the low enrolment trend in Agriculture Science in Senior High Schools in the District.

Recommendations

Based on the findings of the study, the following recommendations are being made for consideration:

1. The Ghana Education Service should intensify education and counselling on the benefits and importance of agriculture to individuals and the country at the basic level and equally disabuse the minds of the students of any misconceptions they might have created as agriculture.
2. The Ministry of Education and the Ghana Education Service should supply Senior High Schools offering Agriculture Sciences requisite and adequate teaching and learning resources such as school farms, agriculture tools and equipment, and text books. This might help attract students to pursuit Agriculture Science at the secondary level.
3. Physics, Chemistry and Elective Mathematics teachers should adopt teaching strategies that will facilitate students' understanding of the subject and subsequently change their perception that the subjects are difficult to study.
4. School authorities and teachers should use other forms of punishment other than students weeding the school compound and digging because

students wrongly associate such punishments to the study of Agriculture Science.

Suggestions for Further Research

The following suggestions are made for further research:

1. The study should be replicated by other researchers in different districts and in other regions. This will enable inter district and inter regional comparisons to give a general picture of the situation.
2. A study is also needed to be undertaken to assess the perception of teachers towards the teaching of agriculture science in senior high schools.

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APPENDICES

APPENDIX A

QUESTIONNAIRE FOR HEADMASTERS /HEADMISTRESSES

The purpose of this research is to find out the perception of students on the learning of agriculture science in Senior High Schools in the Akuapem North District in the Eastern Region of Ghana. This is purely for academic purposes only. Kindly respond to all items frankly and honestly. No attempt will be made to associate your name or institution with the completed instruments. Confidentiality is assured.

Thanks for your cooperation.

DIRECTION: Please tick (√) the appropriate box corresponding to your choice(s) or provide the appropriate response (s) in writing.

Enrolment trend in agriculture science class from 2009/2010 to 2013/2014 academic years

1. Does your school offer Agriculture Science as an elective subject?

Yes ☐

No ☐

2. What is the enrolment trend of Agricultural Science students as a percentage of the total students' population between 2009 to 2014 academic years in your school?

	Academic Year	**Enrolment in Agricultural Science**	**Total Students Enrolled**	**Percentage of Agricultural Science Students Enrolled**
2	2009/2010			
3	2009/2010			
4	2009/2010			
5	2009/2010			
6	2009/2010			

APPENDIX B

QUESTIONNAIRE FOR STUDENTS

The purpose of this research is to find out the perception of students on the learning of agriculture science in Senior High Schools in the Akuapem North District in the Eastern Region of Ghana. This is purely for academic purposes. Kindly respond to all items frankly and honestly. No attempt will be made to associate your name or institution with the completed instruments. Confidentiality is assured.

Thanks for your cooperation.

DIRECTION: Please tick (√) the appropriate box corresponding to your choice(s) or provide the appropriate response (s) in writing.

SECTION A: Background information of respondents

1. Gender: Male ☐ Female ☐

2. Do you practice agriculture (farming) at home?

   Yes ☐

   No ☐

3. If yes, how?

   (a)Large scale farming ☐

   (b)Small scale farming ☐

   (c)Subsistence only ☐

4. If no why?

(a)We have no land ☐

(b)We don't value agriculture at home ☐

(c)Lack of economic power to purchase certified seed and inputs ☐

(d)I come from an urban area ☐

4. Which of the following influenced your selection of the course of study in the school?

(a)Personal interest ☐

(b)Influence from parents and teachers ☐

(c)School policy ☐

(d)Students' Gender ☐

(e)Student performance ☐

SECTION B: STUDENTS PERCEPTIONS ON THE AVAILABILITY OF LEARNING RESOURCES

5. Which of the following farms do you have in your school?

(a) School garden ☐

(b) Plantation farm ☐

(c) Poultry farm ☐

(d) Ruminants (sheep, goat and cattle) ☐

(e) None of the above ☐

6. Which of the following farm implements do you have in your school?

(a) Combine harvester ☐

(b) Tractor ☐

(c) Plough ☐

(d) Harrow ☐

(e) None of the above ☐

7. How often do you use the farm tools in your school?

(a) Very Frequent ☐

(b) Frequent ☐

(c) Not frequent ☐

(d) Not at all ☐

HOW WOULD YOU RATE THE ADEQUACY OF THE FOLLOWING LEARNING RESOURCES IN YOUR SCHOOL?

Tick (√) where appropriate

	Resources	Adequate	Inadequate	Not in usable condition	Not available
8	Teachers				
9	Text books				
10	School farm				
11	Agriculture tools				
12	Agriculture rooms/class				
13	Computers				
14	Livestock units and tools				
15	Agriculture laboratory				

16. Any other (specify) ……

The table below contains some learning resources in agriculture. Kindly indicate how frequent they are used in your school

	Types of Learning Resources	**Most Frequent**	**Frequent**	**Not Frequent**	**Rarely or Never**
17	Chalk & chalk board / Marker & Marker board				
18	School farm				
19	Laboratory				
20	Computers				
21	Resource person				
22	Text books				
23	Models / Visual Aids				

24. Are you satisfied with the availability of garden tools in your school?

(a) Strongly Satisfied ☐

(b) Satisfied ☐

(c) Dissatisfied ☐

(d) Strongly dissatisfied ☐

25. Are you satisfied with the availability of livestock production tools and equipment for learning in your school?

(a) Strongly Satisfied ☐

(b) Satisfied ☐

(c) Dissatisfied ☐

(d) Strongly Dissatisfied ☐

26. Indicate your level of satisfaction with your schools' proper maintenance and regular acquisition of new tools and equipment

(a) Strongly Satisfied ☐

(b) Satisfied ☐

(c) Dissatisfied ☐

(d) Strongly Dissatisfied ☐

27. Indicate your level of satisfaction with the adequacy of Agricultural learning facilities that is Agricultural rooms, Stores, and Workshops in your school.

(a) Strongly Satisfied ☐

(b) Satisfied ☐

(c) Dissatisfied ☐

(d) Strongly Dissatisfied ☐

28. Indicate your level of satisfaction with the amount of land set aside in your school for agriculture practical and project work.

(a) Strongly Satisfied ☐

(b) Satisfied ☐

(c) Dissatisfied ☐

(d) Strongly Dissatisfied ☐

SECTION C: THE LEVEL OF DIFFICULTY OF AGRICULTURE SCIENCE FOR STUDENTS

29. Indicate your level of agreement to the fact that agriculture Science is difficult to study.

(a) Strongly Agree ☐

(b) Agree ☐

(c) Disagree ☐

(d) Strongly Disagree ☐

30. Does your teacher send you to dig or weed as a punishment on the school compound?

(a) Yes ☐

(b) No ☐

31. If you are given such punishments, how often are they?

(a) Very often ☐

(b) Often ☐

(c) Rarely ☐

32. Do you see Agricultural science having so many branches?

(a) Yes ☐

(b) No ☐

INDICATE YOUR LEVEL OF DIFFICULTY IN THE FOLLOWING SUBJECTS UNDER AGRICULTURAL SCIENCE

	Subject	**Very Difficult**	**Difficult**	**Not Difficult**
33	General Agriculture			
34	Animal Husbandry			
35	Crop Husbandry & Horticulture			
36	Fisheries			
37	Forestry			
38	Physics			
39	Chemistry			
40	Elective Mathematics			

TO WHAT EXTENT DO YOU AGREE TO THE FOLLOWING STATEMENTS? PLEASE TICK WHERE APPROPRIATELY

	Statement	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
41	Subject under Agricultural Science make the course difficult to study				
42	Most students think that the				

	additional science subjects such as physics and chemistry make Agricultural Science more difficult to study				
43	The inclusion of physics and chemistry in agricultural science do not help in the production of crops and animals				
44	Inadequate practical makes Agricultural Science difficult to study				
45	The availability of school farm make Agricultural Science more practical and interesting				
46	The knowledge gain from Agricultural practical enhances students skills in farming				

END OF QUESTIONNAIRE.

THANK YOU!!!