

**INFLUENCE OF SELECTED FACTORS ON THE INTEGRATION OF
PRACTICAL SKILLS IN TEACHING AND LEARNING OF AGRICULTURE IN
SECONDARY SCHOOLS IN MATAYOS SUB COUNTY, BUSIA COUNTY,
KENYA**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for the Award of the
Degree of Masters of Education in Curriculum and Instruction of Masinde Muliro
University of Science and Technology**

November, 2024

DECLARATION

This thesis is my original work and has not been presented to any other university for any award.

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CERTIFICATION

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DEDICATION

This work is dedicated to my family; husband Paul, children Ayub, Ken and Laura.

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ABSTRACT

Agriculture plays an important role in the economy of any nation as it is the background on which most of the activities emanate from. Throughout history, agriculture has had a significant impact on civilization, serving as one of its primary drivers. The purpose of the study was to investigate selected factors influencing the integration of practical skills in the teaching and learning of agriculture in secondary Schools in Matayos Sub-County, Busia County, Kenya. The study was guided by three main objectives namely: To establish the effect of curriculum guidelines on integration of practical skills in teaching and learning of agriculture in secondary schools; to determine the teacher related factors and their influence on integration of practical skills in teaching and learning of agriculture in secondary schools and to determine the influence of institutional-related factors on integration of practical skills in teaching and learning of agriculture in secondary schools. The study was guided by the experiential learning theory as postulated by John Dewey. The study used the descriptive survey design. Data was collected using questionnaire, interview schedules and observation. The study sampled a total of 367 respondents which comprised of 23 principals sampled using saturated sampling, 23 agriculture teachers sampled purposively and 320 students sampled through random and 1 quality assurance and standard officer. Quantitative data was cleaned and analyzed using SPSS version 26 and data presented using tables and charts. Qualitative data was coded and themes identified then presented alongside quantitative data. The study revealed that curriculum guidelines were very clear on the scope of practical integration and hence, influenced integration of practical skills but teachers lacked proper implementation measures. Additionally, the study revealed that teacher related factors like teaching methods and teacher competency influenced integration of practical skills. The teaching methodology deployed by teachers did not favor integration of practical skills as most teachers preferred lecture method. Finally, the study established that institutional related factors like availability of resources, administration support and collaboration with other stakeholders influenced integration of practical skills. The schools faced various challenges which hampered integration of practical skills in teaching and learning of agriculture in secondary school in Busia Sub-County, Kenya. The study teachers be provided with regular professional development courses to enhance their teaching methodology. Additionally, adequate resources should be allocated for practical purposes in teaching and learning of agriculture.

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ABBREVIATIONS AND ACRONYMS

FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
KCSE	Kenya Certificate of Secondary Education
KIE	Kenya Institute of Education
KNEC	Kenya National Examination Council
KICD	Kenya Institute of Curriculum Development
NACOSTI	National Council for Science, Technology and Innovation
SD	Standard Deviation
SDG	Sustainable Development Goals
SPSS	Statistical Packages of social sciences
USAID	United States Agency for International Development
USA	United States of America
MDG	Millennium Development Goals
NEPAD	New Partnership for African Development
ASDA	Agriculture Sector Development Agency

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Agricultural education has played a major role in ensuring that agriculture as a core activity of humanity continues to flourish and sustainability in matters productivity achieved. Agricultural education dates back in time, but gained momentum in 19th century. Before that, the United States of America (USA) government created a department that was mandated with ensuring that the necessary information is disseminated on agricultural basis in the year 1862. Since then, agricultural education has increased to an extent that schools have transitioned from just teaching and learning of basic agriculture theoretically to a blend of both theoretical and practical (Jean & Christian, 2018).

In response to the need for both technical knowledge and skills, education stakeholders have not only worked hard to see the improvement in class work but showed initiative to enhance the practical skills of the students in secondary level or high schools. However, to achieve the optimum results in agricultural education in schools, a number of factors play a major role. As a result, various nations in the world have achieved different considerable steps in stepping up the aspect of agricultural education in classes and outside class (Jjuuko, 2021).

Globally, scholars agree that practical approach is an important aspect in the teaching of agriculture. Practical approach prepares students for real life experience outside the domain of pen and paper. However, some challenges are said to cause a negative interplay between

practical approaches the curriculum dictates. For instance, lack of facilities and high cost of practical and training have an effect on the frequency and quality of practical classes (Maina, 2020). Additionally, poor management, maintenance and upkeep of facilities and budget deficient do not allow the students to learn practical skill development (Maharaj-Sharma & Sharma 2017).

According to Case (2010), the classical model of agricultural education was first implemented in schools throughout Europe. The North European prevocational education paradigm, which incorporated apprenticeship, first appeared in 1896. It was the North American model in 1910, focusing on vocational education and requiring student demonstration plots in homes and schools. There were classrooms and a group of young and senior farmers in the Future Farms of America (FFA) class. The East European model, which provided pre-vocational training including polytechnics, was in use between 1930 and 1950. State Farm was included on the model from 1960 to now.

Ingram et al..., (2018) notes that in USA, agricultural education is from the high school level up to the university level. Students who come from high schools and want to progress to the tertiary level with agricultural education find it easy to continue with agricultural classes thanks to the theoretical and practical background they are given. Infact, USA has been known to advance the science of agriculture and related technology. To ensure that the students are versatile with agricultural knowledge, agricultural education in high schools in USA are anchored on three critical approaches: class room conceptualization of agriculture, exposure to agricultural experience through supervisory practicums and involvement in Future Farmers of America, a national organization dealing with youth

farmers. By doing so, students are not only equipped in class work but tested intensely on various classroom concepts in class practically to see how the knowledge gained can be converted in useful experience.

Another country that has ensured proper adoption of agricultural education is china. As a country that has developed most from agricultural experiences, China has attempted to strike a balance with the changing needs of their market economy. Lai et al., (2020) assert that the main challenge in their agricultural system emanates from their rich agricultural background which they want to preserve at the same time exploring the new agricultural advancements within agricultural domain. As a result, China chose to front agricultural education in endeavoring economic reforms. Research indicate that it is upon realizing the importance of agricultural education, an agricultural movement pegged on economic changes was stated through developing a curriculum that was worth meeting the traditional and modern blend of agricultural education. For advancement purposes, various educational stakeholders have worked hard to ensure that they advance the practical agriculture to prepare students leave school as full-fledged farmers (Lai et al., 2020).

In the region, secondary agricultural education in Africa has been criticized for being a bit conservative and out of step with contemporary student demands and trends. As a result, it is unable to completely address community needs through the use of agriculture (Blackburn, Bunch, & Haynes, 2017). One of the main challenges facing agricultural education in the region is centered on acquisition of information rather than acquisition of practical skills applicable to agricultural development. Even though it has been established that farming in secondary schools gives a lot of opportunities for students to learn and

comprehend different practices and concepts, little remain done in most countries in Africa. It is sad to note that very few high school graduates have pursued agriculture as a profession, a fact that indicates that something is amiss in the education system (Francisca, & Samsudin, 2018). Majority of the high school graduates in agriculture tended to do studies in higher educational institutions without mastering their knowledge on practical skills in agriculture to increase food production (Amuriyaga, Hudu & Abujaja, 2018).

Hakkinen et al. (2017) revealed that agricultural education has been implemented in secondary schools in Africa on basis of different models. For instance, agriculture is a compulsory subject in some countries, whereas it is optional in others. In Namibia, agriculture is an economic indicator, the teaching of practical skills in agricultural science education contributes a great role to the country's development (Fu et al., 2018). Through agricultural education, the practice of farming continues to evolve from traditional farming for food to commercial farming even in African countries though at a very slow pace (Ighakpe, 2018).

The developments in agriculture and the failure in the application of practical skills in teaching of agriculture education in the 21st century presents a challenge which countries in Africa ought to beat (Fu et al., 2018). Hulela and Miller (2003) notes that in Botswana, agricultural education is compulsory for students at junior secondary schools. However, the teaching of agricultural education is theoretical and not practical oriented. Agriculture is supported in schools through provision of adequate resources thus making the teaching and learning a success. In Botswana agricultural education is optional and optional at senior

secondary level and there is little implementation of practical skills in the teaching and learning. In Lesotho, it is optional at all levels and taught theoretically rather than practically. Therefore, the students lack practical skills at the end of secondary school level.

Uganda as a nation has tried to cope up with the realities of empowering students in agricultural background to meet the challenges of food insecurity. As a result, it has put in place various programs to support agriculture education in secondary schools. For example, the Agriculture in Education program provides grants to secondary schools to establish and manage school gardens and livestock projects, while the Youth Entrepreneurship Scheme provides funding and support to young people engaged in agriculture and other economic activities (Okiror et al., 2017).

In Kenya, Agriculture remains to be one of countries main source of employment as its versatility in terms of job market remain wide. Economically, it is estimated that 80% of the Kenyan population depends on agriculture. Therefore, a strong foundation in agricultural education in schools would imply a step up in agricultural productivity and vice versa. However, rigidness in implementation of proper practical teaching and learning approach in Kenya has led to mismatch between what the academic prospects are and the real situation in secondary schools (Nyasimi & Kosgey, 2017). Secondary school level agriculture has not been fully embraced due to lack of facilities and skilled workforce which contribute negatively to skill overall development (Konyango & Asienyo, 2015).

Teaching of practical agriculture in Kenyan universities usually involves both classroom and field-based learning. Classroom-based learning focuses on theoretical concepts related to agriculture, while field-based learning involves practical application of these concepts

on farms, in laboratories, and in various agricultural settings. Additionally, many universities in Kenya have established agricultural research centers, which offer students opportunities to participate in research projects related to agriculture. These centers also offer training and consultancy services to farmers and other stakeholders in the agricultural sector (Ochuodho, 2016). The Kenyan government has also put in place various policies and programs aimed at promoting the teaching and learning of practical agriculture in universities. Such policies and programs include funding for research, development of agricultural curricula, and provision of scholarships and loans to students pursuing agricultural courses (Ndirangu & Udoto, 2011).

It is worth noting that schools should step up teaching of agriculture in secondary schools. They should not only impart knowledge on production but also address the acquisition of practical skills that would help mentor youth who are self-reliant and resourceful to the country. In reality, integration of practical skills in the teaching and learning of agriculture in secondary schools will enable the government meet its agenda of employment and food just as USA and China have. Matayos in Busia County should not be left behind. The agriculture curriculum has topics which require well equipped agriculture workshops, school farm and machines that should be available in most schools (Osakwe *et al*, 2017). Despite the fact that this is the case, it is worth noting that some factors have to be put in consideration in order to capture the full capacity of practical agriculture education in secondary schools. This study will establish how practical agriculture is handled in Matayos in Busi County.

1.2 Statement of the Problem

Given that agriculture serves as the fundamental pillar of sustenance in both rural and urban areas of Kenya, it is crucial for stakeholders within the agricultural sector to collaborate in order to effectively mobilize resources and implement policies that promote optimal functioning within the agricultural industry. Agricultural processes encompass a multitude of cycles, ranging from production to consumption. Consequently, each participant can identify an opportunity to make a meaningful contribution to the agricultural economy cycle. Existing research indicates that nations that have implemented rigorous agricultural methods have not only achieved economic stability but have also effectively addressed the persistent challenge of food security in numerous global locations.

In order to achieve a comprehensive agricultural economic cycle, it is necessary to establish a solid foundation, since it guides the direction of all other agricultural activities. When considering the establishment of a solid foundation, schools play a crucial role as they serve as the fundamental institution for agricultural education, facilitating the advancement, creativity, and innovation within the agricultural sector. Therefore, it is crucial to prioritize the teaching and learning of agriculture in secondary schools, particularly in countries such as Kenya, where agricultural education is taught. This prioritization should encompass both theoretical and practical components, in accordance with the education requirements. When examining successful nations such as the United States and China, it becomes evident that a significant emphasis is placed on the practical approach, which is given careful consideration to ensure that students get a comprehensive foundation.

Previous studies have shown that agricultural education is not fully embraced within educational institutions, with many concerns identified, such as inadequate teaching and learning methodologies and a dearth of practical applications (Kipkemei, 2012; Obare & Kibet, 2015; Njoroge and Orodho 2017 & Njura, 2020). In the realm of agriculture, it is imperative to adopt pragmatic methodologies in order to achieve the objectives outlined in the curriculum. The lack of flexibility in effectively incorporating practical skills into the teaching and learning of agriculture in secondary schools is a concerning trend that hampers academic progress, professional development, and the overall food security of the country. Instruction stakeholders must reconsider this concerning trend that could potentially endanger the future of agriculture instruction in secondary schools. It is therefore against this background that current study sought to establish the factors which influence the integration of practical skills in the teaching and learning of agriculture in secondary schools in Kenya's Matayos Sub-County, Busia County.

1.3 Purpose of the Study

The study investigated the influence of selected factors on the integration of practical skills in the teaching and learning of agriculture in secondary Schools in Matayos Sub-County, Kenya.

1.4 Research Objectives

The specific objectives of the study were as follows;

- i. To establish the influence of curriculum guidelines on integration of practical skills in teaching and learning of agriculture in secondary schools in Matayos Sub-County are adhered to.

- ii. To determine the influence of teacher related factors on integration of practical skills in teaching and learning of agriculture in secondary schools.
- iii. To determine the influence of institutional-related factors on integration of practical skills in teaching and learning of agriculture in secondary schools.

1.5 Research Questions

- i. What is the role of agriculture curriculum guidelines on integration of practical skills in teaching and learning of agriculture in secondary schools in Matayos Sub-County?
- ii. What is the influence of teacher related factors on integration of practical skills in teaching and learning of agriculture in secondary schools in Matayos Sub-County?
- iii. How do institutional-related factors influence integration of practical skills in teaching and learning of agriculture in secondary schools in Matayos Sub-County?

1.6 Significance of the Study

The study can help secondary school education stakeholders identify the resources and support needed for effective practical instruction, in addition to the main barriers to integration of practical skills in agriculture education. By understanding these factors, the study can inform the development of policies and programs aimed at improving the quality of agricultural education in secondary schools in Busia Sub-County and potentially in other regions as well. Additionally, the study can also help to raise awareness of the importance of practical skills in agricultural education among educators, policy-makers and

stakeholders in addition to addressing the aspect of food security. The results of the study can be used to make informed decisions about resource allocation and teacher training, and can provide guidance for curriculum development and implementation. Kenya is that it highlights the importance of equipping students with the skills and knowledge needed to produce food sustainably. Practical skills in agriculture are critical for food security, as they enable students to understand and apply principles of sustainable food production. Furthermore, given the fact that agriculture is the back bone of Kenyan economy, the study may be used as reference point to strengthen agricultural sector through secondary school education, which will indeed enhance careers of students and create more employment opportunists. Finally, the current study can be application in benchmarking future research in the field where similar variables can be applicable.

1.7 Scope of the Study

The study was geographically limited to 23 secondary schools of Matayos sub-county. It focused on teachers and learners of agriculture who are the key stakeholders in the school system. The study sought to establish the factors influencing the integration of practical skills in the teaching and learning of agriculture in secondary schools Busia Sub County. The content scope of integration of practical skills was limited to curriculum guidelines, teacher related factors and institutional based factors. The study methodological scope was limited to the descriptive survey research design.

1.8 Assumptions of the Study

The current study was pegged on two main assumptions which with emphasis on the main topic in context. First, the study assumed that the respondents understood the same

curriculum taught in schools. Apart from that, the researcher also assumed that the factors that are under study here which affect integration of practical skills in teaching and learning of agriculture in secondary schools.

1.9 Limitations of the Study

Obtaining access to schools and participants in the research seemed difficult due to the need for permissions from schools and other authorities at a point. The researcher overcame this limitation by building relationships with schools and other authorities, and by obtaining the necessary permissions to conduct the research. By doing this, the researcher made it easy to engage with various participants of the study on the legal ground. Additionally, the research was limited by the time and budget factor, which restricted the scope of the study and the methods used to collect data. The researcher overcame this limitation by using cost-effective methods to collect data.

1.10 Operational Definition of Terms

For the purpose of the study, the following were key terms used in the study as defined in the context of the study:

Agricultural Education: This is the process of guiding students through the steps of learning about and working with agriculture, natural resources, and land management so that they can either enter the workforce immediately or continue their education to further their agricultural careers.

Integration:	Refers to incorporation of practical lessons in the teaching of agriculture subject in secondary schools.
Learning Resources:	Are materials or human beings that are used to aid learning in schools.
Practical Skills:	These are hands on activities performed by both the teacher and the learner in teaching and learning of agriculture for example fertilizer application, manure preparation, planting of crops.

1.11 Summary of Chapter one

Chapter one dealt with the introduction. It included the following; background to the study, statement of the problem, research questions, significance of the study, scope, assumptions of the study and limitation/ delimitation of the study, and operational definition of key terms and organization of the study

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews related literature on the area of study; Factors influencing the integration of practical skills in the teaching and learning of agriculture in secondary schools. In order to identify the gaps, literature review was handled thematically and gaps of the reviewed literature pointed out.

2.2 General Literature Review

Education is perceived as a mechanism through which the social, economic, technological, and industrial demands of a nation's progress can be effectively addressed (Vinovskis, 2015). An education system must provide its constituents with the knowledge, skills, and personal capacities required to sustain an economy in development. In order to acquire these competencies, agricultural education in secondary schools should incorporate practical experience (Aholi and Konyango, 2018). Provision and utilization of pertinent resources are necessary for the successful integration of practical skills. The significance of supplying and effectively utilizing suitable agricultural education resources on a global level cannot be overstated. Although the subject is mandated to be included in the school curriculum of nearly every nation, resource provision and utilization are often overlooked.

Practical skills are of paramount importance in providing students with the essential knowledge and abilities, thus establishing their status as an integral element of the agriculture curriculum in secondary schools. Despite the considerable emphasis placed on

practical skills in agricultural education, the degree to which these skills are taught in the classroom fails to meet the standards set by the curriculum, which emphasizes their integration with theoretical work. As per the stipulations of Vision 2030, it is imperative that graduates possess the requisite knowledge, skills, dispositions, and professional proficiencies to actively participate in rural communities' endeavors to devise inventive resolutions to their intricate challenges. This necessitates an increased focus on problem-based and experimental learning strategies. Golnaraghi, Grant, and Longmore (2018) The insufficient focus on practical labor in agricultural education has an adverse effect on both exam performance and the acquisition of relevant skills. The Phelps-Stokes Commission noted that African indigenous populations were more self-reliant in the agricultural sector prior to Kenya's independence in 1962. In light of this, the commission recommended that Africans pursue vocational agricultural education (Jones, 1926). The colonial administration gave increasing importance to the inclusion of agriculture education in primary schools, intermediate schools, and primary teacher's colleges, as supported by the Beecher committee and the Binns report in 1949 and 1952, respectively (Harlen, 2018). Due to the absence of secondary education during that period, the Phelps-Stokes Commission discouraged the simultaneous implementation of agriculture as a subject in schools. After Kenya achieved independence, agriculture was integrated into revised general science curricula and introduced as a secondary school subject (National Association of Agricultural Education, 2020).

The limited availability of agricultural education in secondary institutions in Kenya can be attributed to inadequate resources and a skilled labor force (Konyango and Asienyo 2015). Enhancing the caliber of instruction requires interventions in order to impart knowledge to

students effectively. To bring agriculture education into practice, Aholi (2018) argues that facilities and resources must be aligned with the curriculum and syllabus. Research has demonstrated that the implementation of practical approaches in agricultural education can enhance both food production and safety. In agriculture education, the frequency and caliber of practical classes may be compromised by inadequate facilities and the exorbitant expenses associated with practicals and training (Hakkinen et al., 2017). According to Engler and Kreither (2014), inadequate financial resources, poor management, and insufficient facility maintenance and upkeep impede students' ability to acquire practical skills. Given contemporary trends and a discrepancy between theory and practice, the secondary school agriculture education system is rigorous (Kagwiria, 2013; Nwaogwugwu & Obele, 2017). Curriculum and syllabi are frequently dominated by classroom hypotheses, to the detriment of rule-based knowledge and practice. The predominant focus of educational materials is on enhancing agricultural productivity. Agriculture is less attractive due to the infrequent instances in which multiple revenue sources can be generated concurrently (Solomonson et al., 2018).

2.3 Theoretical Framework

A theory is an explanation for a phenomenon or an argument for a certain course of action that is based on a coherent set of principles. The research relied heavily on John Dewey's philosophy of learning by experience.

2.3.1 Experiential Learning Theory

John Dewey came up with the idea of experiential learning in 1938. It asserts that real learning depends on experiences. Students are encouraged to take an active role in their

education, experiential learning emphasizes the application of classroom knowledge, and it establishes connections between previously learned and gained information. Students must possess the capacity for independent thought and the willingness to experiment with practical skills-based learning. The National Council for Agricultural Education (2020) asserts that agricultural education and experiential learning have been inextricably linked for decades. Agriculture education programs place significant emphasis on the learning by doing theory (Maharaj-Sharma & Sharma, 2017). Conversely, this enables learners to apply theoretical principles acquired in the classroom to practical, real-life scenarios. Golnaraghi, Grant, and Longmore (2018) For experimental learning activities to strengthen the connection between cognitive learning and life skills, they must be meticulously planned.

Dewey (1938), as cited by Konyango (2012), posits that human beings develop their own understanding and knowledge of the universe by adopting a learning-oriented perspective. Agriculture students might be granted access to such opportunities by virtue of the hands-on training they acquire. The instructor will furnish students with explanations, examples, and comparisons subsequent to the illustrative agriculture practical, with the intention of aiding them in the formulation of their own analyses of the experiences. The importance of practical experience as a learning tool is emphasized in this study, given that the operational nature of agriculture requires proficient communication of concepts (Herman and Pinard, 2015).

Laboratory-based instruction and student-centered instruction are the two components of learning activities. Since educational activities revolve around the students, teacher-

centered instruction does not make a substantial contribution to student learning. By engaging in activities such as conducting experiments (in class) and discussing the results with their classmates, students can enhance their comprehension. Aholi (2018) is the source. The frequency, nature, and quality of practical exercises have an impact on how well students grasp novel concepts. By engaging in these laboratory exercises, pupils are afforded the chance to gain an understanding of the methodologies and abilities that enable cognitive transformations that culminate in improved academic achievement (Herman and Pinard, 2015). This theory serves as a valuable framework for directing research that involves the incorporation of practical skills into agricultural education and instruction. It is recommended that instructors incorporate practicals into their courses in order to facilitate student engagement and the acquisition of practical skills and knowledge, which ultimately leads to enhanced academic performance. The student selects and then applies the appropriate practical skills during study, in accordance with this theory.

2.4 Empirical Literature Review

This section discusses previous research on the relationship between the variables under investigation. This is addressed in accordance with the objective of the study.

2.4.1 Integration of of Practical skills in teaching

Integrating practical skills in teaching agriculture involves combining theoretical knowledge with hands-on experience to ensure students acquire a comprehensive understanding of agricultural practices. This approach is essential for developing the

competencies needed to succeed in agricultural careers and to apply scientific principles in real-world contexts.

The integration of practical skills in agricultural education has gained considerable attention in the academic and educational sectors. This literature review explores the key concepts, benefits, challenges, and methodologies associated with integrating practical skills in teaching agriculture. Dewey's Experiential Learning Theory emphasizes the importance of experience in the learning process. Dewey argues that education should not only involve the passive reception of information but also active engagement with real-world tasks (Dewey, 1938). In agricultural education, experiential learning can include fieldwork, laboratory experiments, and internships. According to Kolb (1984), experiential learning involves a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation, which is particularly relevant for agricultural education where hands-on experiences are critical.

Darrah et al.'s (2021) research emphasizes how well experiential learning improves student retention and engagement. According to the study, students who take part in practical exercises like fieldwork and laboratory experiments understand and apply agricultural topics more effectively. As Kolb (1984) explains, experiential learning cycles are still significant; in agricultural settings, concrete experiences are followed by introspective observation, abstract conceptualization, and active experimentation. Using actual agricultural problems, PBL, according to research by Chumbley et al. (2021), helps students improve their critical thinking and problem-solving abilities. Using this approach, students can fully explore topics like sustainable farming methods, soil health,

and insect control. According to the study, students that participated in PBL demonstrated notable gains in their capacity to apply theoretical knowledge to real-world scenarios. Smith and colleagues (2021) talk about how agriculture management software, drones, and GPS technology are being included into the curriculum. Using these tools improves education and gets students ready for the technological developments in the agriculture sector. According to the research, pupils that are adept with these technologies are more prepared for contemporary farming methods.

According to Johnson et al. (2021), students that complete internships or apprenticeships get invaluable practical experience and industry knowledge. Bridging the gap between classroom instruction and practical agriculture operations requires these encounters. The study underlines the need of collaborations between agricultural companies and educational institutions to offer worthwhile internship opportunities. A study by Miller and Washburn (2021) shows that project-based learning activities, like taking care of a student farm or building a community garden, help students get better at working together and using their real skills. PBL participants, according to the study, demonstrated higher motivation and a better grasp of agricultural processes. Taylor et al. (2021) state that live examples and hands-on workshops are the best ways for students to get better at using what they've learned. The research emphasizes how important these approaches are for learning intricate agricultural processes because they offer chances for skill improvement and instant feedback. Brown et al. (2021) examines the advantages of schools working together with farming companies and groups. Through these partnerships, the curriculum is made to meet the demands of the business and expose students to cutting-edge methods and technology. As

efficient ways to promote industry-academia collaborations, the report suggests frequent industrial visits, guest lectures, and cooperative projects. A Gonzalez and Smith (2021) study highlights the value of curriculum integration in enabling students to make the connection between theory and practice. Students who take the integrated method are guaranteed to have a comprehensive grasp of agricultural systems, which will help them to use scientific concepts in practical settings. According to study by Walker et al. (2021), evaluating students according to how well they can complete particular assignments and work through practical issues yields a more precise assessment of their skills. The study recommends that in order to guarantee a thorough evaluation of student abilities, competency-based assessment should be included with traditional assessments.

Johnson and Anderson (2021) found that immersing students in community-based agricultural projects enhances their understanding of the social and economic aspects of agriculture. Both students and the community gain from the real-world experiences offered by community gardens, outreach programs, and regional farming projects.

2.4.2 Curriculum Guidelines and its effect on Teaching and Learning Agriculture

Abalu (2010) investigated how secondary school students' academic outcomes compared across different timetable, syllabus, and curriculum combinations. Case study research was used, and 5,200 high school teachers and students were the focus of the study. The study found that schools overemphasized factual knowledge in the classroom at the expense of practical application. This was done at the expense of students' learning expectations being grounded in both theoretical and practical aspects. The study determined that the

curriculum and schedule are structured in a manner that burdens instructors with an excessive amount of work, which disrupts their schedules and affects student performance.

Mwangi (2010) conducted research on agricultural education policy guidelines in secondary institutions in Kiambu County. The research was conducted in the form of a case study. Using questionnaires and interview schedules, data was collected. To analyze data, descriptive statistics were utilized. The study revealed that agriculture instruction was primarily theoretical, with little practical labor for students. In addition, the study revealed that the teaching and learning of agriculture in secondary institutions has been hampered by a lack of appropriate teaching and learning materials that correspond to the current job market.

2.4.2 Teacher related factors and Integration of Practical Skills in Teaching and Learning of Agriculture

According to research, there is a significant correlation between teacher-related factors and agricultural student performance. In this instance, a number of teacher-related factors, including teacher academic qualification, teacher effectiveness, teaching approach, teacher experience, teacher rate of syllabus completion, teacher attitude toward the subject, teacher relationship with the students, and teacher guidance were determined to have a strong relationship with student performance (Bett, 2021).

Researchers have reached different results about how teacher academic qualification influences agriculture students' performance. Abbas and Mir (2012) discovered that teachers with higher academic credentials should have more to give than those with lower credentials. The argument underlying such findings is that teachers with advanced degrees

can perform exceptionally well because they have a firm foundation and are well-equipped. Cakir and Bichelmeyer (2016) and Jega and Julius (2018), however, found that a teacher's level of education had no bearing on their pupils' achievement in agriculture. Moreover, according to a study by Huang and moon (2009), teacher qualification accounts for between 40 and 60 percent of the variance in student performance.

Teaching experience plays a crucial role in assuring students' consistent performance in both practical and theoretical agriculture. According to Kosgei et al. (2013), teachers with extensive teaching backgrounds have access to a wealth of knowledge and strategies that they may use to address a variety of challenges in the classroom. This benefits all students in the long run. In addition, an experienced teacher would know how to handle various students, including those who may not be able to comprehend the material as readily as the rest. Nonetheless, Bolaranwa et al. (2020) assert that teachers with extensive teaching experience are able to comprehend and transform knowledge from various domains that would have been incomprehensible to students into valuable information that will benefit the students.

Waiganjo (2015) conducted research to identify the factors associated with the pedagogical practices of agriculture teachers at public secondary schools in Nakuru County, Kenya. The study concludes that agriculture content dissemination must be executed properly because it is one of the most important factors in implementing agriculture curriculum. The study employed a correlational research design and utilized questionnaires to acquire data from 151 teachers. The results indicated that there was no significant correlation between teacher-related variables and teaching strategies. The study also determined that there was

no significant relationship between institutional factors and instructional approaches. Nonetheless, additional findings established a significant relationship between curriculum and instructional strategies. The study recommended that the curriculum be strengthened, particularly on the practical side, to enable students to participate in practical activities.

Obiyai and Olisa (2022) looked into the best ways to teach practical agriculture for self-employment in senior high schools in the Nigerian state of Bayelsa. A total of 190 agriculture educators were surveyed using questionnaires for this study, which employed a descriptive survey research design. Students' long-term decisions were found to be significantly impacted by students' exposure to good agriculture instruction using a hands-on method. The results of the study showed that the practical part of education was not sufficiently handled, as evidenced by the lack of a correlation between the teaching methods used in practical classes and the number of students who went on to start their own businesses. In light of this, the study recommended that government funding be increased to ensure that institutions have the resources necessary for effective practical instruction. However, the context study does not investigate other variables that may influence the teaching and learning of practical agriculture; thus, the current study is necessary.

Njura et al. (2020) carried an investigation into the relationship between agricultural teaching strategies and food security in Kenya produced a number of findings. The study adopted a descriptive research design and gathered data through focus group discussions, interviews, and questionnaires. Initially, the study determined that lecture-based instruction, class projects, problem-solving, class discussions, and field trips were prevalent in the institutions in this field of study. Second, the study determined that modern

teaching techniques, such as the use of a digital learning approach, were never used to link technology-based agriculture and conventional methods. Therefore, the study concluded that the pedagogical methods utilized in these institutions had no significant correlation with food security. As a result, the study recommended that schools, in conjunction with the government, consider adopting such modern approaches to education to combat food insecurity. In reflection to the current study, the study in context introduces a sub variable on technology-driven instruction but does not address other sub variables that may be incorporated in teaching practical agriculture, a gap that the current study attempts to fill.

Ng'ang'a (2007) conducted a study on the instructional methods and academic performance of agriculture students in Kenya's Loitokitok Division Kajiado District. The argument of the study is based on the fact that many resources have been devoted to improving education standards in the country, but there is no reflective evidence. As a supplement to data from students and instructors, the study employed qualitative research methodology and gathered literature from diverse sources, including journals, books, and newspapers. The study found that lecturing was the most prevalent method employed by teachers when instructing agriculture, with less emphasis on practical application. This was due to the fact that students aspired to pass exams, so teachers focused more on exam preparation than practical skill development.

Nzomo (2021) conducted a study on the attitudes of secondary school pupils in Kenya's Mukaa Sub-County, Makueni County, toward selected agricultural teaching methods. The research employed a descriptive research design and was guided by the theory of rational action. The study confirmed, as previous research had indicated, that the lecture method

was the most frequently used teaching method, followed by the demonstration method, the cooperation method, and field excursions, which were used infrequently. However, the student favored field excursions and demonstrations over the standard lecture method, which seemed tedious and required a great deal of theoretical work. Therefore, the study recommends that the ministry of education develop policies through the teacher's service commission to encourage the use of student-centered teaching methods by teachers. However, the focus of the study was limited to teaching methods, which is only one of the factors influencing the effective teaching and learning of practical agriculture, leaving a gap for the current investigation.

Bett et al. (2021) conducted research with the title Influence of Teaching Experience on Use of Practical Methods among Secondary School Agriculture Teachers in Bureti Sub County, Kenya. The argument of the study was based on the reality that students should be provided with a strong practical foundation to enable them to acquire the necessary skills and develop a positive attitude toward agriculture. The study determined that instructional experience plays a crucial role in ensuring that students progress in practical lessons. This was the case given that an experienced teacher understands the curriculum guidelines as well as the background variables involved in the practical application of teaching strategies. Therefore, the study recommended that agriculture teachers be provided with more hands-on experience to enhance their practical agriculture teaching experience. It is important to note, however, that other variables on teacher-related factors would also affect a teacher's teaching methodologies in addition to the teaching experience examined in this study. This implies that the current study endeavors to address a scope gap.

Munawaroh (2017) did a study named "the impact of teaching methods and learning environment on students' learning achievement in craft and entrepreneurship subjects at vocational high school." The research utilized questionnaires to collect data from 108 participants. The findings of the study indicated that teachers' methods of instruction and the learning environment generated had a significant impact on students' competency-related learning achievements.

Muchinri et al. (2013) attempted to determine the perceptions of secondary school agriculture held by agriculture teachers. The research utilized descriptive statistics on a sample of 31 agriculture educators. According to the findings, agriculture instructors believe that agriculture is a crucial subject for the entire secondary school curriculum. In addition, the study revealed that the professional qualifications and teaching experience of teachers have no significant impact on their perceptions of agriculture as a subject. The study recommended that the education ministry concentrate on maintaining and enhancing this positive perception. Despite the fact that the study contributes significantly to the corpus of knowledge in the context of agricultural education, it does not explore other teacher-related factors on the aspect of teaching practical agriculture; thus, this study is necessary.

Makori (2019) surveyed secondary school students in Kisii and Nyamira Counties to learn why they choose agriculture as a major. The study employed a cross-sectional survey methodology to obtain data from a sample of 352 respondents via questionnaires. The results indicated that the instructional methods employed by teachers have a significant impact on the subjects chosen by students. In addition, it was determined that parents, the

ministry of education, and background factors play a significant role in the selection of agriculture as a subject by secondary school students. The study suggested that instructors' adherence to the curriculum should be closely monitored to ensure that their instruction meets both student and Ministry of Education requirements. The study also recommended that students receive adequate guidance to ensure they comprehend the significance of selecting agriculture as a subject. The study concluded by recommending that the ministry of education increase funding to schools so that they can acquire sufficient teaching and learning materials.

Ochieng (2019) focused on public day secondary schools in Kisumu West Sub-County to identify the management elements influencing students' Agriculture academic performance. The study used a descriptive research strategy to gather information from 276 participants. There was a considerable correlation between the availability of material resources, students' attitudes, and teachers' personalities, all of which had an effect on agricultural education. In addition, the results indicated that learner supervision can improve students' agricultural performance. Therefore, the study recommends that teachers participate in more seminars that will help them comprehend various methods to motivate students to pursue excellence through agriculture. The study also recommended that appropriate mechanisms be implemented to promote the availability of physical resources that would improve students' attitudes toward agriculture and performance. However, the study did not investigate the impact of factors on the instruction and learning of practical agriculture, necessitating the current investigation.

Ongang'a et al. (2015) studied the influence of students' interest and involvement in extracurricular activities on their choice to major in Agriculture in Uriri Sub-County's secondary schools. The study is predicated on the fact that secondary school subject selection is given a great deal of weight in the Kenyan educational system. The study utilized an expo-facto research design and questionnaires to acquire data from 152 respondents. Students' participation in peer group activities did not have a significant impact on their selection of agriculture courses, according to the findings. In addition, the study established that student interest played a significant role in determining how students chose agriculture as a subject. The study suggested that schools should encourage young farmer organizations to steer discussions about agriculture as a subject in a different direction that would increase student interest in the subject.

Cheplogoi (2011) intended to determine the attitudes of teachers and students in selected secondary schools in the Baringo North District regarding agriculture. The research employed both qualitative and quantitative methodologies to acquire data from 222 respondents through the use of questionnaires. The findings of the study indicated that teachers had a positive attitude toward the teaching of agriculture, whereas the attitudes of the pupils were found to be negative. Regarding the curriculum, the study determined that the majority of teachers had difficulty implementing it due to its wide variety of topics and lack of resources to comprehensively address them. This factor had the most significant impact on the instruction of practical lessons. Given the importance of agriculture to national development, the study recommended that curriculum developers consider making agriculture a fundamental subject. In addition, the study recommended that the agriculture curriculum be revised to reduce the excessive workload associated with lengthy topics,

which tend to demoralize students and foster a negative attitude towards agriculture. Oyier (2013) conducted a study on the influence of selected factors on the academic performance of pupils in Kenya's Rachonyo North Sub-County. The results indicated a significant and positive correlation between teacher factor and performance. In addition, Njoroge and Orodho (2017) examined the influence of teachers' actions on the curriculum implementation. A descriptive survey was conducted on a population of 250 respondents to collect data for the study. According to the study, the curriculum that is intended to be taught differs from the curriculum that is actually taught. Results showed that institutional factors such as teacher quality (as measured by training level), competence, experience, innovativeness, commitment, teaching load, job satisfaction, financial and non-financial motivation, and class attendance all play a positive role in student achievement and the dissemination of agriculture curricula.

Wootoyitide (2010) conducted research in Uganda on the issue of practical integration in agricultural education. Due to the fact that agriculture is a practical subject that requires facilities such as land, apparatus, and a well-equipped laboratory, the study found that agricultural education entails numerous practical activities. These facilities require funds that many institutions are unable to acquire, thereby preventing them from carrying out the necessary practical work. The research suggests that practical agricultural education can be taught by utilizing adequate teaching and learning resources.

Cheruiyot et al. (2017) investigated the effect of teaching and learning materials on students' selection of agriculture as a subject in secondary institutions in Kenya's Nakuru County. The study is predicated on the premise that secondary school agriculture education

and learning are contingent on the resources allocated to its enhancement. Utilizing questionnaires to capture information from a sample of 357 respondents, the study was conducted as post-hoc research. The study revealed that students' selection of agriculture as a subject was substantially influenced by the availability of agricultural teaching and learning resources. The availability of resources and facilities makes it simple and pleasant to instruct practical lessons. The research sheds light on a crucial aspect of agricultural teaching and learning, namely the resources and facilities involved. However, it only addresses a single factor that promotes the practical integration of agriculture, leaving a void that the present study seeks to fill.

Ongw'eno et al. (2021) investigated how the Demonstration Teaching Method (DTM) and Problem-Based Learning (PBL) approaches affected students' agricultural performance. The study employed a non-equivalent control group pre-test-post-test design with a quasi-experimental research methodology. It was also influenced by constructivist learning theory and collected data from 587 respondents using the agriculture achievement test, which was designed to measure students' achievement. The post-test results indicated that PBL had a significant positive impact on student performance, with a mean score of 57 compared to 48 for DTM. Therefore, the study concluded that PBL instruction was more effective than DTM. The study recommended that agriculture instructors consider the effect of their teaching method on student performance. Specifically, the study suggested that the PBL method would be optimal everywhere. Despite the extremely informative findings, the study only examined two teaching strategies, leaving out others. In addition, the study does not discuss the implications of this on the integration of practical agricultural teaching and learning; hence, the current study.

Muchiri et al. (2015) examined the effect of computer-assisted instruction on students' motivation to pursue agriculture in secondary schools in Kenya. The study was conducted with the understanding that one of the reasons why agriculture is taught in Kenyan schools is to expose students to the fundamentals of cultivation. The study employed the Solomon four quasi-experimental research design and utilized questionnaires to acquire data from a sample of 327 respondents. The results indicated that computer-assisted instruction is as essential to the modern teaching process as it is to the students' motivation to study agriculture. Therefore, the study recommended that education stakeholders work to ensure that schools are adequately equipped with computer laboratories so that they can implement computer-assisted instruction. The study's findings are crucial to the context of the research, but it only addressed one teaching method variable, leaving gaps that this study aims to fill.

2.4.3 Integration and use of Practical in Teaching and Learning of Agriculture

Kipkemei (2012) conducted research in Uasin Gishu County on the efficacy of agriculture instruction on the acquisition of skills for self-sufficiency in accordance with the general objectives of the agriculture curriculum. In this investigation, a case study research design was utilized. The data was collected using a questionnaire, and descriptive statistics were used to analyze it. The study revealed that practical skills are not taught as specified in the curriculum; consequently, self-reliance skills cannot be fully realized because the majority of students leave school without appropriate practical skills instruction.

Okiror et al. (2017) investigated the link between academic success in agricultural science and students' engagement with and application of course material in Uganda. A descriptive

cross-sectional research approach was used to gather information from 100 participants. The study found that a lack of textbooks, ineffective administration, and insufficient money are only some of the many factors that affect students' motivation and the quality of instruction. The report suggests that in order to help the country reach Agenda Four, all parties involved in the education system should ensure the teaching of relevant agricultural skills to students.

Kidane and Worth (2015) conducted a study on the emphasis of vocational and technical education in South Africa, and the findings indicated the need to incorporate a practical approach into the teaching and learning process. Dlamini (2017) conducted a study on the effect of practicum in higher education institutions in Austria and found that students develop positive discipline when they participate in the teaching and learning process. This suggests that practicals are important to students because they break up the monotony of their previous classroom experience, in which they simply sat and listened to the teacher. On the other hand, they had the opportunity to participate in the teaching and learning process for practical subjects. Because it has an effect on student performance, the study recommended incorporating practical skills into agricultural education.

Famiwole (2015) conducted research on practical agricultural education in secondary institutions in Johannesburg, South Africa, and discovered that farming and agro-allied business organizations require specialized services for the production of agricultural sales. According to a study conducted in Lesotho by Pesanayi, Mashozhera, and Khistane (2016), agricultural education at the college level equips students to manage agriculture work at home. The research examined the objective of practical education in agriculture, which is to

educate current and future farmers in agricultural proficiency. These studies did not consider the incorporation of practical skills in the teaching and learning of agriculture in secondary institutions in Kenya because they were conducted in different contexts. Bosma et al. (2016) conducted research in Vietnam on the challenges encountered by policymakers in implementing sustainable vocational and practical subjects in secondary schools, such as agricultural science. The findings revealed that Agricultural science confronts a number of obstacles, including a lukewarm response from students and parents, which has led to opposition to its inclusion in the high school curriculum. This study suggested that agricultural science education in schools should be regarded as a means of preparing children to participate in productive agriculture, thereby supporting Agenda 4.

Koros (2008) conducted a study on the perceptions of students regarding technical and vocational education. In this investigation, a case study research design was utilized. Data was collected using questionnaires and interview schedules. For data analysis, descriptive statistics were utilized. According to the analysis, technical and vocational education is essential for professional success. This study was conducted in various locations, and the findings do not support generalizations, necessitating further research in another region, such as Busia County.

Tom (2009) examined the goals of post-secondary agriculture education. Using a descriptive cross-sectional research design, questionnaires and interviews were used to collect data for the study. The study concluded that the objectives included equipping students with the skills and knowledge necessary to increase agricultural productivity. The study recommends that agricultural teachers in secondary schools adopt a practical skills

orientation by emphasizing the attitude and positive motivation of their students towards agriculture and rural development initiatives. The importance of agriculture in secondary schools to rural development necessitates the need to instill the proper attitude through the curriculum.

2.4.4 Institutional Factors Influencing the Integration of Practical Agriculture

Kabugi (2013) investigated agricultural instruction and learning in secondary schools in Machakos County. Students' attitudes toward learning agriculture were influenced by the type of punishments they received, such as tending flowers, according to the study's findings. Inadequate resources, including school farms, agricultural apparatus, and agricultural classrooms, were also revealed by the survey. This report advises schools to utilize resources to enhance the development of students' practical abilities, which will assist them in achieving the Sustainable Development Goals.

Mugero and Nyambura (2015) investigated institutional factors influencing agriculture education in public secondary institutions in Tharaka Nithi County. The primary data were collected via questionnaires and supplemented with secondary data. The research found that sufficient teaching and learning resources create a conducive work environment that improves student performance and enables interaction between various practical learning processes and students. In accordance with vision 2030, the study recommends providing adequate resources to schools in order to improve agricultural performance.

Nyangau (2011) conducted a study on the perspectives of secondary school administrators, teachers, and students in Kisii County regarding the implementation of agricultural initiatives. Simple random sampling was used to acquire primary data via questionnaires.

The study found that the perceptions of school principals, instructors, and students are the primary drivers of agricultural project implementation. Agriculture is crucial to the education of the populace, and it inculcates values, attitudes, and knowledge, according to the study. Agriculture practicals should be required in all institutions, as these skills will improve food security.

Cheng and Dornyei (2007) conducted a study in China on the influence of attitude factors on the use of practical skills in secondary school agriculture instruction and learning. The study employed a cross-sectional survey methodology to acquire data from 180 respondents out of a total sample size of 350, using questionnaires and interview schedules. The study found that attitudes affect agricultural education, which in turn affects the application of practical skills. The study suggested that it is essential to comprehend the attitude factors because they determine the application of practical skills in agricultural education.

Hewitt (2010) conducted a study on the factors influencing career choice and its effect on performance. The study surveyed 250 individuals, employed a descriptive research methodology, and gathered data via questionnaires and an interview guide. The research found that intrinsic, extrinsic, or both factors affect career choice. The findings also revealed that secondary school characteristics that influence agriculture subject selection include the history of agriculture in the school, the availability of agriculture teaching resources, the school's location and type, and the students' and teachers' perspectives on the subject.

2.5 Conceptual Framework

According to Kothari (2014), a conceptual framework is a type of model that investigates the interplay between these two categories of factors. A variable that is assumed to modify the dependent variable is known as an independent variable. Figure 1.1 shows the conceptual framework used to guide this research. The independent variable is factors influencing integration which include; agriculture curriculum guidelines, teacher related factors and institutional based factors. The dependent variable is practical skills in the teaching of agriculture measured in terms of; improved grades in agriculture; increased enrollment; more career choice and more food security.

The researcher conceptualized that there is a relationship between factors influencing integration and practical skills in the teaching of agriculture which is in agreement with past studies conducted by (Kipkemoi 2001; Kolale and Ala 2013; Ozyoma 2011 ; Orodho 2014). Constructs of factors influencing integration are assumed to have an effect on practical skills in the teaching of agriculture for instance education policy guidelines (Abalu, 2010; Tom, 2009), application and integration of practical skills (Kipkemei, 2012; Kidane and Worth, 2015; Dlamini, 2015), institutional based factors (Oyier, 2013; Njoroge and Orodho, 2017; Owino, 2015; Kabugi, 2013). Attitudinal factors are also conceptualized to have an effect on the relationship between factors influencing integration and practical skills in the teaching of agriculture as depicted by Gopinath and Becker (2000).

INDEPENDENT VARIABLE

DEPENDENT VARIABLE

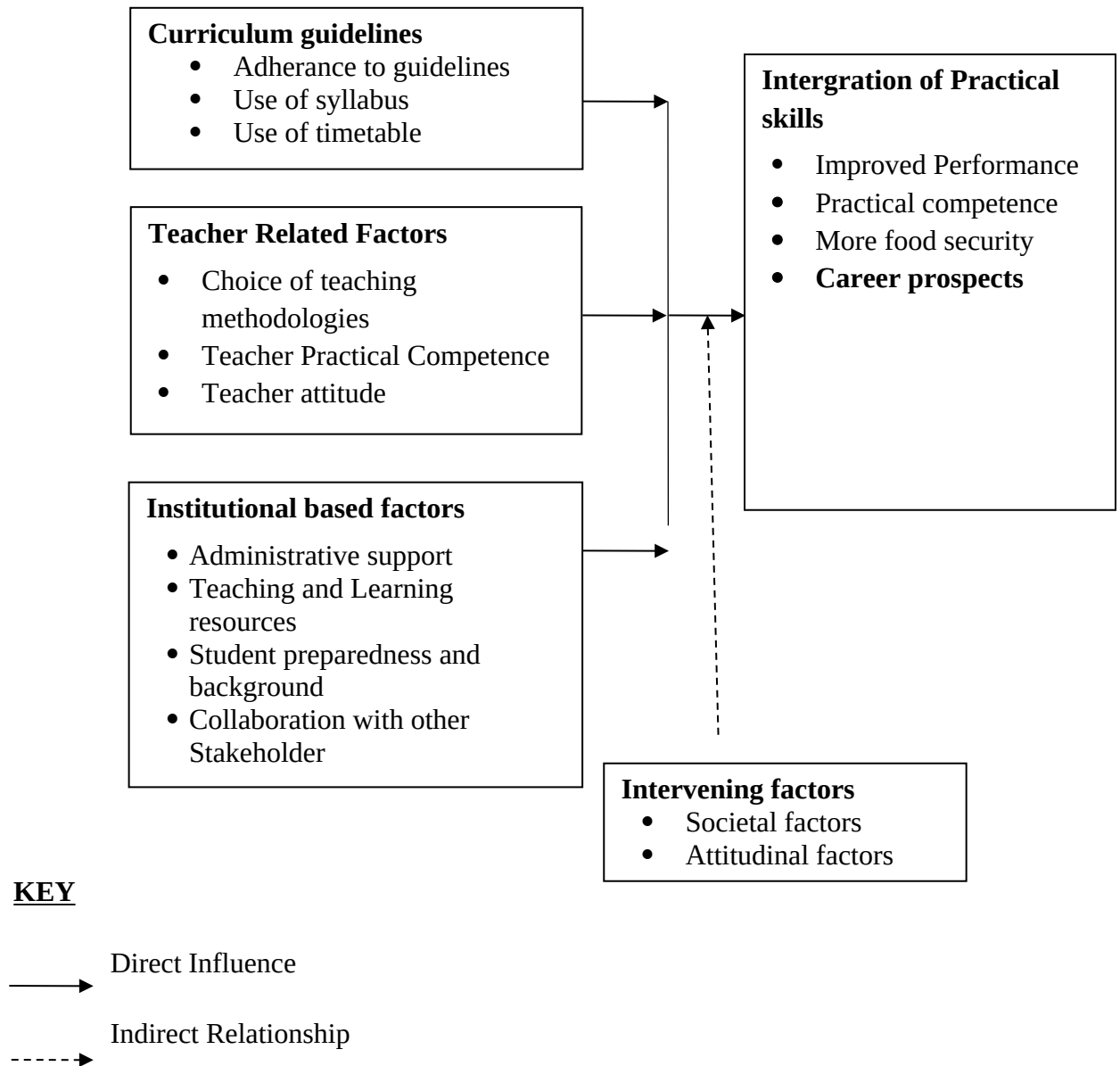


Figure 2.1: Factors Influencing the Integration of Practical Skills in the Teaching and Learning of Agriculture in Secondary Schools.

Source: Author (2019)

2.6 Knowledge Gap Reviewed Literature.

The literature review focused on the agricultural education. The practical learning of agriculture is a versatile field of study. It stretches beyond the classroom learning where students are strictly confined in a theory lesson. Due to this multifaceted nature, the inconsistencies observed under generalization to other studies, the findings above provide a mismatch of the expected results. Therefore, it is significant to independently explore the influence of selected factors on the integration of practical skills in the teachers and learning of agriculture in secondary school in Busia.

2.7 Chapter Summary

The chapter has highlighted empirical literature on the integration of practical skills in the teaching and learning of agriculture in secondary schools. Theoretical framework of the study, identified the study gaps and drawn the conceptual framework indicating on how the variables are linked.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology used in the study. It entails; research design, location of study, study population, sampling design, data collection instruments, validity and reliability of research instruments, data collection procedures, data analysis and ethical considerations.

3.2 Research Design

According to Kothari (2010), a research design is a conceptual framework that research is built upon and serves as a guide for the collecting and evaluation of data. This study utilized a descriptive research design. It allowed the researcher to profile the sample and compile all the necessary data. According to Mugenda Mugenda (2003), a descriptive design seeks to learn about existing phenomena by investigating people's perceptions, attitudes, behaviors, and values. Descriptive survey was preferred because it is a reliable method when dealing with the large population sample and it involves the use of specialized tools such as questionnaires to collect valuable data (Mugenda, 2008). Basing on these arguments, descriptive survey design was appropriate because the area was large. In addition, there was need to collect comprehensive data from the extensive area of study.

3.3 Location of the Study

The research location was Matayos - Busia County. It has a population of 142,408 people and an area of 196.2 square kilometers (2009 census). Latitude 0° and 0° North and

Longitude 34° 25 East define the boundaries of the Sub-county. The county is bordered to the east by Kakamega, the south-west by Siaya, and the north by Bungoma. The county borders the Republic of Uganda to the west and a portion of Lake Victoria to the south-east (see map of Busia County in Appendix X11). Teso South, Teso North, Funyula, Matayos, Nambale, Budalangi, and Butula are the seven constituencies in the county. KNBS (2016) estimated that the county's population was 953,337, consisting of 456,356 men and 496,98 women. While sugarcane and cassava are the main crops grown for commercial purposes in Busia County, subsistence farming of cassava is practiced widely there. Residents include people of the Somali ethnic group as well as the Luhyas, Luos, Tesos, and Kikuyus. The Sub-County is perfect for farming because it gets a reasonable amount of rain throughout the year and has rather fertile soils. The people's primary economic pursuits are small-scale farming, sugarcane farming, retail and wholesale trade, transportation, real estate, and buying and selling of cereals.

Other socioeconomic activities in the sub-county include the production of mats from Papyrus reeds in a cottage industry, fishing, making bricks. According to the Sub-County Education Office, there are 21 public and 2 private secondary schools registered in the Matayos, for a total of 23 secondary schools. The county of Busia has an urbanization rate of 16.4% and a literacy rate of 56.7%. The percentage of children aged 15 to 18 who attend school is 78.1% (USAID, 2014). 66.7 percent of the Sub-County's total population lives in poverty, according to USAID's findings. The transition from elementary to secondary school is average. The performance in primary school is above average, but the performance of secondary schools in the National Examination is low, and there are big

differences in how well students do in the area of agriculture. This is a cause for concern (USAID, 2014).

The location was chosen as the study place because of a number of things. The county was chosen because the Kenya National Bureau of Statistics (KNBS) (2009) found that it is one of the counties with relatively good weather, has few people living there, and has a unique mix between rural and urban areas. The study of this county's rural and urban areas means that the results can be applied to other counties in Kenya. This is because the rural and urban areas of this county are similar to those in other parts of the country. The above-mentioned county is also a good choice because it is close by and has many different economic and social perspectives (see Appendix X11).

Second, the location was chosen based on what interested the experts. Kothari (2014) said that a researcher's choice of location can be affected by things like how well they know the place because they live there. Since the researcher lived in the county chosen for the study, Busia County was already known to her. It was smart for the researcher to find a place where collecting data could be done quickly and easily, which is what happened. Cooper and Schindler (2014) additionally stated that it's easier to get data if you do study in a place where people know you as a friend or coworker. With the help of a study assistant, the researcher was able to collect data by calling and meeting with people over and over again.

3.4 Study Population

A population under study is all the people, places, and things that the researcher is interested in studying because they share some observable attribute (Cooper and Schindler, 2014). According to Sekaran and Bougie (2013), a population is a collection of things,

people, or things from which a researcher will choose a sample and look for at least one similarity. Consequently, the target population is the population that the researcher intends to investigate. This investigation targeted the principals, teachers, and students of secondary schools in the Busia sub-county. The study specifically targeted 23 principals, 23 agriculture instructors, 1,591 form three and four agriculture students, and one quality assurance officer. The selection of these population units was influenced by their awareness of the factors that affect the incorporation of practical skills into the teaching and learning of agriculture. These organizations are responsible for formulating, designing, and implementing the incorporation of practical skills into agricultural education.

3.5 Sampling and Sample Size

The purpose of this section is to describe the sample size of the study's respondents and the sampling methodology.

3.5.1 Sampling

Sampling is the method used by the researcher to choose the people who will take part in the study (Kothari, 2014). Sampling methods define how researchers select samples of people to participate in studies. The 2016 work by Saunders, Lewis, and Thornhill. Sampling methods can be categorized as either probability or non-probability. Unlike non-probability sampling, which relies on the researcher's judgment, probability sampling gives all parts of the study an equal chance of being selected. This study used both stratified and simple random sampling, which are both types of probability sampling. Mugenda (2019) states that probability sampling was chosen because it gives each part of the population an

equal chance of being chosen. This makes it easy to draw conclusions about the whole population.

The study used a method called "stratified random sampling" to choose respondents from different groups. The divisions were made up of three types of schools: private, extra-county, and sub-county. This helped the researcher choose which respondents to include in the study. After stratification, the study used a simple random sampling method to choose participants from each group. The researcher used stratified random sampling because it lowers bias and makes sure that all groups in the study are represented well. Cooper and Schindler (2014) claimed that the method was chosen because it was less expensive than a poll and made the process of gathering data faster. These were appropriate to select students respondents to minimize bias and because the researcher was not aware of students ability in agriculture. Purposive sampling is a type of non-probability sampling in which the researcher chooses the people who will take part in the study based on his or her own opinion. The study therefore employed purposive sampling to select teachers of agriculture who are the resource people in the subject area of study. Saturated sampling was used on the principals of the schools under the study as they are the facilitators and Censes for Quality Assurance and Standards Officer (QUASO) who are involved in monitoring of the curriculum.

3.5.2 Sample Size

According to Mugenda & Mugenda (2019), a sample size is the total number of people randomly selected from the population under research. According to Kothari (2014), the percentage of respondents who opted to be notified of the responses to the study questions,

the confidence interval (margin of error), and the level of confidence all play a role in the sample size calculation. It is permissible to use a confidence interval of 1% to 5% when calculating the sample size for extrapolation (Kothari (2014). The confidence level of 95% used to estimate the sample size is considered sufficient in the social sciences. The sample size was calculated using+ /the Yamane (1967) method because the population of interest was already known. Since the Yamane formula is the most precise scientific formula available, it was used to determine the appropriate size of the sample. The study's usage of Yamane's (1967) formula is shown below.

$$n = \frac{N}{1 + N(e)^2}$$

Where, **n** is the sample size **e** is the probability of error (within the desired precision of 0.05 for 95% confidence level and **N** is the target population. Given a population of 1, 591 students, the sample size was calculated as follows.

$$n = \frac{1,591}{1 + 1,591(0.05)^2} = 319.64 \sim 320$$

The students' target population of 1, 591 resulted to a sample size of approximately 320. The target population of 1,591 thus generated a sample size of approximately 320. The sample size for each stratum was calculated using a fraction n_f/N . Since $n_f=320$ and $N=1,591$, the sampling fraction $f=n_f/N$. At this level **n-** is the sample size, at confidence level with $\pm 5\%$ precision, desired sample (**nfc**)-denotes the desired sample size of each

category while the population size N_c -denotes the number of staff in each category. Table 3.1 shows the distribution of the sample size across the 23 sub county schools.

Table 3.1: Sample Size Distribution

Target populations	Target Population	Sample Size	% from target population	Sampling technique
Students	1, 591	320	20	Simple random
Teachers	23	23	100	Purposive sampling
Principals	23	23	100	Saturated sampling
Quality Assurance and Standard Officer	1	1	100	Census sampling
Total	1, 637	366		

Source: Author (2019)

Sampling frame

3.6 Data Types, Data Collection Procedure and Data Collection Instruments

This section describes the data classifications, data collection process, and data collection tools.

3.6.1 Data Collection Instruments

This investigation utilized both primary and secondary sources to collect information, allowing for the accumulation of both qualitative and quantitative details. The researcher used Questionnaires, Interview schedules and Observation checklists

3.6.1 Questionnaires

A questionnaire is a data collection instrument set out in formal way designed to elicit information from the respondents (Kay, 2010). The questionnaires were of two types Teacher questionnaire and Student questionnaires which comprised structured questions and unstructured questions. The researcher distributed questionnaires with both open-ended and closed-ended questions to both students and teachers. According to Cooper and schindler (2013), open-ended questions were used in addition to closed-ended questions because they enable respondents to express their thoughts and make suggestions without being limited to questions the researcher has already formulated. Due to their clarity and absence of room for interpretation, closed-ended questions were preferred due to the limited time allotted for the snapshot research.

3.6.2 Interview schedules

Principals and the officer in charge of quality assurance and standards were interrogated in semi-structured meetings lasting between 40 and 60 minutes. Principals were interviewed because it was believed they had the most knowledge of the practical integration process.

3.6.3 Observation

Observation was also used by the researcher to determine the institutions were operationally functional. They assisted in evaluating the school's facilities. The researcher observed the farm, classrooms, school laboratory, poultry and cattle pens, school museum, and farm-based educational initiatives. Thus, the researcher was able to collect unfiltered, primary data. This assists in determining agricultural education resources are available and utilized.

3.6.2 Data Collection Procedure

The researcher's data collecting procedure will include both the channels used to collect data and the data itself. Permission to conduct research was obtained by the MMUST Directorate of Graduate Studies (see Appendix Xi) and NACOSTI (see Appendix VII).

A research assistant for the Kakamega County sub-county was engaged and educated to help with data collection. The time it took respondents to finish the survey ranged from two weeks to a month. The participants' busy schedules necessitated that the work be done between 1:00 and 2:00 and 4:00 and 5:00, respectively. It took two months to gather all the information needed for the exercise. The research assistant received phone calls as a reminder that he needed to finish data collection by a certain time. Weekly meetings with the research assistant were planned to review the research's progress and address any problems that arose during data gathering. The final step in the data analysis procedure was to check each questionnaire for accuracy and completeness before editing, coding, and entering the results into SPSS. The data from SPSS was then cleaned, converted, and examined.

3.7 Quality assurance

This was done by using pilot study, validity of the study instruments and reliability of the instruments.

3.7.1 Pilot study

Pilot testing is required for assessing the validity and dependability of the research instruments, according to Kothari (2014). The objective of the pilot testing was to identify

any potential flaws in the operationalization study variables and research measurement procedures. It was designed to identify ambiguous and imprecise questionnaire items so that they could be eliminated, as well as to establish time limits and clarify instructions. The pilot study was conducted in two classrooms in the Mumias East subcounty of Kakamega County. The selection of the two adjacent institutions was influenced by both inclusivity and exclusivity considerations. The selection of these institutions was influenced by their proximity and comparable organizational structures. Mugenda (2019) suggested that, depending on the sample size, a pilot sample should range from 1 to 10 percent. The pilot study sampled 32 participants from the Mumias East sub-county in Kakamega County, which represents approximately 10% of the total sample size of 320 participants.

3.7.2 Validity of the Study Instruments

Kothari (2014) states that validity is how well the results of the analysis of the data explain the thing being studied, how accurate and important the conclusions made from the data are, or how reliable the tool used to collect the data is. There were three main types of tool validity: face validity, construct validity, and content validity. To make sure that all of the study variables were covered, the researcher made sure that the surveys and interview schedules were face-valid by basing them on the conceptual framework in figure 2.1. In the first part of the questionnaire, respondents were asked about their demographics. In the second part, questions got into the theories behind the study variables. In the third part of the questionnaire, an interview schedule was included to get opinions about the study variables. This was done to make sure that the questions on the tools were about the people who were being studied.

Orodho (2004) asserts that a test of construct validity shows how well a set of theories or ideas can be tested. By looking at the results of earlier studies, the researcher was able to figure out the construct validity of the instruments. The literature review gave the researcher a lot of information that was used to come up with research questions and a plan for interviews that would help get information about the factors that affect how agriculture is taught and how practical skills are taught.

Mugenda (2019) defines "content validity" as "the degree to which the data collection instrument produces the statistical results that might be expected from the study." The contribution of the supervisor and application of a content validity index enabled us to achieve this objective. Regarding the content validity of the study instruments, the researcher sought assistance from faculty members and supervisors in the Curriculum and Instructional and Technology department at Masinde Muliro University of Science and Technology. Based on their suggestions, the questionnaires and interview schedule were revised to improve their utility, clarity, and wording. When calculating the CVI, the researcher also considered the supervisors' opinions regarding the study equipment.

3.7.3 Reliability of the Instruments

Reliability can be defined as the capacity of a test to produce identical results when administered to the same individuals over and over again. Kothari, (2014). The researcher administered 37 questionnaires in the Mumias East sub-County as part of a pilot study. After piloting the questionnaire, Cronbach's Alpha was calculated using SPSS version 20 software for the research variables. Across the board, Cronbach's alpha was 0.791, with all research variables scoring above 0.7 on the scale. According to the findings of the study, the

questionnaires were appropriate for data collection because they had an internal consistency of at least 0.70. According to Table 3.3, the findings substantiate the claim made by Saunders, Lewis, and Thornhill (2012) that Cronbach alpha coefficient scales of 0.7 and above indicate adequate internal consistency.

Table 3.3: Reliability Test Results

Cronbach's Alpha	Coefficient
1. Curriculum guidelines	0.75
2. Teacher Related Factors	0.82
3. Institutional Related Factors	0.78
Total	0.791

Source: Field Data (2019)

Since the calculated value exceeds the prescribed value of 0.70 for the Cronbach's alpha coefficient. Based on the results, it appears that descriptive analysis is appropriate for the research variables used in the study. All of the study's individual variables were likewise trustworthy, with Cronbach's alpha coefficients exceeding the threshold of 0.7 considered statistically significant for reliability.

3.8 Data Analysis and Presentation Techniques

After the data collection was complete, each questionnaire was given a unique identifier to prevent data duplication and streamline the coding process. The information was then coded, entered into an Excel spreadsheet, and cleaned up to remove any inconsistencies or missing numbers. After the data was cleaned, it was sent to SPSS version 20 for analysis. The researchers decided to use SPSS version 20 since it has robust tools for data translation,

manipulation and variable comparison. Descriptive and inferential analysis were performed on the collected data.

3.8.1 Descriptive Statistical Analysis

Descriptive statistics were employed to organize the data and make it easier to spot trends and draw conclusions from the study's findings. The study relied on measures of central tendency (frequency, percentage, mean, and standard deviation) to accomplish its aims. Descriptive statistics were utilized to organize the information included in the study's tables and figures. The data gathered from the interviews was examined by categorizing the responses into themes that reflected the goals of the research. These responses corroborated the study's questionnaire findings, providing support for those results.

3.9 Ethical Considerations

Due to the fact that research requires the consent of respondents, ethical considerations are vital. According to Kothari (2014), ethical consideration is one of the most important aspects of any research study. Thus, researchers are required to adhere to ethical standards during planning, data collection and analysis, dissemination, and application of results. The study adhered to the following ethical principles: the protection of the participants' privacy, the obtaining of informed consent from the respondents prior to their participation in the study, the respondents' voluntary participation in the study, and the respondents' anonymity and confidentiality, as they were not asked to provide their name or contact information. Before respondents self-administered the research questionnaire, informed consent was sought and obtained. The researcher informed respondents of their right to decline participation in the survey and protected their identities. During the data collection

procedure, the respondents to the study were safeguarded against any potential harm, particularly victimization.

Permission was obtained from various entities for this study. First, permission was obtained from the Directorate of Graduate Studies at MMUST. In addition, a research permit was obtained from NACOSTI in accordance with the Science and Technology Act, Chapter 250 of the Laws of Kenya. In accordance with the NACOSTI permit requirement, the researcher also obtained legal permission from the County Director of Education and County Commissioner of Busia County. Permission was also sought from school principals to conduct the research in their institutions. The utmost care was given to ensure that ethical principles, standards, and codes were strictly adhered to. To avoid plagiarism and fraud, the study acknowledged the work of other authors. To safeguard the rights and well-being of respondents and ensure that the study did not cause them psychological, social, or financial harm. The researcher intends to provide reprimand to respondents via workshops, seminars, and distribution of a copy of the research findings.

Through the process of free and informed consent, the principle of autonomy was upheld. Participants were apprised of the purpose of the study so that they could make informed decisions. Prior to signing their consent forms (Appendix 1), the volunteers were given a thorough explanation of their role as volunteers. Participants were permitted to disengage from the study at any point and were not compensated for their participation. To ensure the principle of beneficence (non-maleficence) was adhered to, experts conducted a comparative risk/benefit analysis of the study in an effort to safeguard participants from psychological or social risk. The study guaranteed complete disclosure of its findings to the

participants. In addition, the study ensured the participants' confidentiality and anonymity. Even after the research, the materials were handled with confidence and stored securely.

The principle of distributive justice was adhered to, and the criteria for participant selection were based on the purpose of the study and not simply on the likelihood of obtaining consent. Since the respondents were aware of the cultural norms of the study setting, the researchers avoided using words and phrases that could be perceived as offensive to religion, disability, marital status, or tribe. In order to avoid copyright infringement, works by other authors were cited in this research.

3.10 Chapter Summary

The chapter has given detailed information on; research design, location of study, study population, sampling design, data collection instruments, validity and reliability of research instruments, data collection procedures, data analysis and ethical considerations.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

The study sought to establish the influence of selected factors on the integration of practical skills in the teaching and learning of agriculture in secondary schools in Matayos - Busia Country. To achieve the study purpose, the following objectives were formulated. To establish the effect of education policy guidelines in the teaching and learning of agriculture; to determine the extent to which practical skills have been integrated in the teaching and learning of agriculture; to assess institutional related factors influences in the integration of practical skills in the teaching and learning of agriculture. This section presents the results of the study and talks about what those results mean. It has an analysis of the data based on the answer rate, information about the respondents' backgrounds, descriptive statistics, inferences, and a discussion of the study's results. The results and discussions of each study are given in line with its objectives.

4.2 Response Rate

This section summarizes the response rate for the 23 secondary institutions. The study's total success rate is also displayed. Out of a possible 1591 pupils, only 320 participated in the study's sample. Principals' agriculture students, agriculture teachers, and the quality assurance officer were the primary respondents. The researcher interviewed 18 principals and gave 366 questionnaires to principals, agricultural teachers, the quality assurance officer, and students majoring in agriculture. The results of the investigation are shown in Table 4.1.

Table 4.1: Response Rate

	Target Population	Sample Size	Response	%
Students	1, 591	320	256	100%
Teachers	23	23	20	100%
Principals	23	23	18	100%
Quality Assurance and Standard Officer	1	1	1	100%

Source:Researcher(2019)

A total of 320 questionnaires were administered to agriculture students out of which 256 questionnaires were filled giving a response rate of 80%. 23 teachers were also given questionnaires and 20 questionnaires were returned giving a response rate of 87%. The 18 principals were interviewed out of possible 23 principals giving a response rate of 78.3% while one quality assurance officer was interviewed giving a response rate of 100%. According to Mugenda et al. (2013), a response rate of 50% is enough, 60% is good, and 70% or above is exceptional, hence the study response rate was deemed to be adequate and very good for subsequent data analysis and interpretation. Because of the large number of participants, the study's results are likely to be typical of the population at large. According to Saunders and Coopers (2014), the response rate is affected by factors such as the questionnaires used and the timing of the interviews. In the case of provided and collected questionnaires, such as in this study, a response rate of 30% to 50% is considered to be a reasonable threshold at which to begin analyzing data. Due to the high response rate, we can be confident that our results accurately reflect those of the intended audience.

4.3 Background Information of Respondents

This section presents analyzed data regarding the respondent's gender, experience, and educational level. The respondent's background provided a comprehensive comprehension of the nature of the study's context. It also influenced the number of responses to the research questions, which bolstered confidence in the reliability of the study's final results. The results of the study's demographic data collection are displayed in Tables 4.2-4.4.

4.3.1 Gender of the Respondents

The purpose of the study was to determine the gender of the respondents in order to gain insight into the factors that influence the incorporation of practical skills into teaching and learning. The frequency distribution of respondents by gender is displayed in Table 4.2.

Table 4.2: Respondents Gender

Respondents	Male		Female	
	Frequency	Percentage	Frequency	Percentage
Students	157	61.3%	99	38.7%
Teachers	15	75%	5	25%
Principals	13	72.2%	5	27.8%
Quality Assurance Officer	1	100%	0	0
Total	186	65%	100	35%

Source: Field data (2019)

Table 4.2 shows that male was the majority 186(65%) in most of the categories. Majority of the male students were enrolled in agriculture subject, 157(61.3%) while only 99(38.7%) of girls were enrolled in agriculture subject. The trend is the same in teaching as 15(75%) of teachers teaching agriculture subject while 5 (25%) female teaching agriculture subjects.

The trend is also reflected in the administration, 13(72.2%) of principal being male while 5(27.8%) being female while the one quality assurance officer was a man. Although the majority of secondary school respondents are male, the study found that female respondents are well represented, which is consistent with the three-fifths gender ratio mandated by the Constitution of Kenya, 2010. The results of this study suggest that male students are overrepresented in agriculture classes and that more should be done to recruit and retain female students in these programs. The results of this study agree with those of Hewitt (2010), who found that 65.3% of agriculture teachers in Kisumu County were male and the remaining 34.7% were female.

A deeper dive into the gender gap in secondary school administration uncovered a preponderance of male principals and quality assurance officers. The results of the survey show that although the situation of women in leadership roles has greatly improved over the years, women are still underrepresented in secondary school administrative positions. Northhouse (2007) agrees with this statement, noting that the glass ceiling exists because of sexism, disparities in human capital, and other factors. Heilman (2010) claimed further that gender stereotypes make things more difficult for women because men are seen as decisive, confident, independent, and forceful when women are not.

4.3.2 Education level of the teachers

The study intended to determine the respondent's degree of education, which was expected to significantly influence the level of reliability and validity of the responses provided. This is because the questions on the questionnaires can be well understood by those with higher levels of education.

Table 4.3: Teacher’s Level of Qualification

Teachers Qualification	Frequency	Percentage
Masters	4	20%
Degree	11	55%
Diploma	5	25%
Total	20	100.0

Source: Field data (2019)

The majority of respondents (11, or 55%) had at least a bachelor's degree, as shown in Table 4.3. Next came those with a diploma (5), followed by those with a master's degree (4). The results of this study suggest that a bachelor's degree is typically required for employment as a secondary school teacher. The results of this study corroborate those of Nyangau (2011), who argues that a bachelor's degree is the standard for employment in Kenyan secondary schools. The results of this study suggest that professional qualifications, in addition to performance and merit, may play a role in determining promotion and appointment to higher positions in secondary schools (GOK, 2018).

4.3.3 Level of work experience of the Respondents

The study intended to ascertain the respondents' employment experience in secondary schools. Experience level is crucial because the more knowledgeable and efficient a workforce is, the more experienced it must be. Employees who have been with the organization for a long time have experience and knowledge of the organization's systems and processes. According to Ibua (2014), respondents' work experience is related to duration of service and knowledge gained over time, which contributes to the performance

of the organization. Table 4.4 displays the study's findings regarding the respondents' employment experience.

Table 4.4: Respondents Level of Work Experience

Teaching experience	Frequency	Percentage
Between 1-5 years	10	50%
Between 5-10 years	6	30%
Over 10 years	4	20%
Total	20	100.0

Source: Field data (2019)

From Table 4.4, we can conclude that the majority of secondary school teachers have between 1 and 5 years of experience, followed by those with 10 years of experience (50%). 6 (30%) and the fewest had more than 10 years of work experience Four (20%) had taught for more than a decade. Regarding the level of work experience in secondary schools, Plimo (2016) reveals the same pattern by stating that the majority of Kakamega secondary school teachers (42.7%) had between 3.5 years of experience. The findings of this study suggest that the respondents had relevant work experience in the secondary institutions of Busia County and, consequently, had adequate knowledge of the variables under investigation. This study's findings on work experience corroborate those of Braxton (2008), who noted that respondents with a high level of work experience have technical knowledge of the problem being investigated and thus contribute to the collection of reliable data.

4.3.4 Students Enrolment in Agriculture

The study meant to determine students' enrollment in agriculture, which was significant in determining the popularity and future of agriculture in secondary schools. Figure 4.1 depicts the outcomes of the enrollment of students.

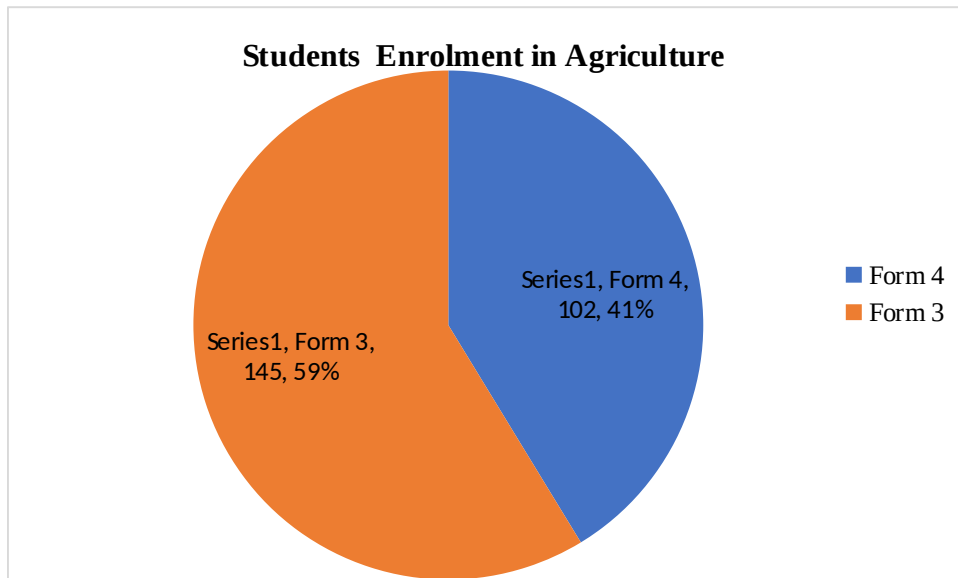


Figure 4.1: Students Enrolment in Agriculture

Source: Field data (2019)

Figure 4.1 from the aforementioned study reveals that of the 304 total students sampled, 154 (60%) are in form three, whereas only 102 (40%) are in form four and doing an agricultural-related course. According to the results, the vast majority of respondents who take agriculture are in form three, while the minority are in form four. The findings show that students are choosing agriculture as an elective in form three in response to governmental directives that encourage them to study applied and technical subjects. The study also found that some students who initially enrolled in agriculture ended up dropping

the subject. These results are consistent with those found by Konyango (2015), who found that the vast majority of third-year students in Homabay County majored in agriculture.

4.4 Objective One: Adherence of Various Curriculum Guidelines on integration of Practical Skills in Teaching and Learning of Agriculture in Secondary Schools

The first objective of the study sought to establish the influence of curriculum guidelines on integration of practical skills in teaching and learning of agriculture in secondary schools in Busia subcounty. To begin with the study discusses the current agriculture curriculum with specific focus on the current syllabus and the objectives therein that guide the teaching of both practical and theory related concepts in agriculture in secondary schools.

4.4.1 Current Agriculture Syllabus Objective Guidelines

Agriculture curriculum in Kenya has seen some reforms over time and as the current system of 8-4-4 continue fading and new curriculum coming in, there have been a lot of hits and misses in the process of implementing the curriculum. In the first place, school related issues have served as a both motivating factor to agriculture curriculum implementation and also as a drawback factor to the same. For instance, teachers with well vast experience in agriculture have been deemed to help learners pursue agriculture as a career subject. Contrary to this, research indicates that students fail to pursue agriculture as a subject due to teacher's incompetency in the subject. Furthermore, lack of resources and government support has not only dragged the implementation of agriculture as a career subject behind but also flattened the learners' practical experience.

According to Saina et al. (2012), Kenya established the Bessy commission in 1972 to advise the Kenyan government on how to accomplish small-scale agricultural production by including agro education into the learning process in schools. The group also suggested that the government mandate that schools implement small agricultural and livestock programs to help pupils acquire real-world experience. The commission also recommended that the government make an effort to include a wide range of topics related to agriculture in the secondary school curriculum. Basing on the commission's recommendation the government developed agriculture curriculum whose main objective as reflected in the syllabus according to KIE (2002) are:

1. "Develop an understanding of agriculture and its importance to the family and the nation;
2. Promote interest in agriculture as an industry and create awareness of opportunities existing in agriculture and related sectors;
3. Demonstrate that farming is a dignified and profitable occupation;
4. Enhance skills needed in carrying out agricultural practices;
5. Provide a background for further studies in agriculture;
6. Develop self-reliance, resourcefulness and problem-solving abilities in agriculture;
7. Develop occupational outlook in agriculture;
8. Enable schools to take an active part in national development through agricultural activities;
9. Create awareness of the role of agriculture in industrial and technological development;

10. Enhance understanding of the role of technology and industrialization in agricultural development;
11. Promote agricultural activities which enhance environmental conservation;
12. Promote consciousness of health promoting activities in agricultural production.”

Looking at the objectives above, it is so evident that the syllabus has a lot of aspects that ought to guide the teachers and students to endeavor practical skills in teaching and learning process. Most of the objectives above are achievable through the collaboration of the institution, teachers, students and the ministry of education. If followed to the latter, the students would not only understand what agriculture is in the class but will be more productive all round.

4.4.2 Form Three and Form Four Syllabus with Practical Inclination

The study further delved into establishing the specific topics in agriculture and have practical inclination. Respondents, specifically, agriculture teachers were asked to indicate the topics that are practically taught according to the curriculum guidelines. This was in line with the form three and forms four syllabus given that it's at form three that students show interest in agriculture and choose to pursue it further. The respondents were required to indicate the topics have practical implication or not. The table below presents the respondents responses and the findings are elaborated after the table 4.2 below.

Table 4.2: Form three and Form four Syllabus with Practical inclination

Form 3 Agriculture Syllabus		
Topic	Lessons	Practical Element
Livestock Production (Selecting and Breeding)	12 Lessons	Yes
Livestock Production (Livestock Rearing)	10 Lessons	Yes
Farm Structures	18 Lessons	Yes
Agricultural Economics II (Land Tenure and Land Reform)	20 Lessons	Yes
Soil and Water Conservation	19 Lessons	Yes
Weeds and Weed Control	15 Lessons	Yes
Crop Pests and Diseases	14 Lessons	Yes
Crop Productivity VI (Field Practices II)	17 Lessons	Yes
Forage Crops	9 Lessons	Yes
Livestock Health III (Diseases)	20 Lessons	Yes
Form 4 Agriculture Syllabus		
Livestock Production V (Poultry)	25 Lessons	Yes
Livestock Production VI (Cattle)	16 Lessons	Yes
Farm Power and Machinery	18 Lessons	Yes
Agricultural Economics III (Production Economics)	20 Lessons	Yes
Agricultural Economics IV (Farm Accounts)	10 Lessons	Yes
Agricultural Economics V (Agricultural Marketing and Organizations)	10 Lessons	Yes
Agroforestry	10 Lessons	Yes

Source: Elimu.net (2014)

From the table 4.2 above, all the topics within the syllabus for form 3 and 4 have a practical attachment. Basing on this syllabus, it is in order for one to conclude that the ministry education has tried to bring both practical aspect and theoretical aspect of teaching and

learning in perspective. However, the critical question in this respect remains, does the said practical aspect apply to the level that is required despite the clear syllabus guidelines?

4.4.3 Students Knowledge Level in Various Topics on Practical Agriculture

The study sought to establish whether students had knowledge in various topics pertaining to practical lessons within the agriculture curriculum guidelines. One of the key issues in helping students to understand the direction they ought to take in their studies is ensuring that they fully understand what lies within their curriculum. To find out this the study asked the students to indicate all the topics in agriculture that were related to practical learning. The chart below represents the responses (n=256).

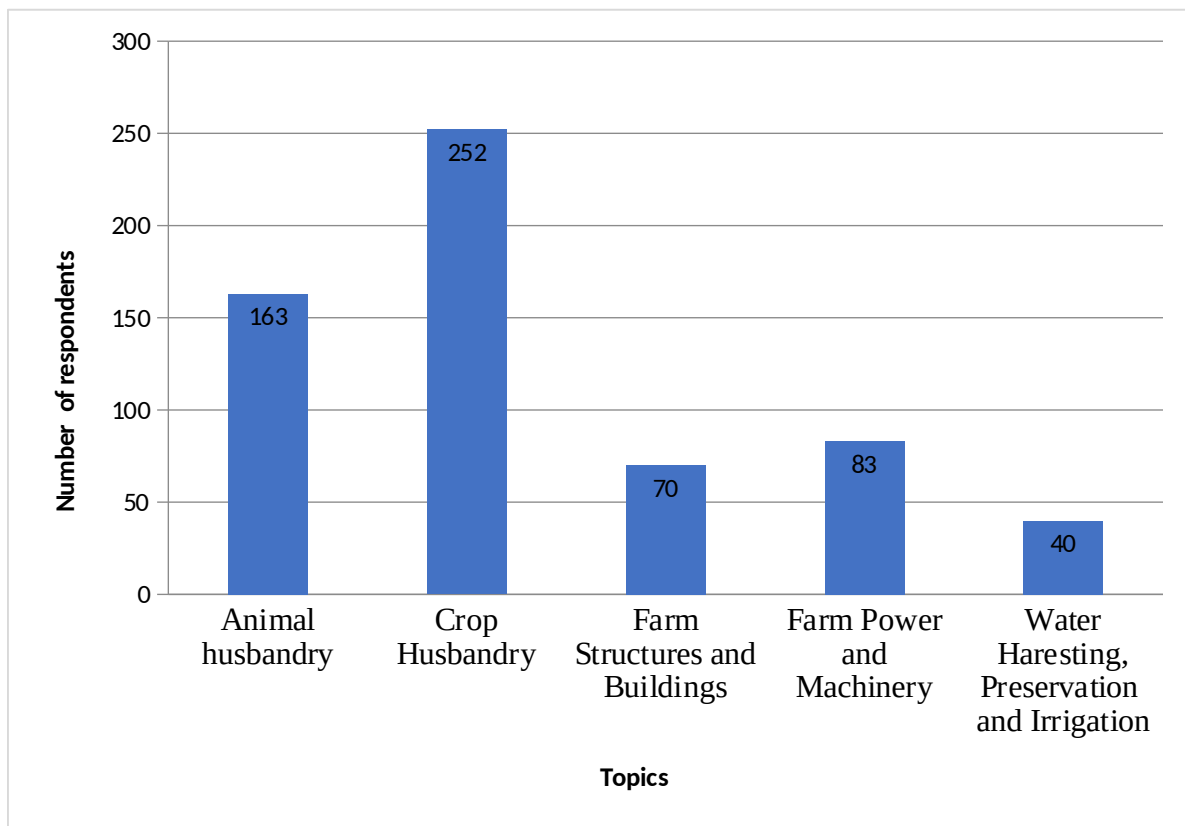


Figure: 4.2 Students Knowledge on Agriculture Practical Lessons

Data from the figure above indicate various students' knowledge on the subject in context. Practical agriculture entails five main areas namely; animal husbandry, crop husbandry, water harvesting, conservation and irrigation, farm power and machinery and farm structures. The results in this scenario indicate that most of the students 242 indicated that crop husbandry was among the topics within the agriculture curriculum leaving out only 4 students who did not recognize crop husbandry. This may be attributed to the fact that most of the agricultural activities that are done at school and home is crop husbandry related. This is in line with Kyule (2015) findings which indicated that most of the students would well understand the aspect of crop husbandry within their schools as it is mostly practiced in schools for project purposes and at home for consumption and commercial purposes.

163 students indicated that animal husbandry was part of their practical agricultural curriculum. Despite the fact that most of the students' study animal husbandry in theory lessons, most of them never get a chance to carry out practical lessons on the same, leaving them vulnerable to knowledge pertaining practical approach. This implies that schools have not taken initiative to ensure that students balance the aspect of crop husbandry and animal husbandry. Kahi (2016) attributed this to lack of funding from the government which leaves secondary schools with just the curriculum but no resource to carry out implementation of the curriculum. In the same line, when discussing about the challenges in teaching and learning of agriculture, Minde et al (2015) pointed out the fact that lack of government intervention in schools in terms of resources paralyzes the practical learning aspect in agriculture.

Another area that was mentioned as a practical topic by students was farm power and machinery where only 84 students out of the total 256 respondents indicated that they were familiar with the topic which required practical approach. The main reason behind this is because most of the time, machines for agriculture are used in big firms. Though students tend to come across the machinery, they assume that they only need to have theoretical knowledge. Again, the fact that most schools cannot afford to get access to such machinery, it becomes difficult to implement what the curriculum directs. However, through field trips, such machines can be accessed by students and fulfill the practical requirement by the ministry of education.

Every school is also supposed to ensure that farm structures and buildings are in place to ensure that practical lessons are well undertaken by students. Pertaining this, only 70 respondents out of the total 256 indicated that they were aware that farm structures and buildings were part of the curriculum guidelines on integration of practical agricultural lesson. This implies that most schools lacked the structures that would have necessitated the required knowledge building and structures. The main reason behind this is lack of resources like land and finances to set up standard structures as the curriculum guidelines directs. A study by Ouma et al (2021) reveals that students have suffered in the hands of the government which has created a curriculum that lack the necessary support on the basis of resources.

Lastly, only 40 students out of the total 256 indicated that water harvesting, conservation and irrigation was part of agriculture curriculum that had practical leaning. This is despite the fact that Busia is a zone that receives heavy rainfalls every year. However, the fact that

most of the schools have shifted focus to ensuring that students pass exams, little has been done to ensure that they grasp the practical skills as time and resources has proved a challenge just as in the case other related practical topics. Aholi (2019) proves this by pointing out that teachers and academic stakeholders have wasted potential through drilling students for exams and forgetting they need practical skills when they leave school. He opines those critical skills like environmental conservation, proper use of resources and hands on experience should be given priority.

4.4.4 Relative Time Allocated on Various Activities for the Forty Minutes Agriculture Lesson

The study sought to determine the how the forty minutes class lesson time was divided across various activities that are within the guidelines of the curriculum. The table below shows the relative amount of time that is given by the teacher to various activities.

Table 4.3: Relative Time Allocated on Various Activities for the Forty Minutes

Class activity	Time (Mins)	%
Teacher giving explanation on topical concepts	15	37.5
Teacher engaging whole class in discussion	10	25
Notes writing	10	25
Student doing practical work	5	12.5

Agriculture Lesson

Findings in from table 4.3above reveal that that on average, a teacher took 37.5% of the total time which is equivalent of 15 minutes of the ideal 40 minutes explaining concepts that are related to the topic in context during the agriculture lesson. Teacher engaging the whole class in discussion took on average 25% which is equivalent of 10 minutes of the time allocated to a single agriculture lesson as the case is also similar to notes writing which equally take same time. However, the results indicate that very little time is allocated to the practical lessons as on average, it is given 12.5%, which is equivalent to only 5 minutes of the ideal 40minutes allocated for a single agriculture lesson.

Basing on the data presented in the table above, one of the key aspects that come out clear is that teachers take averagely 35 minutes out of the ideal 40 minutes dealing with theory-based learning and averagely 5 minutes for practical based learning. This implies that the teachers use more of the allocated time to finish their work rather than balancing the practical and the theoretical lesson requirements. One of the reasons that may lead to this is the heavy workload for agriculture syllabus which forces the teacher to employ teacher-centered approach at the expense of student-centered approach. These findings are in line with what Njura (2020) established that because of using teacher centered teaching approach, students suffered lack of enough practical time as teachers pushed for the syllabus completion.

Principals expressed their concern on the syllabus where most of them expressed their dissatisfaction with the way it has taken long to change for the best of the students. For instance, one of the principals commented thus,

“The practical approach is not well endeavored given the challenge of syllabus congestion against time. In situation where teaching is done

without use of practical methods, students lose track and interest in the struggle to master the skills at the end. It is also difficult to reverse the negativity already developed among the students about agriculture”.

Speaking also on the same, quality assurance and standard officer said.

“One of the main challenges that is affecting the teaching and learning of agriculture, especially integration of practical skills in the fact that the syllabus is so bulky and time is not enough. This causes teachers to prioritize completion of syllabus over delivery quality education that impacts the future of a learner.”

The study findings are in agreement with past study findings on education policy guidelines where Mukhwana (2013) opines that adhering to education policy guidelines promotes performance while Abalu, 2011 argued that adherence to education policy guidelines is an important ingredient to integration of practical skills. Furthermore, Njoroge and Orodho (2015) posit that education policy guidelines like syllabus, timetable is increasingly becoming relevant in the integration of practical skills in the teaching and learning of agriculture. Temu and Kitalyi, (2015) advocates for education policy which should be well ahead of market level for schools to improve performance in agriculture. The findings of this study correspond to those by Mukhwana, (2013) who established that education policy guides affected the integration of practical practical skills in the teaching and learning of agriculture. The study findings mirror with past findings on education policy guidelines Abalu (2011) opines that adhering to education policy like evaluation, syllabus, timetable and implementation is increasingly becoming relevant in the integration of practical skills as compared to non-integration

The study findings are in line with those by Njoroge and Orodho (2015) who advocates for policy guidelines which embrace practical skills to enhance performance. This inconsistency is justified on the fact that current study focused on policy guidelines provided to the teaching and learning of agriculture and not Tom (2009) who focused on overloaded curriculum. The study contributes to African Agenda 2063 by recommending the integration of practical skills in the teaching of agriculture in secondary schools.

4.4.5 Teachers Workload

Teachers were asked to indicate their workload per week in teaching of agriculture. To achieve this, the researcher organized the workload into three categories namely below 18 lessons per week, above 18 lessons and more than 26 lessons per week. The teaching workload was put in consideration with the lesson's allocation according to the school timetable. The results of are presented in the figure below.

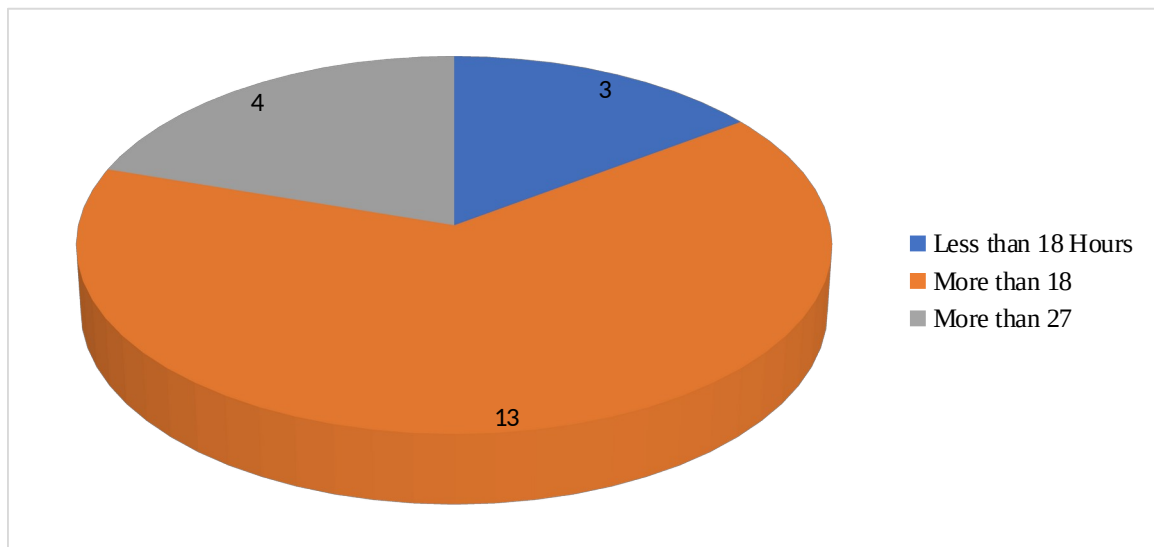


Figure 4.3: Teachers Workload in Agriculture

The findings from the figure above show that most of the teachers, 13(65%) had a workload of over 18 lessons per week but not more than 27 lessons per week. Only 4(20%) indicated that they had over 27 lessons per week. Additionally, only 3 (15%) of the teachers indicated that they had less than 18 lessons per week. In most cases, the teachers who have less lessons have other responsibilities, most of them being administrative which call for reduced workload in matters of classwork. In the case of those with more lessons, teacher shortage may be one of the factors that can be attributed to such scenario as agriculture subject has been deemed to be among the subjects with shortage of teachers. Research conducted by Nyambane (2018) indicated that agriculture is among subjects that are understaffed in schools, a fact that makes it to be more marketable subject in secondary school curriculum. According to curriculum guidelines, a teacher should have at least 18 lessons and should not exceed 27 lessons.

The study asked teachers to comment on the workload was too much or enough for them. However, most of the teachers complained of the heavy workload and indicated that the workload was too much for them (Interview script) to balance all the activities including preparing and taking students for practical work. In regards to this, some teachers further opined that it is not practical to balance between all required activities since some schools have more students to teacher ratio. Therefore, marking assignments and preparing for various exams which are fixed within the timetable limits time for practical in schools. Some of the teacher also indicated that what is indicated on the timetable is not what they have to cover since shortage of teachers' forces them to step in and take extra lessons, increasing their workload.

4.5 The Influence of Teacher Related Factors on Intergration of Practical Skills in Teaching and Learning of Agriculture in Secondary Schools.

The second objective set to determine the influence of teacher related factors on integration of practical skills in teaching and learning of agriculture in secondary schools. To achieve this, the study considered various issues as discussed in the sub-sections that follows.

4.5.1 Various Teaching Methodologies used by Teachers

Teaching methods are very important in the process of teaching and learning given that they inform the way teacher organizes and deliver content and how students respond to learning outcomes. For a teacher to deliver what the curriculum dictates and ensure that they utilize maximum learners' potential, the guiding principles have to be in perspective. Different learning environment requires that a teacher uses the most effective teaching methodology in his or her teaching process. In this regard therefore, teachers were asked to indicate the teaching methodology they use in teaching of agriculture in their schools. The results are presented in the table below.

Table 4.4: Various Teaching Methodologies used by Teachers

	Frequently		Rarely		Never		Total
Instructional method used	F	%	F	%	F	%	F
Lecturing	20	100	0	0	0	0	20
Discussion	14	70	6	30	0	0	20
Demonstrations	11	55	9	45	0	0	20
Laboratory experiments	6	30	8	40	6	30	20
Fieldwork	6	30	9	45	5	25	20
ICT integration	7	35	12	60	1	5	20
Project based	0	0	18	90	2	10	20

Source: Field Data (2019)

The results in table above indicate that there are about six teaching methodologies used in teaching of agriculture in the sample schools. According to the findings, lecturing, discussion, demonstration, laboratory experiments, field trips and ICT aided teaching methodologies are the teaching technique that are used in teaching. The study went further to ask the teachers to indicate the frequency of usage of the same instructional methods that they indicate. The results on the frequency of usage can be summarized in the figure below.

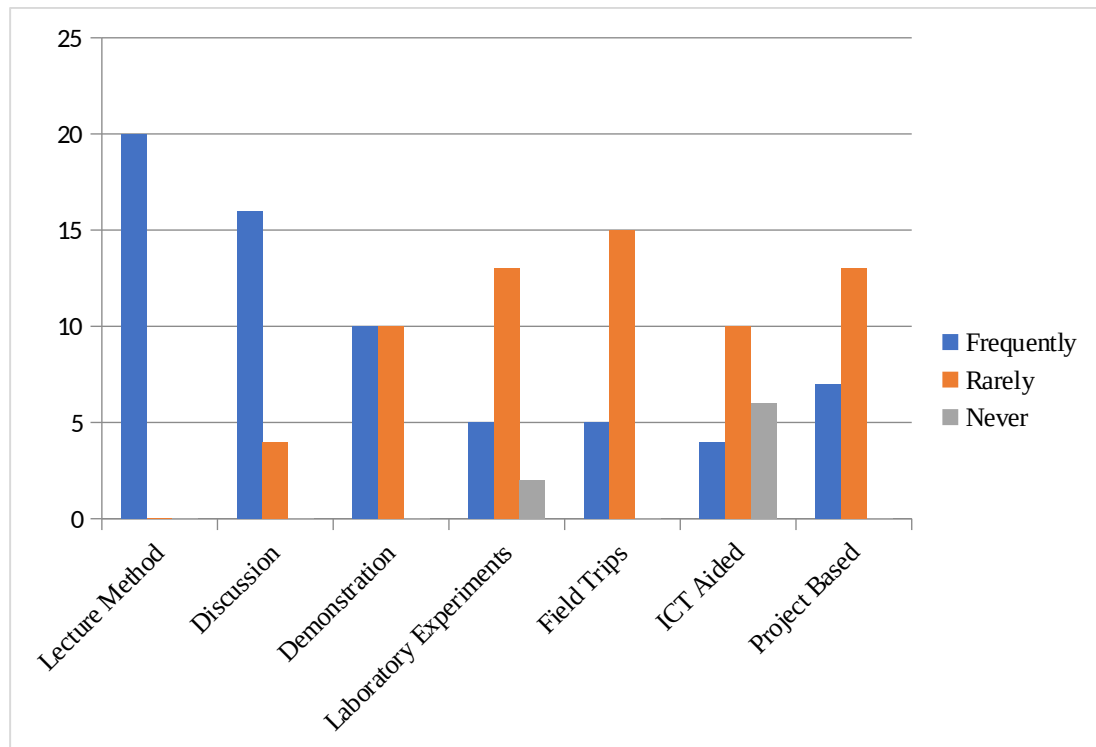


Figure 4.4: Frequency of usage of Teaching Methodologies

Source: Field Data (2019)

From the figure above, it is evident that lecture method is the most commonly used teaching method in schools. From the responses given all 20 (100%) teachers indicated that they use lecture method on a frequent basis. Commenting on the reason why this is the case, the teachers gave various responses. Among the responses given include; it is the most effective method to use to teach given that it helps the teacher to have ample time with students, it helps to offload the heavy agricultural syllabus and it is the cheapest way in terms of resources and time. The findings are in line with Darko et al (2015) who established that lecture teaching method is the oldest teaching method in agricultural science and most effective, cheapest and easiest.

Teachers also indicated that they use discussion method in teaching of agriculture in secondary schools. Findings from the figure above indicate that 16 (80%) of the teachers indicated that they use this method frequently. Commenting on why they prefer using the method frequently, they indicated a number of reasons including; it helps the students synthesize information and demonstrate its understanding, it helps students enhance each other's understanding give that they can share among themselves in a way that they can understand in groups and lastly it helps students to remain active hence enhancing participation. A study by Dela (2018) postulated that discussion method is critical for teachers who want to ensure that students take part in demonstrating their understanding and helps the teacher to know where their strengths and weakness may be for improvement purposes.

The findings also indicate that demonstration method was among the teaching methods that were employed by agriculture teachers in their teaching process. Data from the figure above shows that 10 (50%) use this method frequently while the remaining 50% rarely uses. This implies that this method is used but at a varying extend. Teachers who indicated they use this method frequently said they preferred this method because; it is good in encouraging and motivating students in understanding that they can achieve what they learn verbally, it has the ability to convince the student that what they learn is not as tough as it seems and finally, it helps students to focus on the basics that helps in building understanding in broader perspective. Suomela et al (2013) reiterated that demonstration teaching method helps the students to connect with the concept in context and raising their interest in the topic as it simplifies some tough concepts that are taught verbally. Those who used the method rarely indicated that it is time consuming hence derailing syllabus

coverage and required additional resources which may not be always available in their schools.

The teachers indicated that they used laboratory experiments in their teaching endeavor. However, the results here were a little bit different since all the responses were found to be in play. From the figure, it is evident that only 5 (25%) of the teachers indicated that they used laboratory experiments in their teaching process. Commenting on why they considered this method, the respondents said that it helps the students interact with specimen which translated into real agricultural setup outside class which helps them be motivated about agriculture. Majority of the respondents which amounted to 13 (65%) indicated that they rarely used this teaching method. Finally, only 2(10%) indicated that they never used this teaching methodology. This implies that the practical aspect that is laboratory aided was not well considered. Research conducted by Shoulders (2012) indicates that problem solving learning is well achieved when students are exposed to agricultural laboratory experiments. By going to the laboratory, students are able to be involved in scientific based learning which helps them think beyond, be innovative and come up with the solutions that are worth the changes taking place in agricultural sector.

Another teaching method that was found applicable agriculture teachers according to their responses was the field trips. However, this method was not so much deployed by teachers since only 5(25%) of the respondents indicated that they use it frequently while 15 (75%) of respondents indicated that they rarely use it as a teaching method. For the teachers who use this method, they opined that the method is effective in teaching topics that are more practical and the schools have no capacity to deliver the necessary resources. This is almost

similar to what those who used rarely commented about the teaching method saying that it is effective for advanced teaching and learning but so much expensive. Another reason that was cited that makes the teachers use this method was the fact that the curriculum guides them to do so as a way of exposing the students to the practical skills.

The study also established that project-based teaching was used by agriculture teachers in their teaching endeavor. Only 7(35%) of the respondents indicated that they used this method frequently against the remaining 13(65%) of respondents who rarely used the method. From the comments given about the use of projects as a teaching methodology, it was evident that the method was used because it was an exam requirement by KNEC and therefore eligible for candidates only. Additionally, teachers commended that this teaching method required a lot of resources hence making it difficult to be used frequently. A study conducted by Warner et al (2006) indicated that school that are equipped with laboratories that promote agricultural oriented activities produce students who are complete practical agriculture. The findings are also in line with Ogechukwu et al. (2020) who established that laboratories helped in producing fully equipped students in both crop and animal husbandry through the experience gained from various practical lessons.

Today, ICT integrated teaching has been cropping into education system and its applicability has been so wide. In regards to this, teachers also indicated that that they used ICT aided teaching method. Data from the figure above shows that 4(20%) of teachers indicated that they deploy ICT aided teaching while 10(50%) of the respondents indicated that they rarely use ICT aided teaching method. Lastly, 6(30%) of the respondents indicated that they never used ICT aided teaching methodology. The respondents who use this

teaching method indicated that it is so effective in organizing and delivery of lessons and for students, it is a way to help them retain the knowledge they acquire. Additionally, they indicated that it is easy to show the real practical skills to students without necessarily taking them to the field.

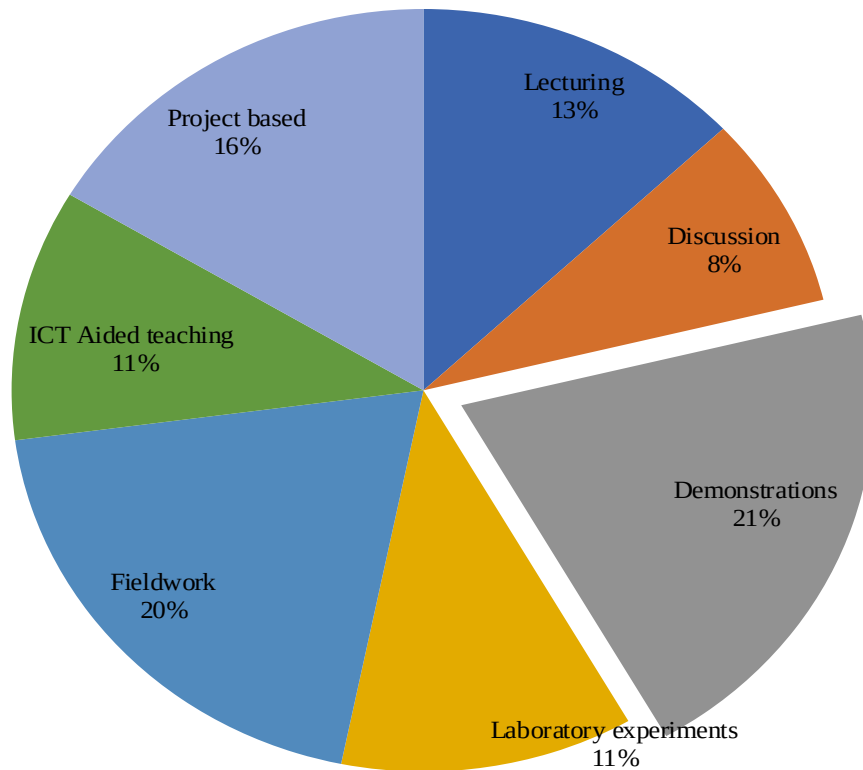
4.5.2 Students Views on Various Teaching Methodologies

Students were asked to rate their preferred method of teaching as applied by their teachers during the teaching and learning process. They were required to rate all the seven teaching methodologies on the rate of 1 to 6 where 1 represented the most preferred and 7 the least preferred. Results are presented in the figure below.

Figure 4.5: Students Views on Various Teaching Methodologies

Source: Field Data(2019)

Results in the figure above indicate that students had varied views on their preferred teaching methodology. As indicated, majority of the respondents, 21% preferred demonstrations as best method of teaching. It is worth noting that this teaching methodology is one of the methods that facilitate best teaching and learning of practical agriculture. Furthermore, respondents who rated this as the most preferred method cited some reasons, inter alia; effectiveness in helping the students ground themselves in various areas that may not be understood well in class and its time saving approach to practical



teaching and learning process. The second teaching method preferred by the students according to the results presented in the figure above was field trips with a 20% rating score. Field trips are among the effective ways of teaching and learning of agriculture. Students who rated this as their preferred teaching methodology commented its effectiveness in exposing them to new concepts and ideas that may not be obtained if teaching and learning only happened in their classes and school compounds. Another practical approach to teaching that was the third most preferred was project works. As indicted in the figure above, 16% of the respondents' rated projects works as their preferred teaching method as it exposes them to the real skills that are necessary in agricultural science.

On the contrary, lecture method was preferred by only 13% of the respondents as the most effective method of teaching. This is the opposite of what the case is in the real situation as the findings from teachers indicated that they use mostly lecture method in teaching. Other teaching methodologies like ICT aided teaching, laboratory experiments and discussion method with 11%, 11% and 8% respectively. One of the reasons why this is the case may be attributed to the fact that schools are not equipped with modern ICT facilities and laboratories that would impact the integration of practical skills in teaching and learning of agriculture. Additionally, discussion method consumes a lot of time proving it a challenge for teachers to balance the teaching through this method and finishing the workload in agriculture syllabus.

From these findings, one aspect that is evident is that students preferred teaching methods that have more practical approach. However, this is opposite to the reality on the ground as the findings from this study indicate that the teaching and learning process favors mostly theoretical work. As Kyule (2015) established, integration of practical skills in agriculture is faced by numerous challenges that hinder students' expectations and abilities to achieve greater heights in their learning process. Additionally, the administration willingness to boost practical skills is hampered by lack of support from the national government where the curriculum emanates. In this case therefore, students suffer at the expense of the curriculum developer, which eventually has spillover effect to various agricultural sectors as the students being produced may not be as good as required.

4.5.3 Agriculture Teacher Teaching Competency

The study sought to establish how teachers were competent enough in their teaching process especially in practical related areas. The research developed a likert scale rating with a 3-point response where 1= Fully, 2=Partially and 3=Not at all

Table 4.6: Students Responses on Teachers' Competency

Source: Field Data (2019)

Statement	1	2	3
Teacher demonstrates understanding in various practical topics	230	26	0
Teachers use variety of teaching methods related to practical lessons	60	196	0
Teachers pay attention to students' abilities	45	100	111
Teacher correctly tackles questions during practical lessons	180	43	33
Teacher uses practical examples from his farming experience	25	212	19
Teacher Incorporates students' innovative practical ideas	21	70	165

Teacher practical teaching competencies are imperative since they ensure that most of the areas that are to be covered in practical lessons are done so in a way that satisfies students' needs. Findings in the table above indicate that 230 respondents indicated that teachers fully demonstrated understanding in various practical topics that they were teaching. This

implies that the teachers were well equipped in matters knowledge according to the syllabus guidelines since only 26 respondents indicated that their teachers demonstrated partial understanding. A study conducted by Melisa (2011) indicated that the first step towards effective teaching of practical lessons by the teacher was ability of the teacher to demonstrate understanding in various practical areas. She says by doing so, students are encouraged and motivated that they are headed in the right direction.

The study also asked the students to respond on teachers used various teaching methodologies that are aligned to practical lessons. Majority of the respondents, 196 indicated that teachers partially used all the teaching methods that are aligned to practical lessons. This is in line with the findings on teachers' frequency of usage on various teaching method which indicated that lecture method was the most commonly used method in teaching and learning of agriculture in secondary schools. This implies that practical is not given much emphasis given that various teaching methods used are just partially applied for the purposes of syllabus coverage. However, there was 60 who respondents indicated that teachers fully used the various teaching methodologies that are aligned to practical agriculture lessons are directed by the curriculum. This may be attributed to the fact that some schools are equipped and therefore teachers may have more resources as compared to those who partially used various teaching methodologies.

The aim of practical lessons is to demonstrate various abilities in line with what the syllabus directs. The study sought to establish if teachers were able to pay attention to various students' abilities in practical lessons. The results as shown in the table above indicate that 111 students indicated the teachers did not pay attention to students' abilities. Additionally,

the data indicate that 72 and 68 respondents indicated that teachers recognized students' abilities fully and partially respectively. The number of teachers recognizing various abilities being low may be attributed to the fact that most of the teachers concentrate only on teaching for purposes of exams and little to do with nurturing various abilities. As Mbiu (2015) established, teaching practical requires that teachers be competent in realizing students' abilities in various areas. He opines that students are different and take different approaches to various practical lessons. It is therefore the responsibility of teachers to understand how to motivate and encourage various abilities that are exceptional.

For teachers to demonstrate that they have an understanding of various practical concepts, they should be able to respond to questions that come from the students without any problem during the practical lessons. Responding to this issue, majority of the respondents, 210 indicated that teachers were fully able to answer questions related to practical lessons without any problem. The remaining 46 respondents indicated that their teacher could partially tackle practical related question during lessons. This implies that teachers were well equipped with practical knowledge and ready to disseminate the information they had at their disposal. Mirambo and Ndalu (2016) postulated that some teachers face it rough in the practical lessons as they tend to fail to reproduce their best as it is in their lecture method. They attributed this to the fact that some teacher sail from a background that may not be so much advantaged agricultural wise as exemplified by those who were born, grew and school in urban settings.

Lastly, data in the table above indicate that 169 of the respondents indicated that teachers did not incorporate their innovative ideas in practical lessons. However, 21 respondents

gave opposite response to the first one given that they indicated that their teachers fully incorporated their innovative ideas in the practical lesson with 70 of the respondents indicating that their ideas were incorporated partially. This would be attributed to the fact that the packed lessons have less time for practical in addition to lack of resources to incorporate innovative ideas. However, this is very unfortunate on the side of the students as it kills their motivation of pursuing agriculture given that their ideas cannot be appreciated. Njura (2015) encourages that team work between the student and teachers is very important in ensuring student success in both theoretical and practical perspectives. He further points out that some students have very brilliant ideas which when well understood can translate to addition of both knowledge and skills in the agriculture sector at large.

Table 4.7: Attendance of Training Session in Workshop, Seminars and Teacher Development Course

	Frequency	%
Once in a Month	4	20
Termly	4	20
Yearly	2	10
Twice Per Term	3	15
None	7	35
Total	20	100.0

Source: Field data (2019)

Study findings in Table 4.13 show that most of the teachers 7(35%) do not attended training session organized by county education office with regard to agriculture subject, 20% of them attend training either monthly or termly while only 2(10%) of the teachers attend the training session yearly. In general, the study findings imply that the schools in Busia County do not value skills development while on the job but prefers other forms of training.

On contrast, a number of the respondents 2(10%) were of the view that job training programmes is effective in enhancing the integration of practical skills in the teaching and learning of agriculture.

The study findings are consistent with past research findings that linked practical skills to training quality. It was noted by Bett (2016) that teacher quality is assessed with reference to the level of education and training. In general, it is evident that for improved performance the following mode of training should be prioritized in the order; classes supervision, workshops, orientations, seminars and especially, mentoring. Schools should embrace seminars for teachers and induction programmes like class demonstrations.

4.6 Influence of School Related Factors on Integration of Practical Skills in Teaching and learning of Agriculture in Secondary Schools

The third objective of the study was to determine the influence of institutional factors on integration of practical skills in teaching and learning of agriculture in secondary schools. Institutions play a foundational role in ensuring that the integration of practical skills is well achieved for student benefit.

4.6.1 Availability of Teaching and Learning Materials aligned to Integration of Practical Skills

The study first sought to determine availability of resources that are associated with the practical lessons within the institutions in context. To achieve this, the study asked the respondents to indicate the availability of the various teaching/learning resources and the results are presented in the table below.

Table4.10: Teachers Respondents on Availability of Teaching and Learning**Resources**

Facility/Resource	Yes		No	
	Frequency	%	Frequency	%
Demonstration plots	20	100	0	0
Agriculture Workshop	4	20	16	80
Livestock and Livestock tools	6	30	30	70
Farm structures	6	30	14	70
Farm Tools and equipment	20	100	0	0
Farm inputs	20	100	0	0
Models	4	20	16	80
ICT resources	4	20	16	80
Total				

Source: Field Data (2019)

Findings in the table above indicate that the schools had demonstration plots, farm tools and equipment and farm inputs since all the 20 teachers (100%) indicated that the school had the said resources at their disposal. However, the reason why most schools have these resources is because they are required to have them by the ministry of education for the students have to do a practical exam. However, some other resources were found to be unavailable in some schools including agriculture workshop, livestock and livestock tools, models and ICT resources. For instance, only 4(20%) of the respondents indicated that they had agriculture workshop, models, and ICT resources while the remaining 16(80%) indicated that their schools had no such resources at their disposal in their school.

Principals were also asked to share their perspective on the aspect of the resources that were required by the students and teachers for practical lessons. Just as the teachers confirmed, all the 18 principals confirmed availability of resources like demonstration plots, farm inputs and farm tools and equipment. Similarly, just as the teachers had indicated, all the 18

(100%) principals opined that their schools had challenges with other resources like ICT resources, livestock and livestock tools and equipment and models. For instance, one of the principals said:

The issue of field trip is among the issues that give the administration headache given the scarcity of funds in the school. The current situation in education requires a lot of resources for effective teaching and learning process. As a school, we have a budget which has to fit at least every area that requires input but more emphasis are put on the resources that the school cannot do without. The reality on the ground is that it is not easy to have everything that is required for agriculture practical, infact, as a school we find it very difficult to acquire some resources like livestock and related resources and ICT materials that would aid in teaching and learning process. This is because we are underfunded by the government which on the other hand has given a lot of directives on practical lessons.

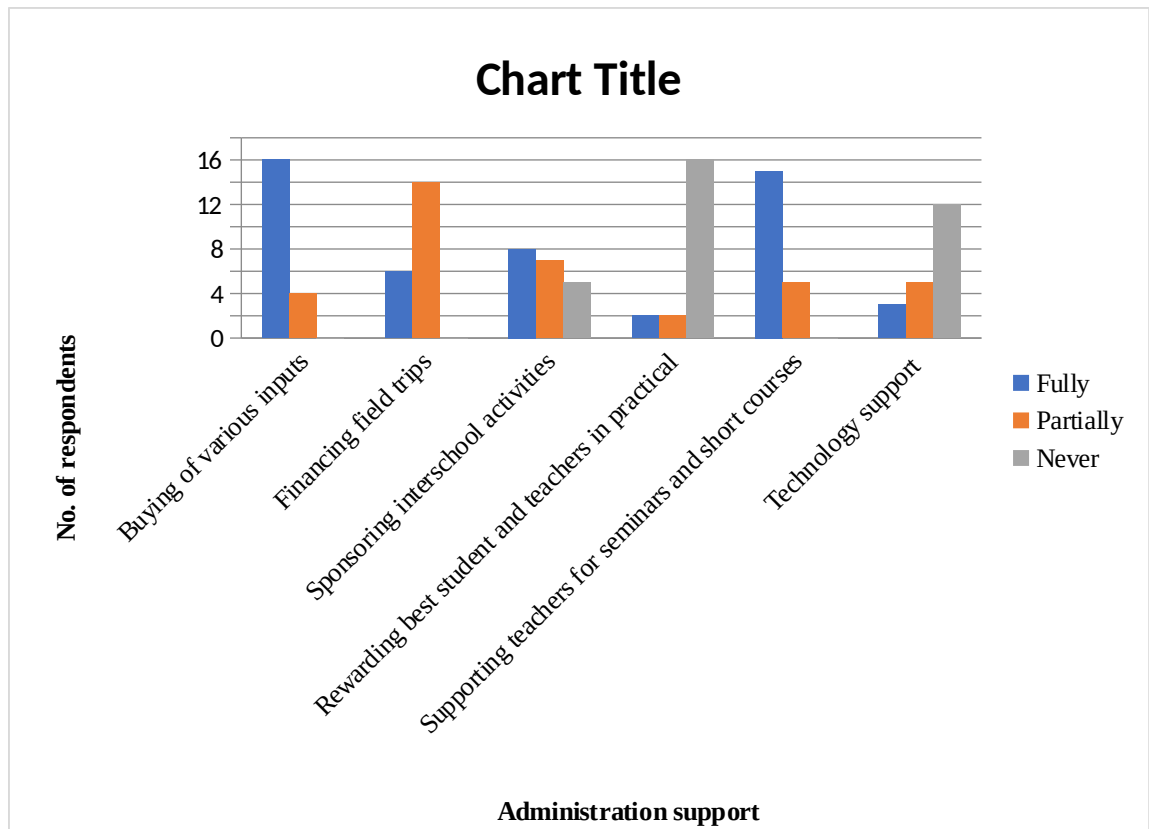
4.6.2 Administration Support for Agriculture Practical Lessons

The study sought to establish the level of support that teachers and students are given for the purposes of teaching and learning of practical agriculture within the schools in context. Administration is one of the pillars that are mandated with ensuring student and teachers' wellbeing in every aspect. The study therefore asked the teachers to rate the level of support that the administration has put in for practical lessons and the findings are presented in the figure below.

Figure 4.6: Administration Support for Teachers and Students

Source: Field Data (2019)

From the figure above, varying responses from teachers on administrations support can be seen. Concerning administration supporting the teachers on buying of farm input, 16(80%) of the teachers indicated that the school administration fully supports them on this endeavor



while the remaining 4(20%) indicated that the school partially supported them. This is in line with the findings that were obtained on the aspect of availability of farm inputs where respondents indicated that they were available. Basing on this, it is worth noting that the school tried its level best to ensure that such support of inputs came through to help the students have their practical lessons. Additionally, some input as Kiguthi et al (2019) puts were a must for the use by the candidates whom it was a must they undertake a practical project. Teachers' comments on this indicate that some of the inputs that were bought by the school include fertilizer, seeds, pesticides and other tools like machetes, weeding hoe, spades and wheelbarrows just but to mention a few.

Another issue that the study inquired about concerning administrative support was on the school financed trips. Just as indicated in the figure above, 6(30%) of the respondents

indicated that they were fully supported by the administration concerning the field trips while remaining 14(70%) respondents indicated that the school partially sponsored the field trips. Most of the teachers who commented on the issue pointed out the fact that students were to have more trips than the once per year trip, implying that the field trip issue was not fully serviced by the administration. In addition to this some indicated that they needed more time with the students in the field given that they travel long distance and are required to go back before they even finish the objectives of the field trip. This implies that at a point, the administration considers field trips partially to justify why the school fees includes field trip allocation that are paid along.

Principals were asked to give their opinion on the field trips are done as required and according to the guidelines given by agriculture curriculum and one of the principals opined:

The curriculum does not give any directive on how many trips the students should have. One issue about trips is that it is not only agriculture that requires trips, some subjects too require that trips be incorporated in the process of learning. In this regard therefore, the administration has to make wise decisions on how to sponsor this trips, given that they are expensive to facilitate and students are many across the four classes in secondary school. However, the school makes sure that at least it has sponsored a trip once a year for every class so that the students can get a chance to have a taste of learning outside class or school environment. In my opinion, such field trips are just a way to help students cement what they have learnt in class.

The study also sought to establish how the school supported interschool activities through agricultural clubs. Only 8(40%) of the respondents indicated that this was fully supported by the school administration while 7(35%) respondents indicated that the school administration partially supported this. Furthermore, 5(25%) of the respondents indicated that the school administration never supported interschool agricultural activities through

agricultural clubs. This implies that very few students in Busia County had a chance to interact with students from other schools to share the practical projects that they might have at their disposal. The reality is that such interschool activities happen to be a point where teacher and students tend to share various agriculture practical concepts that would otherwise have not known.

One of the critical factors in teaching and learning especially through involving way like practical lessons is rewarding the best performers in the farm. In regards to this, the study wanted to find out how school administration supported the teachers and students by recognizing the efforts of the best projects and rewarding them. Contrary to the researchers' expectations, the findings indicate that teachers and students who stood out in practical activities were never appreciated with 16(80%) of the respondents indicating so. However, 2 (10%) respondents indicated that their school had a reward program for outstanding teachers and students in practical activities while the remaining 2(10%) indicating that their school partially supported them through reward initiative. Commenting on the reason why the school may not be in position to do so, some of the teachers' suggestion pointed towards the fact that most of the projects that are done in the schools are done for exam purposes and has little benefit to the school. Bird (2013) postulates that rewarding students who do well in agricultural projects is a way that can help motivate students to dream of achieving much and encourage others to join choose agricultural science.

Another aspect that the study wanted to find out how administration supported agriculture teachers on the issue of attending seminars and other teacher development programs. Today, the reality is that there are very many innovations in the field of agriculture that

require teachers to update themselves to remain relevant. However, most of the workshops and seminars require input from the school administration since the teachers attend such seminars to represent the school. Concerning this issue, 15(75%) of the respondents indicated that the school administration supported them fully to attend seminars and teacher development programs which acted as refreshment courses to the knowledge that they already had in agriculture. The remaining 5(25%) of the respondents indicated that their school partially supported this. Commenting on this, one of the respondents indicated that sometimes they would be invited for a seminar but the school fails to step in due to financial difficulties.

Principals were also required to give their view concerning the same. What came out clearly from them is that they did not want their teachers to remain behind since it would derail the school and affect the performance as some of the seminars are organized by education stakeholders. Speaking on the subject in context, one of the principals said:

Yes, we support our teachers to attend seminars and other teacher development programs since we understand as the administration that education is dynamic and require one to refresh to catch up with the current issues in his or her field of professionalism. Therefore, as administrators we normally encourage our teachers to attend the seminar and teacher development programs and give them both material and financials support for the same. Additionally, like in my case, I advise my teacher to take advantage of holiday or ask for study leave to go and pursue short courses that would help him or her improve in her profession.

A principal asserted,

“For us to encourage integration of practical skills in teaching agriculture, we have established a link with Agricultural Training Centre within the county for practical and demonstration purposes during weekends. The school of late has held several meetings with parents so as to come up with

mechanism of getting more funds to buy land, tools and equipment to be used for agriculture practical purposes”.

Another principal quipped thus;

“We encourage the schools to have a joint academic tour with other schools to reduce on cost so as students can learn practical lessons in agriculture better. Teachers are also encouraged to be creative in delivering practical lessons in agriculture. The formation of young farmer’s club by students is also a priority towards integrating of practical skills in teaching and learning agriculture subject”.

Resources play a very vital role in ensuring that students get enough hands-on experience in their practical lessons. Research indicates that schools that have invested in agricultural resources have not only permed well but produced learners who have shone in agricultural related areas post-secondary education. Furthermore, schools that have demonstrated competence in agricultural science projects are said to be considerate of the fact that students should have access to various resources for them to portray their true image in science. What has been evident in some cases is that those students who have had difficulty in theory and exams have sometimes proved so effective in practical areas provided that resources required are at their disposal.

The above findings imply that study findings imply that schools lack adequate resources to be used by students to learn agriculture practical in their respective schools. The study findings correspond with Tom (2009) who found out that resources’ availability has a positive and significant effect on performance and Abalu (2011) who observed that

resources had a positive effect on integration of practical skills. Mukwana (2013) concluded that resources had a negative and significant effect on the integration of practical skills, while the current study disagrees. Although school success is influenced by other external factors, including the head teacher, the results of this study agree with those of Skinner (2007), who found that an effective head teacher is the key element for an effective school. Principals' levels of motivation are the single most important predictors of their success. This is due to the fact that a principal's position as a leader entail mobilizing school resources and setting the institution's strategic goals and objectives. In the schools that were evaluated, principals did not play a significant role in making decisions.

Previous studies indicate that the role of the school administration in agriculture practical in secondary schools in Kenya is to provide leadership and management for the agricultural education program, which includes overseeing the curriculum, instruction, and assessment. The principal also works to ensure that the program aligns with the school's mission and goals, as well as with local, state and national standards (Aholi et al., 2015; Kyule et al., 2016) Additionally, the principal is responsible for ensuring that the program is adequately resourced, including staffing, materials and facilities, and that the program is meeting the needs of students and the community. The principal also works to build partnerships with local organizations and agencies to support the program and to provide opportunities for students to gain real-world experience in agriculture (Karani et al., 2021).

4.6.3 Collaboration with Other Major Players in Agriculture Sector

The study sought to find out the how schools' collaboration with other players in agricultural sector influenced integration of practical skills in teaching and learning of

agriculture in secondary schools. Respondents picked on a level of 1 to 3 where 1=Agree, 2=Neutral and 3-Disagree. Results are presented in the table below.

Statement	1	2	3
Collaboration enhances curriculum development	18	2	0
Improves teacher training	15	2	3
Expands access to various resources necessary for practical teaching and learning	20	0	0
Provides opportunity for networking and mentorship	17	2	1
Increases funding and support	20	0	0

Findings in the table above indicate that most of the respondents 90% (18) agreed to the fact that institutional collaboration with other players enhances curriculum development. However, 10% (2) of the respondents indicated that they were neutral on the same implying that they were not sure on the collaboration had any effect on curriculum development. Additionally, 75%(15) of the respondents indicated that institutional collaboration with other players improves teacher training while 10% (2) were neutral and 3 disagreed. Interestingly, 100% (20) of the respondents indicated that collaboration with other agricultural players like institutions and communities expanded access to resources which are necessary for integration of practical skills in teaching and learning. The case was similarly on the view that institutional collaboration with other players increases funding and support from major players in agricultural sector like the government and non-government organizations. The findings also indicate that 85% (17) of the respondents indicated that collaboration provided opportunity for the students to form networks outside schools and be mentored in agricultural related activities.

The above findings are in agreement with previous studies conducted by Smally (2020), Holder (2021) and DeLay and Washburn (2013). The studies established that:

Collaboration between schools, government agencies, and other organizations can help to enhance curriculum development, improve teacher training, expand access to resources, provide opportunities for mentoring and networking, and increase funding and support. Furthermore, collaboration can help to ensure that the curriculum is relevant and up-to-date, incorporating real-world experiences, developing specialized programs, and improving assessment and evaluation.

During the interview schedule with the quality assurance and standards officer, one of the issues that came out is their role in helping the schools develop a working synergy with other agricultural players in the region as the narration below put.

If the schools have to work in isolation, then they will trail behind in helping the students understand various aspects of practical agriculture, that is why we advices and encourage the administration to work towards creating a working synergy with other institutions within the region which have tools and equipment that the students can learn from.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The current study sought to establish the factors influencing the integration of practical skills in the teaching and learning of agriculture in secondary Schools in Busia Sub-

County. Specifically, the study sought: To establish the influence of agriculture curriculum guidelines on integration of practical skills in teaching and learning of agriculture in secondary schools in Busia Sub-County; To examine the influence of teacher related factors on integration of practical skills in teaching and learning of agriculture in secondary schools; To determine the influence of institutional-related factors on integration of practical skills in teaching and learning of agriculture in secondary schools. The study adopted descriptive research design and collected data using questionnaires, interview schedules and observation. The therefore chapter presents a summary of the major findings, conclusion and recommendations based on study objectives.

5.2 Summary of Key Findings

5.2.1 Adherenceto Various Curriculum Guidelines on Integration of Practical Skills in Teaching and Learning of Agriculture in Secondary Schools

The first objective of the study sought to establish influence of agriculture curriculum guidelines on integration of practical skills in teaching and learning of agriculture in secondary schools in Busier Sub-County. The study found out that secondary schools' teachers agreed that secondary schools rarely used practical skills in the teaching and learning of agriculture. The findings revealed that school timetables were not effective in factoring in enough time for the practical activities and finishing the syllabus on time.

The study established that agriculture curriculum has a lot of content that centers on integration of practical skills as stipulated in the agriculture syllabus objectives. Additionally, the syllabus itself has 95% of the content centering on various practical aspects mostly bordering on crop and animal husbandry and farm machinery and structures.

However, the findings from the study indicate that the curriculum does not favor the teacher in terms of the time allocated for theory lessons which are coupled with the testing aspect. This was demonstrated through the teachers' responses on time allocated and the typical activities involved in the lesson.

5.2.2 Teacher Related Factors and their influence on integration of practical skills in teaching and Learning of Agriculture in Secondary Schools

The study second objective sought to determine the influence of teacher related factors on integration of practical skills in teaching and learning of agriculture in secondary schools. The study established that teaching methodologies, teacher competency and teacher professional development had great influence on integration of practical skills in teaching and learning of agriculture. However, results revealed that the teaching methodology used mostly in class was lecture method with limited the practical approach to teaching and learning. This therefore implies that despite the fact that teacher related factors can only help in integration of practical skills in teaching and learning process upon the choice of the teacher. Furthermore, the results revealed teacher development plays an important role in integration of practical skills in teaching and learning of agriculture.

5.2.3 Institutional Related Factors that Influences the Integration of Practical Skills in the Teaching and Learning of Agriculture

The third objective of the study sought to evaluate the institutional related factors influence the integration of practical skills in the teaching and learning of agriculture in secondary schools. The study found out that the following institutional related factors that influence the

integration of practical skills in the teaching and learning of agriculture: school infrastructure and resources like livestock, farm, demonstration plots, farm inputs and tools and equipment, land for farming and practical, qualified teachers, flexible school timetable.

From the principal interview, it was revealed most secondary schools lacked field days, land for farming and practicals, farm tools, tools and equipment. The respondents fairly agreed that institutional factors play a major role in the integration of practical skills in teaching and learning agriculture. It was observed that school administrators need to allow students go for academic tours whenever funds are available. They also need to mobilize resources to purchase inputs for students' projects in agriculture, and finance academic visits to agricultural institutions.

The results from the Interview conducted to the sub-county quality and standard officer revealed that most schools are not adequately equipped to handle the practical aspects of agriculture practical. The study recommended that teachers be encouraged to visit the agricultural institutions such as the Agricultural institutes within universities that have all the materials. This confirms that institutional related factors influence integration of practical skills in the teaching and learning.

5.3 Conclusion

In Kenya, the secondary school syllabus for agriculture includes topics such as crop and animal production, soil science, agricultural mechanization, and agricultural economics. The curriculum also includes practical components, such as field trips and hands-on projects, to give students hands-on experience with the concepts they are learning. The aim of the syllabus is to equip students with the knowledge, skills and attitudes needed for

sustainable use and management of natural resources and farming practices. The syllabus also focuses on building a strong foundation for students to pursue further studies and careers in agriculture-related fields. These objectives are achieved through a variety of initiatives such as teacher training, partnerships between schools and local farmers, and the establishment of demonstration farms on school campuses. This aims at giving students the opportunity to gain practical experience in crop and animal production and to develop the necessary skills to enter the agricultural sector after completing their education. Additionally, the government is promoting the integration of sustainable agricultural practices in the curriculum to help mitigate the impact of climate change and promote food security in the country.

Various teacher factors were found to influence the integration of practical skills in the teaching and learning of agriculture. These include the teacher's knowledge and understanding of the subject matter, their teaching methodologies skills, access to professional development opportunities, access to resources, attitude towards practical skills, and collaboration with other actors. A teacher with a deep understanding of the subject matter can effectively integrate practical skills into the curriculum and provide students with hands-on learning experiences. Teachers with strong pedagogical skills can create opportunities for students to engage in hands-on learning experiences that allow them to apply the content they are learning. Professional development opportunities, access to resources, and fostering collaboration with other actors can also provide teachers with the tools and resources necessary to effectively integrate practical skills into the curriculum. Furthermore, a teacher with a positive attitude towards practical skills is more likely to actively seek out opportunities for students to gain practical experience.

Administration support is crucial in ensuring that the necessary resources and infrastructure are in place, fostering a culture of continuous improvement, and providing professional development opportunities for teachers to integrate practical skills effectively in teaching and learning of agriculture.

The geographic location of a school influences the integration of practical skills in the teaching and learning of agriculture in various ways. Schools located in rural areas often have an advantage due to their proximity to agricultural resources, which provide students with hands-on learning experience contrary to schools located in urban setting which. Furthermore, climate and weather patterns of a school's location play a role in the integration of practical skills, as schools in areas with favorable climates for agriculture are able to incorporate more outdoor activities and fieldwork, while schools in areas with harsher weather conditions may need to focus more on indoor activities and simulations. In the same line, the school's proximity to agricultural research centers or extension services can also provide opportunities for students to learn from experts and gain real-world experience through internships or apprenticeships.

Finally, school collaboration with other actors can play a key role in providing students with a well-rounded education in agriculture that includes both theoretical and practical skills. By working with local farmers, agricultural organizations, government agencies, and other educational institutions, teachers can gain access to a wide range of resources and opportunities that can help to make the teaching and learning of agriculture more engaging, relevant, and effective.

5.4 Recommendations

- i. The secondary school curriculum in Kenya should be aligned with the national agricultural policy and strategy to ensure that students are exposed to the latest developments and trends in the field and other career related area after their secondary school education.
- ii. Teachers should be provided with regular professional training development opportunities to enhance their knowledge and skills in teaching practical agriculture. This will help teachers develop, student-centered approach, where students are encouraged to take part in hands-on activities, can help to foster interest in agriculture and enhance their practical skills.
- iii. Adequate resources such as land, equipment, and materials are essential for the integration of practical skills in agriculture education. Schools in Busia Sub-County should have access to land for practical learning and farmers should be encouraged to donate equipment and materials for use in the classroom. Collaboration between schools, farmers, and the local community and the government. Government should provide adequate support to schools in terms of funding and technical assistance for the integration of practical skills in agriculture education.

5.5 Suggestions for Further Research

According to the research findings and objectives, the study suggests that further research be done on;

- i. Tracing post secondary agriculture students' application of various agricultural practical skills of in various areas of lives.

- ii. Establish the relationship between integration of practical skills in the teaching of agriculture in secondary school and learners' academic achievements.

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APPENDICES

Appendix I: Letter of Introduction

Masinde Muliro University of science and Technology,
P.O Box 190
Kakamega.

13th July, 2019

Dear Sir/ Madam,

RE: LETTER OF INTRODUCTION.

I am a student at Masinde Muliro University of Science and Technology currently persuing masters studies in curriculum and instruction.

Your school has been selected from the schools in Busia Sub-county for the purpose of data collection. I am carrying out reserch on **factors influencing the intergration of practical skills in agricultural education in secondary schools.**

I therefore request your permission to allow me collect the data required. I promise that all the information collected from your school will be treated with utmost confidentiality.

Thanks in advance.

Yours faithfully,



Rehema Nanyama Shabani.

Appendix II: Questionnaires for the teachers of agriculture

This questionnaire seeks to gather information on the: **Factors influencing integration of practical skills in the teaching and learning of agriculture in secondary Schools in Busia Sub-County, Kenya.** You are one of the respondents identified to voluntarily give your views and ideas concerning the topic of study. Your identity and information you give will be treated as confidential and solely used for the study. You are required to read each question carefully before you give your response.

Section A: Background Information

Please indicate the following

1. Your Gender

Male ☐ Female ☐

2. Your highest qualification as an agriculture teacher?

Masters ☐ Degree ☐ Diploma ☐ Certificate ☐

3. Others (specify).....

4. Teaching experience?

Below 1 year ☐ 1-5years ☐ 6-10 years ☐ 11-15 ☐

20years and above ☐

5. How long have you been in the school?

Below 1 year ☐ 1-5 years ☐ 5-10years ☐ more than 10years ☐

6. Enrolment in agriculture in form 3 ☐ and form4 ☐

Section B: Curriculum Guidelines and Integration of Practical Skills in Teaching and Learning and Learning Agriculture

7. Kindly indicate the your work load in a period of 1 week in terms of hours

8. The table below indicates various teaching methodologies. Kindly rate the frequency of usage

Instructional method used	Frequently	Rarely	Never
Lecturing			
Discussion			
Demonstrations			
Laboratory experiments			
Fieldwork			
ICT integration			
Project based			

9. Indicate the rate of attendance in teacher development related activities

Period	Tick
Once in a Month	
Termly	
Yearly	
Twice Per Term	
None	
Total	

10. The table below indicates availability of some of the resources that are necessary for teaching and learning of practical lessons in school. Indicate if they are available or not.

Facility/Resource	Yes	No
Demonstration plots		
Agriculture Workshop		
Livestock and Livestock tools		
Farm structures		
Farm Tools and equipment		
Farm inputs		
Models		
ICT resources		

11. Rate the following statements on administrative support in practical teaching and learning of agriculture

	Full y	Partial ly	Nev er
Buying of various inputs			
Financing field trips			
Sponsoring interschool activities			
Rewarding best student and teachers in practical			
Supporting teachers for seminars and short courses			
Technology support			

12. On a level of 1 to 3 where 1=Agree, 2=Neutral and 3=Disagree, rate the following statements on institutional collaboration with other stakeholders in agriculture in integration of practical skills in teaching and learning

13. What are some of the challenges most agriculture teachers are face when teaching practical skills?

.....

14. Suggest ways of addressing the challenges shown above in the subject?

.....

Statement	1	2	3
Collaboration enhances curriculum development			
Improves teacher training			
Expands access to various resources necessary for practical teaching and learning			
Provides opportunity for networking and mentorship			
Increases funding and support			

Appendix III: Questionnaires for Students

This questionnaire is intended to collect information on the: **Factors influencing the integration of practical skills in the teaching and learning of agriculture in secondary Schools in Busia Sub-County, Kenya.** You are one of the respondents identified to voluntarily give your views and ideas concerning the topic of study. Your identity and the information you give will be kept confidential and only used for the study. For this reason, do not write your name on the questionnaire. You are required to read each question carefully before you give your response. Your answer will be of great help.

Section A: Background Information

1. Indicate your gender?

Male [☐] Female [☐]

2. State your Form

Three [☐] Four [☐]

Section B: Integration of Practical Skills

1. As a student, can you list the topics that you think have practical lessons in agriculture

1. The table below indicates the activities that take place during agriculture lesson

Class activity	Time (Mins)	
Teacher giving explanation on topical concepts		class
Teacher engaging whole class in discussion		work.
Notes writing		In
Student doing practical work		terms

of minutes, allocate roughly the time each item takes

2. Indicate you preferred teaching methodology among ones listed below

Instructional method used	Tick
Lecturing	
Discussion	
Demonstrations	
Laboratory experiments	
Fieldwork	
ICT integration	
Project based	

3. At the scale of 1-3, where 1= Fully, 2=Partially and 3=Not at all, rate the following the statements on teacher competency

Thank You for Your Cooperation

Statement	1	2	3
Teacher demonstrates understanding in various practical topics			
Teachers use variety of teaching methods related to practical lessons			
Teachers pay attention to students' abilities			
Teacher correctly tackles questions during practical lessons			
Teacher uses practical examples from his farming experience			
Teacher Incorporates students innovative practical ideas			

Appendix IV: Interview Schedule for Principals

This interview guide is armed at collecting information about: **Factors influencing the integration of practical skills in the teaching and learning of agriculture in secondary Schools in Busia Sub-County, Kenya.** Your School has been identified to participate in this study and therefore you have been selected as one of the respondent to voluntarily give your opinion concerning the topic of study. All information given will be treated with utmost confidentiality and only used as purpose of this study

Section A: Background information

1. Type of school?

Boys () Girls () mixed ()

2. Status of the school?

Extra county () county () sub-county ()

3. How long have you served as the principal for this school?

Section B: implementation of education policy guidelines o

4. To what extent has the implementation of practical skills in teaching and learning of Agriculture has been achieved in your school?

High () moderately high () small () very small

5. What is the general performance of agriculture subject in your school?

6. Does the performance relate to the availability and use resources for practical teaching and learning? Yes () No ()

7. If the above response is No, what could be the possible causes?

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

Section C: integrations of practical skills

8. Does your school have qualified agriculture teacher to teach practicals?

Yes () No ()

If Not what is being to that effort?

.....
.....

9. Does the school have enough resources/Infrastructure to facilitate the teaching and learning of agriculture practical skills?

Yes () No ()

If Not, what is being done?

.....
.....

Section D: Institutional factors

10. You as a principal of the school how do you support the teaching and learning of agriculture practical skill in your school?

.....
.....

11. What are some of the limitations does the Agriculture teacher have in terms of teaching practical skills?

.....
.....

12. What is the perception of the learner towards the practical activities?

.....
.....

13. Which advice can you give the teachers of agriculture that can help boost the teaching of practical skills?

.....
.....

Appendix V: Interview Guide for Quality Assurance and Standards Officer

This interview guide is aimed at collecting information about the: **Factors influencing the integration of practical skills in the teaching and learning of agriculture in secondary Schools in Busia Sub-County, Kenya.** I therefore seek permission to interview you to enable me collect the required data for the study. Your views and opinion you give will be of great help in this study therefore all information given will be treated with outmost confidentiality and only used for purposes of this study,

1. What is your role in ensuring that schools adhere to curriculum guidelines?
2. What are some of the challenges that you have encountered in the process of disseminating your duties that teachers agriculture teachers in line with intergration of practical skills in teaching and learning of agriculture?
3. How often do you carry out inspections in schools to ensure quality and standards for practical lessons are met?
4. Do the schools in the county meet the required standards for interagraion of practical skills in teaching and learning of agricture?
5. How do you help the school administration in ensuring that the school go through required quality and standardized procedures of teaching and learning of practical agriculture
- 6.

Appendix VI: School Field Observation Guide

Put a tick in the column to correspond to your response on the availability of resources in the school.

	Adequate	Inadequate	Not available
School farm			
Crop museum			
Animals on the farm			
Pigs			
Cattle			
Sheep			
Poultry			
Tools and equipment			
Knapsack sprayer/hand sprayer			
Watering cans			
Jembes			
Fork jembes			
Slasher			
Farm inputs			
Drugs			
Seeds			
Pesticides			
Fertilizers			
Livestock feeds			
Workshop			
Agriculture Laboratory			
Farm structures			

Fences			
Piggery			
Rabbitry			
Calf pen			
Milking shed			
Nursery bed			
Compost manure			
E-learning Aids			
KIE CD's			
Projector			
Agriculture slides/images			

Appendix VII: Lesson Observation Schedule in Agriculture

NAME OF THE SCHOOL: _____

Approaches in the Classroom

Number of the Students:	Form:	Date:	Comments
-------------------------	-------	-------	----------

a) Lesson Preparation

Availability of a lesson plan.

b) Introduction

Renew of the previous lesson.

Aroused the interest of learners.

c) Teaching methodology

Student-Centered

Teachers-Centered

Are there any demonstrations, practicals and experiments?

d) Lesson Development

Content is well organized.

There are varied activities.

Give students time to practice.

Marked exercises.

Leave assignments.

e) Resources.

Teacher improvised

Adequacy

Use of charts, models, regalia or ICT

Appendix VIII: NACOSTI Permit

THIS IS TO CERTIFY THAT:
MS. REHEMA NANYAMA SHABANI
of **MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY, 580-50400
BUSIA**,has been permitted to conduct
research in *Busia County*

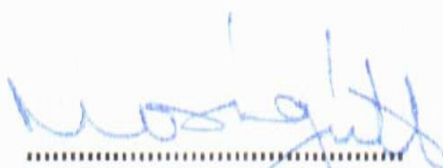
Permit No : **NACOSTI/P/19/83911/30412**
Date Of Issue : **9th July,2019**
Fee Recieved :**Ksh 1000**

on the topic: **FACTORS INFLUENCING
THE INTEGRATION AND USE OF
PRACTICAL SKILLS IN AGRICULTURAL
EDUCATION IN SECONDARY SCHOOLS IN
BUSIA SUB-COUNTY KENYA**

for the period ending:
5th July,2020




.....
**Applicant's
Signature**


.....
**Director General
National Commission for Science,
Technology & Innovation**

Appendix IX: County Permission

REPUBLIC OF KENYA



THE PRESIDENCY
MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL
GOVERNMENT

Email: ccbusia@gmail.com
Telephone: 055 - 22598
Fax No: 055 - 22231
When replying please quote
REF No. ADM 15/4/ VOL.VII/ 23

COUNTY COMMISSIONER'S OFFICE
BUSIA COUNTY
P.O. BOX 14-50400
BUSIA (K)

22nd July, 2019

Deputy County Commissioner
Busia Sub -County
BUSIA COUNTY

RE: RESEARCH AUTHORIZATION

Following research authorization vide letter Ref. No. NACOSTI/P/19/83911/30412 dated 9th July, 2019 by the National Commission for Science, Technology and Innovation on "Factors Influencing the Integration and use of practical skills in agricultural education in secondary schools in Busia sub- county, Kenya," this is to inform you that **Rehema Nanyama Shabani** has been authorized to carry out research in Busia Sub- County for the period ending 5th July, 2020.

Kindly accord her the due co -operation.

Samuel Kimani
For: County Commissioner
BUSIA COUNTY

Copy to:
Rehema Nanyama Shabani
Masinde Muliro University of
Science and Technology
P. O. Box 190-50100
KAKAMEGA

COUNTY COMMISSIONER'S OFFICE, BUSIA

Appendix X: University Authorization Letter



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

24th April, 2019

Rehema Nanyama Shabani,
ECI/G/300/15,
P.O. Box 190-50100,
KAKAMEGA.

Dear Ms. Shabani,

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters' proposal entitled: *"Factors Influencing the integration and use of Practical Skills in Agricultural Education in Secondary Schools in Busia –Sub County, Kenya"* and appointed the following as supervisors:

- | | |
|-------------------------------|----------|
| 1. Prof. John O. Shiundu | - MMUST |
| 2. Prof. Stanley. N. Mutsotso | - KIBUCO |

You are required to submit through your supervisor(s) progress reports every three months to the Director Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Education Graduate Studies Committee and Chairman, Curriculum and Instructional Technology Department. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,


DEAN
SCHOOL OF GRADUATE STUDIES
MASINDE MULIRO UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Dr. Consolata Ngala
ASSOCIATE DEAN, DIRECTORATE OF POSTGRADUATE STUDIES

Appendix XI: Ministry of Education Authorization



REPUBLIC OF KENYA

**MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION**

Telephone: 055-22152

Fax: 055-22152

When replying please quote

Email: cdebusia@gmail.com

COUNTY DIRECTOR OF EDUCATION

BUSIA COUNTY

P.O. BOX 15 - 50400

BUSIA (K)

19th July, 2019

Ref No. BJA/CDE/ED/9/6/(220)

Sub-County Directors of Education
BUSIA

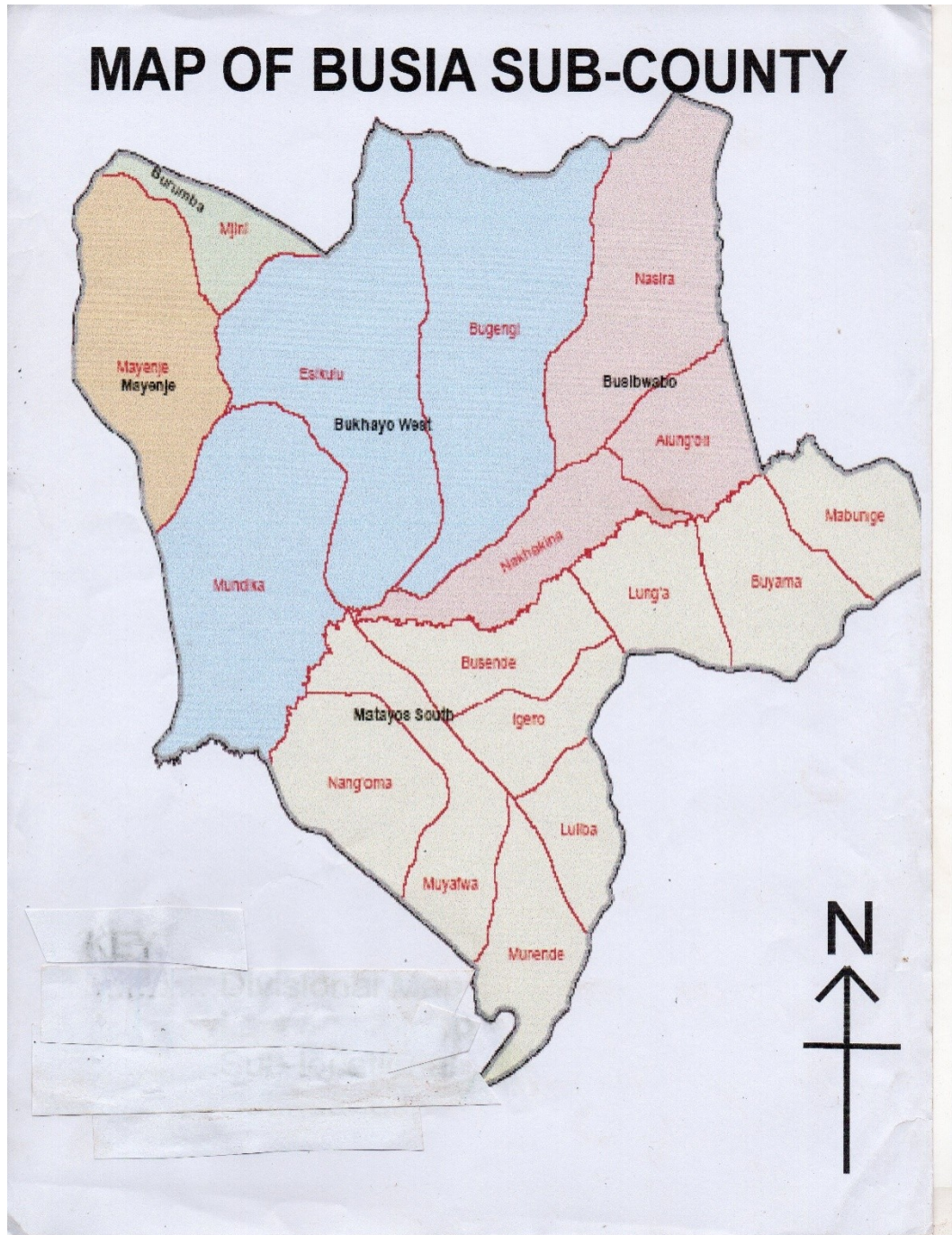
RE: RESEARCH AUTHORIZATION

This office is in receipt of letters from National Commission for Science, Technology and Innovation dated 9th July, 2019 authorizing research on **"Factors Influencing the Integration and Use of Practical Skills in Agricultural Education in Secondary Schools"** in Busia Sub-County, Busia County. The research period is expected to ending 5th July 2020.

This is to inform you that **Rehema Nanyama Shabani** has been authorized to conduct the research. Kindly accord her necessary assistance.

AWUOR T. A
COUNTY DIRECTOR OF EDUCATION
BUSIA COUNTY

Appendix XII: Map of Busia Sub-County



[illegible]