

**AGRICULTURAL SKILLS TRAINING AND COMPETENCE OF AGRICULTURE  
SECONDARY SCHOOL TEACHERS: A CASE OF AGRICULTURE TEACHER  
TRAINING AT KYAMBOGO UNIVERSITY**

**BY**

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## Declaration

I Natukunda Asa hereby declare that, this thesis has not been submitted for a degree in any other University. All work contained herein is original unless otherwise stated.

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Natukunda Asa	<i>MNS</i> .....	<i>17/12/2013</i>

## Approval

This is to certify that the work embodied in this thesis is presented by Natukunda Asa under the title; **Agricultural skills training and competence of agriculture secondary school teachers; a case of agriculture teacher training at Kyambogo University.**

It is now ready for submission for the award of a degree of Master's in Vocational Pedagogy with my due approval.

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## **Dedication**

Dedicated to my husband Mr. Barigye Soedi and children; Hamdan, Mikdad, Mahad, Faham and Kideni for their patience, tireless support and encouragement.

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## Acronyms

A 'level	Advanced level
AIDS	Acquired Immune Deficiency Syndrome
BTVET	Business Technical Vocational Education and Training
DoA	Department of Agriculture.
FPT	Field Practical Training
GDP	Gross Domestic Product
GWP	Government White Paper
HoAD	Head of Agriculture Department
KyU	Kyambogo University
MGLSD	Ministry of Gender, Labor and Social Development
MoES	Ministry of Education and Sports
NCDC	National Curriculum Development Centre
NEMA	National Environmental Management Authority
NTC	National Teachers' College
O' level	Ordinary level
PTCs	Primary Teacher Colleges
TAE	Tertiary Agricultural Education
TVET	Technical, Vocational Education and Training
VP	Vocational Pedagogy

## Abstract

This thesis presents results from a study carried out to examine the mode of training of Agriculture secondary school teachers in the Department of Agriculture at Kyambogo University, in relation to the expectations of secondary school agriculture syllabus. The study included; examination of expectations for inclusion of agriculture as a subject in the secondary school curriculum, secondary school agriculture teacher training at Kyambogo University and the best options for Agriculture teacher training in the Department of Agriculture at Kyambogo University. The research design was a case study using qualitative research approach to collect and analyze data. Data was sought from the Commissioners for secondary education for private schools and for Government schools, in the Ministry of Education and Sports, Agriculture specialist at National Curriculum Development Centre, teaching staff in the Department of Agriculture at Kyambogo University, head teachers and heads of Agriculture departments in secondary schools, secondary school Agriculture teachers, final year students of the Agriculture programmes in the department of Agriculture at Kyambogo University, personal observation and secondary data. The main reasons for the inclusion of Agriculture subject in the secondary schools' curriculum were to equip learners with knowledge and modern agriculture production skills for increased agricultural production in the community and for self reliance/employment in Agriculture. The teachers in secondary schools and staff in the Department of Agriculture at Kyambogo University were substantially aware of these very reasons that Agriculture subject in the secondary school curriculum was to equip learners with knowledge and modern agriculture production skills for increased agricultural production in the community and for self reliance/employment in Agriculture. However, due to theoretical nature of assessment by Uganda National Examination Board, theoretical teachers by training, non supportive head masters, inadequate funds and lack of demonstration plots meant that teachers in secondary schools did not teach well agriculture as a hands on subject. Efforts are made at Kyambogo University to give practical training in agricultural skills through activities on the University farm, in laboratories and field trips as the teacher training programmes require. Unfortunately, the training is characterized by fewer tasks which are inadequately evaluated, non repeat of tasks, lack of demonstration plots, lack of field attachment, inadequate materials, inadequate time designated for practicals and minimal participation of teaching staff in practical tasks that culminate into poor supervision and instruction of practical tasks. Thus graduating teachers are denied the opportunity to acquire agricultural production skills and the competence needed to pass on the skills to the secondary school learners. Hence, at Kyambogo University there is need for more practical tasks, closer supervision of demonstration plots, introduction of field attachment, teaching staffs need to take greater part in practical tasks to enhance supervision of tasks and projects given to students. Besides, identification of needed skills which should be tested and certified through developing occupational competence based assessment tests need to be considered. Tools and materials provided should match the technological advancement so that graduates are competitive in the field of work.

## **CHAPTER I: INTRODUCTION**

### **1.1 Over view**

The study was carried out to examine the mode of training of Agriculture secondary school teachers in the Department of Agriculture (DoA) at Kyambogo University (KyU), in relation to the expectations of secondary school agriculture syllabus. The study included; examination of expectations for inclusion of agriculture as a subject in the secondary school curriculum, secondary school agriculture teacher training at KyU and the best options for Agriculture teacher training in the DoA at KyU. Chapter one presents the background to the study, personal background and experience, statement of the problem, purpose/main objective of the study, specific objectives, research questions, scope of the study; geographical and content, justification, significance of the study, conceptual frame work and definition of key terms used in the study.

### **1.2 Background to the Study**

Uganda's economy is primarily agricultural; with agriculture supporting close to 90% of the country's population (National Environmental Management Authority (NEMA), 1996), and accounts for about 50% of GDP (Fintees, 1996), over 90% of the exports and employs about 80% of the employed household population (Business Technical Vocational Education and Training BTVET, 2003). Employment in agriculture accounts for about 70% of the entire employment in Uganda, and this share is not expected to drop significantly in the years to come (BTVET, 2011-2020). Agriculture is thus a very important sector in Uganda's economy which makes it equally important that appropriate agricultural skills are imparted. According to

National Curriculum Development Centre (NCDC) (2012), Agriculture is the engine of economic growth for Uganda as it is the main source of food, income and employment.

However, studies carried out on agricultural graduates in Sub Saharan countries such as Ghana where a tracer study revealed that the training of agricultural graduates tends to emphasize theory rather than the application of the theories, indicating a mismatch between knowledge and skills acquired (Taabazuing, 2012).

According to the Uganda Government White Paper (GWP) on Education, the country's education system should facilitate interpretation, application and translation of basic knowledge and understanding of fundamental facts and principles of scientific processes and techniques into productive work (Uganda Government, 1992). However, agriculture teachers appear to lack agriculture production skills since the early times of formal education in Uganda (Ssekamwa 1997), failing to ignite the right skills, attitudes and competences to apply in the labour market. This observation implies that Agriculture teachers may have limited skills to pass on to the learners. It is therefore not surprising that agricultural training programmes in Uganda have been described as generally of low quality (BTVET, 2011-2020). The Business Technical Vocational Education and Training Sector is advocating for revitalization of training facilities, new and improved curricula and human resource development for instruction and management of skills training.

Out of my personal experience as an agriculture secondary school teacher, I am in agreement with the observation by Ssekamwa (1997) that Uganda's teachers appear to lack agriculture skills since the early times of formal education in Uganda. Yet, according to Uganda National Examination Board (UNEB) Agriculture Syllabus, the main aim of teaching agriculture in secondary schools is

to impart practical skills to students to enable them to be self-reliant, resourceful and with problem solving skills (UNEB, 1991). In addition, some of the major objectives of secondary school advanced level (A'level) agriculture stress imparting of knowledge and practical skills required for increased sustainable agricultural production; acquiring necessary knowledge and practical skills in processing, preserving and adding value to agricultural products; and applying practical agricultural skills for self-reliance and self-employment (NCDC, 2012). The "A" Level agriculture syllabus besides equipping the students with higher level of knowledge and skills for agricultural production, it prepares them for progression to tertiary institutions (NCDC, 2012). Equipping learners with practical skills concurs with one of the aims of teaching agriculture at Ordinary Level (O'level) which is to help the learner acquire in a practical manner basic principles and skills in agriculture to enable him /her to manage agricultural enterprises profitably for self-reliance and to contribute to agricultural modernization (NCDC, 2008).

Kyambogo University through its Department of Agriculture trains agriculture teachers. The Department of agriculture is in the Faculty of vocational studies (KyU, 1999). The Faculty of vocational studies strives to impart knowledge and skills for immediate application and employment (KyU, 1999). In addition, the overall objective of the Degree Program in the Department of agriculture is to prepare initial teachers /teacher educators in vocational Agriculture by equipping them with adequate knowledge, skills and attitudes which will enable those that will successfully complete the program to: Gain deeper understanding of the philosophy and nature of Vocational education, the inter-relationship between education, technology, society and the world of work among others. The specific objectives include enabling teachers to: acquire academic and professional knowledge, skills, values and attitudes in vocational agriculture among others (KyU,

1999). From the objectives above, it is evident that agricultural skills acquisition is emphasized however, questions can be raised as to whether teacher training in agriculture in this Department equips teachers with the necessary agricultural skills to pass on to the learners. Hence, there was a need for an investigation to assess the character of training of agriculture secondary school teachers in the DoA at KyU.

The Masters in Vocational Pedagogy (MVP) offered in the Department of Art and Design at Kyambogo University advocates for an approach that emphasizes integrating knowledge with skills (learning by doing), group work, exchange of experiences, work related practice and research (KyU MVP programme book, 2008, not published). With this MVP exposure, I felt motivated to investigate the mode of training of agriculture secondary school teachers in the DoA to determine whether the current training of agriculture teachers is in line with vocational pedagogy approaches, as far as the objectives of secondary school agriculture teaching is concerned.

### **1.3 Personal Background and Experiences**

I am a professional Secondary School teacher and I majored in Agriculture double main as my teaching subject. I did a Diploma in Secondary Education, a Bachelor's Degree in Education and I have been teaching Agriculture for ten years. Teaching Agriculture had become part of me until when my senior four student with two weeks to sit for a national examination asked me how a millet plant looks like. I had to reflect on this question for a long-time trying to find out where I had gone wrong in my teaching, where the curriculum had gone wrong or where my own teacher went wrong because all along I thought I had been teaching farmers to be.

My educational background together with my field experience in teaching Agriculture act as a foundation for my motivation to pursue this course of Master's in Vocational Pedagogy. After reading an advertisement about the course in Uganda's leading daily, the New Vision of January, 2009, I had high hopes that this course would help me resolve my challenges or manage them better. Some of the challenges were reasons as to why the learners I taught could not practice Agriculture at the end of their course moreover they would pass with good grades. Secondly, the "unanswered question" of my student about how a millet plant looked like yet I had taught everything about the millet plant. To this effect, I had longed to stop answering the questions that were never asked by my learners. Thirdly, with the knowledge and skills acquired during my studies, I was not yet confident enough to start and run a successful agriculture project. This clearly showed me that I can only train modestly my learners.

Vocational Pedagogy being a field of education that emphasizes learning by doing and linking vocational education and training to the work and labour market, after reading an advertisement, "*this is it! Asa go,*" I said to myself and thus, I decided to apply for the programme to enhance my skills in teaching vocational subjects.

True to my expectations, the course so far has made me realize that I have been teaching about Agriculture but not teaching agriculture as a vocational subject. Just like how I was taught about agriculture not agriculture itself. I have realized the need for many practical lessons which help build competence. It was at this point that my opportunity came to do research on the mode of training of agriculture teachers at Kyambogo University and how the training received can affect their competence.

#### **1.4 Statement of the Problem**

The BTVET strategic plan 2011 – 2020 of the Government of Uganda and Ssekamwa (1997) reported that agriculture teachers lack agriculture production skills failing to ignite the right skills, attitudes and competences to apply in the labour market. Even when the aims (objectives) of the agriculture teacher training programme at KyU emphasize acquisition of both adequate knowledge and skills by the teachers.

The expectations of the trainees, the mode and the character of the training determine the acquisition of skills and competences to use in the trade or world of work. Hence there is need to study the expectations, mode and character of training of the secondary school agriculture teachers at KyU in order to assess the effectiveness of agriculture teachers in Uganda.

#### **1.5 Purpose of the Study**

The purpose of the study was to examine the mode of training of Agriculture secondary school teachers in the DoA at KyU, in relation to the expectations of secondary school agriculture syllabus, using vocational pedagogical approaches.

#### **1.6 Specific Objectives of the Study**

The study was guided by the following objectives;

1. To establish the expectations for inclusion of agriculture as a subject in the secondary school curriculum.
2. To assess the mode and character of the secondary school agriculture teacher training in the DoA at KyU.
3. To determine the best options for agricultural teacher training in the DoA at KyU.

## **1.7 Research Questions**

Based on the research problem, purpose and objectives, the following research questions guided the study;

1. What are the expectations for inclusion of agriculture as a subject in the secondary school curriculum?
2. How is the secondary school agriculture teacher training done in the DoA at KyU?
3. What are the best options for agriculture teacher training in the DoA at KyU?

## **1.8 Scope of the Study**

### **1.8.1 Geographical Scope**

The study was limited to Kyambogo University-Department of Agriculture. Kyambogo University is the second largest University in Uganda located on Banda hill, 8km east of Kampala city. The University has the Faculty of Vocational Studies in which the Department of Agriculture is one of the Departments of the Faculty.

### **1.8.2 Content Scope**

The study focused on three aspects: examining the expectations for inclusion of agriculture as a subject in the secondary school curriculum; establishing methods of training and facilities used to equip secondary school agriculture teachers with agricultural skills in the DoA at KyU and to find out whether they are in line with vocational pedagogy (VP) approaches; and determining the best options for agricultural skills training in the DoA at KyU.

### **1.9 Justification of the Study**

In Uganda, a key objective in the Ministry of Education and Sports Sector Strategic Plan 2004/2015 (Uganda Government, 2005) is to help students acquire the competencies they need to join the world of work and continue their education as well. The Ministry intends to reconfigure the post-primary sector and focus on vocational education and training (BTVET, 2011). This needs teachers who are well equipped with skills to pass on to the learners. The study aimed at carrying out a comparative examination on the mode of training of agriculture secondary school teachers at KyU, DoA in particular vis-à-vis Vocational Pedagogy (VP) approaches that could help to meet the expectations of secondary school agriculture curriculum and for self-reliance.

### **1.10 Significance of the Study**

The study findings will be important in the following ways;

- Publication of my findings and sharing the findings of the study with the Department of Agriculture at KyU will form part of the assessment of their training of agriculture teachers.
- As a source of literature in vocational training and agricultural skills training in particular to other researchers and policy makers.
- As a source of inspiration and support for myself and others involved in agriculture training to engage in further studies at higher levels and also stimulate other researchers to conduct further research in the same field.

### **1.11 Limitations**

This research study experienced some limitations which included;

Time was not enough due to the busy schedules of the respondents. This was overcome by identifying and agreeing on the most convenient time together with the respondents for our interaction.

Funds were not enough and this required me to get more funds from other sources like my personal savings.

Being an agriculture teacher and having gone through the same training at KyU, this first proved a limitation as some respondents would quickly ask "*have you forgotten what you used to do at the University farm*", others would add; "*but you went through the training*" and within me I would feel tempted to add on the information that the respondents would give. However, this became my strength as respondents felt more comfortable with me which helped me to get all the information that I needed without influencing any.

## 1.12 Theoretical Frame Work

### 1.12.1 Diagram Representation of the Theoretical Frame work.

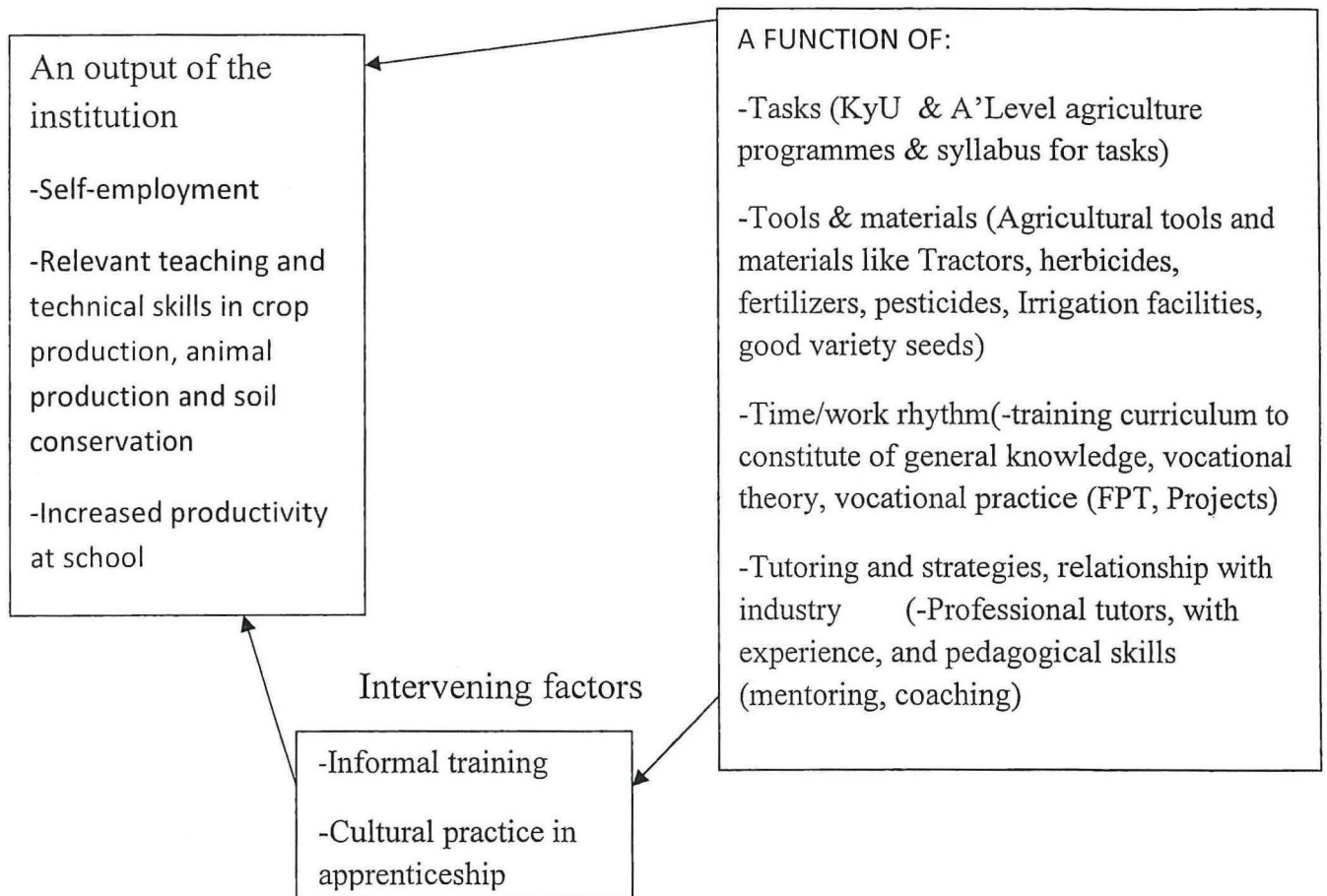
Independent variables:

WORKPLACE

Dependent variable:

TRAINING IN ATVET

INSTITUTION IS



Source: Self-computation

Fig: 1 Theoretical frame work for examining the mode of training of Agriculture secondary school teachers in relation to the expectations of secondary school agriculture syllabus.

### **1.12.2 Explanation of the Theoretical Framework.**

This study was informed by the Experiential learning theory. Experiential learning theory as a concept of learning is premised on the fact that experience is the source of learning and development. For a secondary school agriculture teacher, the school expects him/her to have relevant technical skills in crop production, animal production and soil conservation that he/she can pass on to his/her learners, be self employed and increase agricultural productivity. To learn through experience implies that one has to practice doing certain tasks various times to get the experience. These tasks should be in the KyU programme and in the secondary school agriculture teaching syllabus to ensure that the training is in line with the workplace requirements.

According to Nilsson (2011), no task can be carried out without tools and materials. Therefore, to practice doing any activity one needs tools and materials to use. These tools and materials should relate with those in the labour market and match the technological advancement as you cannot do business today with yesterday's tools and remain in business tomorrow.

According to the experiential learning theory, theory must be reinforced with practice, and practices need sound theory to guide their conduct (Kolb and Kolb, 2005). Also, according to Mjelde (2006) learning revolves around the work activity. Therefore, for one to practice doing any activity he/she needs some theory knowledge to guide him. This implies that there should be time for acquiring theory knowledge and time for practical activities. To acquire theory knowledge and practice through doing various activities needs a tutor and appropriate teaching strategies like mentoring and coaching someone.

Lewis and Williams (1994) observed that, in higher learning situations, experiential learning is conducted in the form of field based experiences or by crediting of prior learning. In this case one can acquire the skills not necessarily from the institution but from informal training and cultural practice in apprenticeship. Therefore, informal training and cultural practice in apprenticeship become interfering factors.

An interpretation of training in a TVET institution therefore is that, learners need to be provided with enough, modern and appropriate tools and materials, enough time to interact with these tools and materials as they perform various tasks with help from qualified instructors. There should be proper communication between learners and instructors and between learners themselves so as to bring about trust between learners and tutors/instructors and between learners themselves. Tasks to be done should be stipulated in the programme document of the institution and the secondary school agriculture teaching syllabus. Different tools and materials used should relate to those in the workplace. Agricultural tools and materials include tractors, herbicides, fertilizers, pesticides, irrigation facilities, good variety seeds and animal feeds.

The training curriculum should constitute of general knowledge, vocational theory and vocational practice where field practical training (FPT) and projects among others can be done.

Tutoring should be done by professional instructors, who have experience and pedagogical skills.

This is because the only reliable source of content for specific training in an occupation is in the experiences of masters of the occupation (Charles, cited in Tom McArdle, 2002).

The above factors would result into development of relevant skills, knowledge, attitudes and values needed for the teacher's competence to train his/her learners, be self employed and increase agricultural productivity. Thus, making the workplace experiences dependant on the training institutions' function.

From the experiential learning theory therefore, concepts of tasks, tools and materials, time/work rhythm, tutoring and relationship with industry were used to inform my assessment of whether or not the training at Kyambogo University affects the competence of the secondary school agriculture teachers. The study questions the kind practical tasks done and how often tasks are done, tools and materials used, the time student teachers are allowed to interact with these tools and materials, tutoring and relationship with industry.

### **1.13 Definition of Key Terms**

In this research the following terms meant the following;

Training: passing on of the agriculture skills/ actual process of imparting agriculture skills.

Agriculture skills: ability to look after crops, animals and conserve/manage soil.

Competence: the quality of being adequately equipped with skills and knowledge needed in the training of agriculture skills at secondary school for example having skills in growing crops, rearing animals and conserving soil.

## CHAPTER II: LITERATURE REVIEW

### 2.1 Introduction

This chapter reviews literature on; the role of practical education and experiential learning in acquisition of knowledge, the case of agricultural training, an overview on Technical, Vocational Education and training (TVET) in Uganda, trends and experiences in vocational Education in Uganda, expectations and experiences of inclusion of Agriculture as a subject in the school curriculum in Uganda, other options for agricultural skills training and exposure and, vocational didactics in skills training.

### 2.2 The Role of Practical Education and Experiential Learning in Acquisition of Knowledge

A student learns best from what he does not what the teacher does because “learning takes place through the active behavior of the student” (Tyler, cited in Biggs, 2001:2). The school agricultural science curriculum for instance, as a practical subject is meant to provide an opportunity for active learning to students. The Agricultural curriculum is structured around three major concepts namely; production, protection and economics, that should be taught practically to make an impression on society (Suleiman and Barry, 1997). Even in the purely academic disciplines, subjects must be turned into some kind of practical activity (Mjelde, 2006a). This clearly shows that learning through practice, trying and failing and through action is the basis of true knowledge (Mjelde, 2006a). Mjelde (2006a) observed that in interactive learning one is supposed to put ones’ hands on or into things to try things out. This is to provide familiarity to ones’ own knowledge and it happens in workshop learning in the vocational fields whether in a kitchen or in a machine workshop Mjelde (2006a). In agriculture, this means that

one has to try growing of crops and rearing of animals on the farm, fail and try again. Thus, no learning is vocational unless the tasks involved are accompanied with impartation of practical skills to perform those tasks (Mjelde, 2006b). In any learning institution and work place, tasks and activities should be well structured and defined for the tasks to be effectively accomplished (Nilsson, 2011: 1)<sup>1</sup>. Nilsson further suggests that humans and tasks are the two central components of vocational didactics. Mjelde and Kyakulumbye are in agreement with Nilsson when they said that the central aspect of vocational pedagogy is the understanding of human learning and the integration of three human parts – the hand, mind and heart (Mjelde, 2006b; Kyakulumbye, 2008).

Experiential learning is an essential element in practical learning where theory is accompanied by practice. Experiential learning is an old concept of learning and according to Kolb and Kolb (2005), theory must be reinforced with practice and practices need sound theory to guide their conduct. Lewis and Williams (1994) observed that, in higher learning situations, experiential learning is conducted in the form of field based experiences or by crediting of prior learning. Practical education helps the learners to solve some common problems which cannot be solved theoretically. In addition, Sifuna (1974) reported that practical teaching helps students to learn by seeing and doing and to solve their problems with confidence. Williams et al. (2002) identified the importance of experimental learning, as providing opportunities to introduce students to experimental work that could help shape and develop knowledge, skills and attitudes. On the other hand, Brucing and Frick (2004) reported that, after the experiential learning opportunities have been given to students, they strongly believe that other students should take advantage of

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<sup>1</sup> Nilsson is a professor of Vocational didactics. The script is picked from one of his lecture notes to MVP students 2011.

outside classroom activities. Bruening and Shao (2005) supported the notion that, experiential education is beneficial, as it could offer opportunities for experiential learning, interaction with professionals, and develop meaningful relationships among others.

### **2.3 The Case of Agricultural Training in Africa**

A tracer study carried out on agricultural graduates in Sub Saharan countries like Ghana by Taabazuing (2012) revealed that; (i) the training of agriculture graduates tend to emphasize theory rather than the application of the theories. (ii) Agricultural training tends to produce job seekers but not entrepreneurs who can create their own jobs or effectively help the private sector develop. (iii) There is a mismatch between the knowledge and skills given to agricultural graduates. The curricula and teaching methods in agricultural institutions tend to neglect the development of soft skills such as critical thinking and problem solving which would allow graduates to easily adapt to changing demands in the job market and that there is declining interest for people to seek agricultural training and take it up as a career (Taabazuing , 2012) . This view was reiterated in another tracer study on effectiveness of agricultural training programmes in Botswana, Lesotho and Zambia in which SCARDA (2012) identified key skills gaps in graduates from agricultural faculties who were employed in a range of public organizations. These gaps in skills included; lack of practical experience/hands on skills, limited financial management skills, poor communication skills, poor writing skills, not being numerate ( i.e. being qualitative rather than quantitative) lack of specialization , limited analytical skills, limited managerial skills, limited knowledge of government administration, limited market knowledge, limited farm management skills, limited professional and leadership skills. The findings of SCARDA (2012) show that the concerns of Olaitan (1988) are not addressed. Olaitan's concern is that many students from farming homes come to school with farming

problems like weed control, which crops to grow and what fertilizers to apply and this can only be solved when students are exposed to these situations practically. According to Olaitan, practical sessions though not highly emphasized are crucial to the agriculture students.

#### **2.4 Overview on TVET in Uganda**

The Department of Business Technical Vocational Education and Training (BTVET) of the Ministry of Education and Sports (MoES) has the primary and residual responsibility for business, technical and vocational education and training at all levels of the education system in Uganda. The Department of BTVET is expected to spearhead vocationalization of education and ensure that the education system caters for the society's vocational education needs (BTVET, 2003).

Kajubi (1991) pointed out that Uganda's VET system did not cater for the needs of the society and community and that the deficiency has persisted for long as manifested by technicians that were given technical and vocational education in various technical institutes. In their letter to the Binns study of 1951 (Okello, 2009) the technicians complained about the quality of technical education they received as follows;

*The kind of education given to us does not make us fit to stand on our own feet. For instance, when a person leaves the Kampala technical school, he is regarded as a person who has attained the highest technical education in this country. We wonder whether the department of education realizes that in the work of the famous Kampala technical school no one can make a needle or a pen nib. We would like to have a kind of technical education, which will enable us to make machines (not to repair them), to make clothes (not to cut readymade cloth) (p. 30).*

The observation made by these technicians shows that they were in need of VET to make them stand on their own.

Efforts to correct VET in Uganda for example the Education Policy Review Commission of 1989 (Uganda Government, 1989) and the Government White Paper on Education for reform (Uganda Government, 1992) have not materialized (Okello, 2009). The observation made by Okello (2009) is in agreement with Kajubi (1989). Kajubi (1989) reported;

*Despite repeated criticisms of the inherited colonial system of education as anachronistic and irrelevant and the efforts of successive governments to change it, no fundamental transformation has occurred over the years of independence in relating education to the social and cultural realities of Uganda.*

Ssekamwa (1997) lamented about the negative attitude towards technical and vocational education . Ker (n.d) while writing on problems of agricultural education, he quoted the Weeks to have commented that during the colonial period the people of Africa resisted agricultural education because they perceived it as an attempt by the Colonial Powers to pass off on them an inferior form of education. In Uganda, Buganda in particular, an attempt to introduce agricultural education into schools designed for sons of chiefs attracted the following response, “We send our boys to the high school not to learn to drive bullock wagons and to look after cows, but to learn to be fitted for posts of high standing” (Ssekamwa , cited in Okello, 2009; 18). This shows that Africans did not appreciate agricultural education.

Ker (n.d) further observed that some leading missionaries and government officials made considerable efforts to implant agricultural education but those attempts were resisted by other

missionaries such as Hattersley. For example when practical agriculture teaching was introduced at Mengo High School, Hattersley voiced his misgivings as follows;

*“There seems to be a general idea that our boys who are to be the teachers of the Country should have some training in cultivation and planting. This brings us to the general principles of c.m.s. work. Personally I think we are in great danger of forgetting our real reason for being here. The question for us is not what will most benefit the African, civilize him, and make him able to make money, but why we as c.m.s missionaries are here. We all agreed that it is useless to baptize a man and not go on and help in the path in which he can make himself a useful citizen. At the same time, the c.m.s. is not a civilizing society except in so far as the gospel will always naturally civilize a man, and surely technical schools, training of clerks, and training of planters is a work for British Government, and not for the c.m.s, and we must be very careful how we become academic, instead of missionaries”(P 24)*

This shows that both Africans and non Africans contributed to the neglect of agricultural education. The negative attitude towards technical and vocational education was aggravated by the British popular notion in Uganda that “the ruler ship of the world was not in the hands of technicians but those who studied humanities” (Okello 2009). According to Okello, this was a false impression indeed in the history of our vocational education because;

*The white men came to Uganda, introduced formal education, putting much emphasis on general literary education devoid of technical skills, while the education that trains hands, brains and body was ignored, vocational and or technical education was said to be meant for academic failures and as the notion of the “ruler ship of the world” was said to be vested in the hands of those who studied humanities being upheld in Uganda,*

*the European technicians who had gone through vocational education system in Europe were busy in their workshops and factories creating and advancing in the new technology let alone making guns and gun powder with which the world was being subdued and brought under the ruler ship of their home countries (p. 17).*

According to Okello still no serious policy has been put in place to try to review the curriculum of the TVET institutions. He continues to say that;

*Although some attempts to review the curriculum were made in 1998 by both the Curriculum Development Centre and the former Uganda Polytechnic Kyambogo, no changes were effected leaving the TVET institutions to continue with the outdated curriculum. The rate at which the TVET curricula get outdated is farfetched, for one reason that technology changes after a very short period of time. To match the job market requirements, the training curricula must be up to date. Effective curriculum planning and development in this area should be a dynamic process. It must respond both to the needs of the individual and to the technical requirement of the job, as well as to the changes in job patterns caused by scientific and technological development and socio-economic change. Lack of policy guide made the TVET institutions to run on outdated curricula (p. 30).*

Thus, most of the TVET curricula in Uganda are outdated and there has been need to review them to meet the industrial demands of the country (Okinyal, 2006). Besides, curriculum content should be rooted in people's culture (Lutalo-Bosa, 2007: 6). The consequences of curriculum content which is not rooted in people's culture are pointed out by UNEVOC (1993) which pointed out that due to lack of resources, experiences and traditions, developing countries simply

tend to copy existing curriculum materials from industrialized nations without proper adoption to the local situations and needs. Yet according to Nilsson (2011), a curriculum is a living document that gives structure for the education and is changed as consequences of new knowledge, new ideas and new demands with relevance for the wanted vocational competence which are “key points” for all efforts in the frame of vocational education system.

Africa and her development partners are increasingly appreciating the importance of Technical and Vocational Education and Training (TVET). TVET is oriented towards the world of work and the emphasis of the curriculum is on the acquisition of employable skills. Vocational training is gaining popularity in all fields, Agriculture inclusive. It responds to different training needs of learners from different socio-economic and academic backgrounds and prepares them for gainful employment and sustainable livelihood and empowers individuals to take control of their lives. TVET delivery systems should be well placed to train the skilled and entrepreneurial work force that Africa needs to create wealth and emerge out of poverty (COMEDAF, 2007). Therefore, Vocational Education is what developing countries need as it prepares one to directly enter an occupation without further training (Muhoozi, 2008). Lutalo-Bosa (2007) also agrees with Muhoozi when he said that VET enables one to make the transition into the working environment and ensures that there are enough qualified people to steer the economic, social and political development. Vocational Education is therefore expected to lead to the reduction of the rampant unemployment amongst the educated youth, and in the long run creation of a proficient labor force.

There exists a special teaching method course for TVET teacher education as a subject specific pedagogy which is called vocational pedagogy. The objectives of vocational pedagogy course are student mastery of pedagogical competencies (MVP, 2008). The implementation of

vocational pedagogy in vocational education is as a means of creating a learning environment that makes provision for student development of knowledge, manipulative skills, attitudes, and values in simulated and realistic work settings. Since vocational education is education for work, then its aim and instructional strategies should be directed to all requirements needed in the work place. The students should learn the knowledge, skills, attitudes, and values which are important in doing a certain job in such a way as they apply them in the real work setting.

This instructional strategy actually is the implementation of two out of four key principles of the Bandung Declaration on TVET-Teacher Education, which are; that “The expertise in pedagogy of TVET should be linked to the vocational disciplines and to integrative perspectives on school-based and work-based learning”, and second “An improvement in vocational skills for employability and citizenship can only be realized if there is an improvement in the quality, effectiveness and relevance of teaching”. These key principles can be actualized through the execution of vocational pedagogy.

In view of the diverse expectations of agricultural graduates from different employers, it is desirable that agricultural training institutions should adopt competency based curriculum that will make their graduates more adaptable to changing work environments. This may require re-orientation of lecturers to participatory teaching techniques such as the use of case studies and student group work (MVP, 2008).

## **2.5 Trends and Experiences in Vocational Education in Uganda**

Formal education system in Uganda as a fact is inclined primarily towards theory and academics, with seemingly little respect for physical work in general and agricultural work in particular

(BTVET, 2003). This has resulted in an extreme shortage of technical skills in Uganda (Ministry of Gender, Labour and Social Development (MGLSD), (2001).

It should be noted however that the Education Policy Review Commission of 1989 (Uganda Government, 1989) emphasized vocationalisation of education, including agriculture from primary school right through secondary education so that school leavers are in position to solve real life problems. The Government White Paper on the commission's report (Uganda Government, 1992) agreed that the education system in the country should facilitate interpretation, application and translation of basic knowledge and understanding of fundamental facts and principles of scientific processes and techniques to be able to produce and use tools and labour saving devices for productive work.

Emphasis on vocationalisation of education is supported by UNEB (1991) which gives one of the main aims of teaching agriculture in secondary school as to impart practical skills to students of agriculture to enable them to be self-reliant, resourceful and to have problem solving skills. However, Ugandan teachers have passed through an education system that is inclined primarily towards theory and academics (BTVET, 2003) which appear to affect their acquisition of agriculture skills and impair their ability to pass on the skills to their learners. The Ugandan education system being inclined primarily towards theory and academics is further evidenced when Kajubi (cited in Okello; 2009) laments in frustration about the contradictions in the education system in Uganda that had afflicted the vocational and technical education when he wrote thus;

*...physical work is not necessarily considered as essential part of education. The general practice is for the "brighter" pupils to go on and on with the theoretical studies and for the less talented to branch off into technical or vocational courses. Cleverness is still*

*judged only on the basis of ability to memorize and regurgitate theoretical information and practical people are automatically regarded as less bright...*

Physical work not being considered as an essential part of education shows that in Uganda what someone can do is given low regard compared to what one knows . Since society determines the rate, direction and application of scientific discoveries (Evans, 1970), it means that if society had low regard for what someone could do, then, the main aims of teaching agriculture in secondary school which was to impart practical skills to students of agriculture to enable them to be self-reliant, resourceful and with problem solving skills had high chances of not being achieved. This equally leaves room to doubt whether teachers acquire adequate skills especially agriculture skills to pass on to the learners which confirms the observation by Ssekamwa (1997) that agriculture teachers lacked agriculture skills. This could be the reason for the Government's attention towards curriculum reform and design, training teachers and providing instructional materials to vocational schools (PEAP, 2007)

According to Kyambogo University, Faculty of Vocational Studies, Department of Agriculture – academic programmes (KyU,1999: 5), the overall objective of the pre-service Agriculture programme is to prepare initial teachers/teacher educators in vocational Agriculture by equipping them with adequate knowledge , skills and attitudes which will enable those who successfully complete the programme to; work as teachers , teacher educators ,curriculum developers , school inspectors in various educational institutions, vocational agriculture subject specialist for National Curriculum Development Centre ( NCDC) , UNEB, and MoES. This overall objective shows that the training got from KyU, DoA may not only affect the teaching of Agriculture in secondary schools but also affect the development of the Agriculture curriculum

used, its monitoring and evaluation in the whole country since graduates of the programmes are the ones that qualify to work in those different capacities. Further, objectives of the Agriculture programmes in the DoA, KyU (KyU, 1999) are as follows;

To enable students to;

*-acquire academic and professional knowledge, skills, values and attitudes in vocational agriculture so that they can perform as competent and effective teachers in primary, secondary, Primary Teacher Colleges (PTCs, NTC);*

*-develop, evaluate, and utilize curriculum and educational resources in the education system among others (p. 5).*

These objectives show that the Agriculture programmes at KyU aim at training effective teachers who will pass on appropriate knowledge, skills, values and attitudes in vocational agriculture to the learners. Such training calls for vocational didactics whose goal is to improve vocational learning (Nilsson, 2011). In vocational learning the following human aspects are important; learner, teacher and task (Nilsson, 2011) <sup>1</sup>. Therefore, KyU has a national task of training teachers of Agriculture who are competent in passing on the necessary skills to the learners.

## **2.6 Expectations and Experiences of Inclusion of Agriculture as a Subject in the School Curriculum in Uganda**

Most parts of Uganda have fairly fertile soils and suitable climatic conditions that favour agricultural production (NCDC, 2012). This natural endowment makes agriculture an essentially basic tool for the country's economic growth. Uganda's population is increasing, urban farming

is gaining popularity but agriculture productivity has remained low due to low educational levels of farmers, lack of information and lack of skills especially in modern agricultural production (NCDC, 2012). According to Epeju (1989), Uganda is a country of small scale farmers with the size of a typical small farm holding being 2-5 hectares each in Buganda and western Uganda, 10-15 hectares each holding in Northern and Eastern Uganda. Epeju (1989; 6), continues to say that “schools that teach agriculture have attempted to emulate the farm size of the small holdings in the communities they happen to be”. The sizes of these holdings since 1989 must have reduced further due to land fragmentation which is a common practice in Uganda. This implies that there is need to increase food production for the growing population while taking care of the natural resource base.

The aim of agricultural education in Ugandan schools is to equip young people with necessary knowledge and skills to implement the transformation of the agricultural sector and improve agricultural productivity (NCDC, 2012). Transforming of the agricultural sector and improving agricultural productivity implies that students of agriculture are to serve as outreach agents by passing on the knowledge, information and skills they acquire at school to the farmers in the communities where they live, that is, they disseminate agriculture technologies. Therefore, agricultural education is an essential basis for increasing efficiency in agricultural production (Odrumuru, 1987). This could be the reason for the Government’s plans for BTVET to address the needs of subsistence farmers, to improve productivity and the need for increased food production (BTVET, 2003).

Skills needed for farming in traditional societies are, as a rule, transmitted from one generation to the next or from older to younger kinfolk often through complex social “institutions” and traditions (BTVET, 2003). But the strong and famous traditional African family network and “solidarity system” which protected and socialized children and youths are threatened by the emerging education systems and AIDS (ibid) .This leaves schools with the duty to ensure that the right agricultural skills are passed on to the youth so that the contribution of agriculture to the economy is enhanced. The duty of schools to ensure that the right agricultural skills are passed on to the youth is supported by Jolly (1996) who said that it is the purpose of education of any society to transmit knowledge, relevant skills and values of that society from one generation to the next.

The teaching of agriculture in Ugandan schools started as early as 1925 with the aim of relating educational activities to the community needs of the people (Ssekamwa, 1997).This needed Agriculture teachers. However, Ssekamwa (1997) pointed out that the real approach to the teaching of agriculture was discouraging because Agriculture was taught theoretically and has failed to make an impression on society. Ssekamwa (1997: 79), continued to report “Uganda’s teachers appear to lack agriculture skills since the colonial times thus failing to ignite the right skills, attitudes and competences to apply in the labour market”. Ssekamwa’s assertion implies that Agriculture teachers may have limited skills to pass on to the learners. It is therefore not surprising that agricultural training programmes are generally of low quality (BTVET, 2011). The BTVET sector is thus recommending revitalization of training facilities, new and improved curricula and human resource development for instruction and management of training (ibid).

Aims of teaching Agriculture at O' level include among others; to enable the learner to;

*Acquire in a practical manner basic principles and skills in agriculture to enable him or her to manage agricultural enterprises profitably for self-reliance and to contribute to agricultural modernization; recognize the existing challenges and opportunities in agriculture as a major contributor to the national development (NCDC, 2008).*

These objectives aim at having an O'level student that can directly carry out modern agriculture as a business without further training.

The objectives of A' level secondary school agriculture educations in Uganda (NCDC, 2012) are as follows; To enable students to;

- acquire knowledge and practical skills required for increased and sustainable agricultural production;*
- develop a positive attitude towards agriculture and have respect for work;*
- make informed farming decisions;*
- acquire entrepreneurial skills for profitable agricultural production;*
- apply knowledge and skills to improve agricultural production in his or her locality;*
- acquire necessary knowledge and practical skills in processing, preserving and adding value to agricultural products;*
- Apply practical agricultural skills for self- reliance and self- employment;*
- integrate gender issues into agricultural production;*
- gain the necessary background in agricultural knowledge and skills to further his or her education (p. vii).*

Thus, these objectives aim at having a secondary school graduate that is well equipped with agriculture production skills for both self-reliance and to make an impression on the society. Therefore students should learn about and experience their environment to be prepared for competing in the dynamic workplace typical of agricultural farm (Navarro, 2004). According to Epeju (1989), it is difficult to describe a universal set of skills and practices that can be learnt best from school farms through practical agricultural training. Epeju quoted a study group from Makerere University in 1970 that met and passed a set of agriculture skills, practices and projects that can be learnt on the school farms (Appendix 7). The set was intended for agricultural practical training in secondary schools up to senior four and was mainly for the areas of animal production, crop husbandry and agricultural mechanics. Those sets of agriculture skills, practices and projects that were passed to be learnt on the school farms equally aimed at training practical farmers to be after O'Level.

Training for self-employment requires additional skills to those needed by the employed craftsman and manual skills needed to produce goods, which implies that trainees must learn business skills and be able to win orders (Frost, 1991). Thus, it is crucial that teachers are well trained because teachers' own inadequate knowledge and skills holds back what they do in the classroom (Nanda, 1998) as they teach to the limits of their knowledge and skills. The U N E S C O International Meeting on Innovation and Excellence in TVET Teacher/Trainer Education (UNESCO, 2004) concluded that skills for employability and citizenship can only be realized if there is an improvement in the quality of teaching.

## **2.7 Other Options for Agricultural Skills Training and Exposure**

Different countries have used different approaches to equip students with various agricultural skills. The literature here shows the different approaches used and how students perceived those approaches.

Farm practical year programme at the University of Agriculture, Abeokuta, Nigeria showed that, the programme provided students with 'hands-on' experience and opportunity to apply theory learnt in the classroom to a real-life field situation in which students had to adapt and solve problems on a daily basis. Students also felt strongly that, the farm practical would contribute to their professional career and employability on graduation Oloruntoba (2008)

Oladele et al. (2011) carried out a descriptive survey to examine the effectiveness of Field Practical Training (FPT) for competence acquisition among students. Students were asked to state their levels of competencies in 47 agricultural tasks at the beginning and end of FPT. From the list of 47 agricultural tasks on which the competence levels of students were examined, students reported that their level of competence changed from not competent to competent in 31 out of the 47 tasks. These were predominantly in the areas of soil and crop production and animal science while most activities related to farm engineering were not popular in the competent rating by the students.

Oloruntoba (2008) reported similar findings among students from the University of Agriculture, Abeokuta, Nigeria; that the farm practical year programme improved their competence in many agricultural tasks. Therefore, field practical training programme reinforces the theory from the class and thus, helps in preparing better graduates for the future employment world. Students

also reported that they were competent before undergoing the FPT programme in 12 out of the 47 tasks. Being competent before FPT indicates that, the FPT programme was not solely responsible for their change in competency levels. The changes recorded here could probably be attributed to the practical training received at school or to some other sources, such as from parents who might have demonstrated the skills to their children on Agricultural Reserve farms.

Other results of paired t-test showing comparison before and after FPT among students in terms of competencies acquired was based on the score of students that participated in each of the tasks, irrespective of the farms they were posted for the FPT were pooled and subjected to t-test analysis. The results showed that from the 47 agricultural practical skills examined, significant differences were found among 32 skills. Students had higher competence mean score after the FPT training than the score before the training. It could be inferred that, FPT therefore increased the competence of students in the practical agricultural skills examined. FPT having increased the competence of students agrees with the findings of Mohd et al. (2009) that, engineering students' perception after Industrial Training Placement in Malaysia showed beneficial effect and had significantly improved their 'personal attitude', 'communication', 'work attitude'. The experience gained gave them the opportunity to become better students and could, in the future, provide them with better employment prospects. The University of Swaziland (UNISWA) has a field attachment or internship program in agriculture that was designed to offer students some practical experience in the actual work environment (Moichubedi, 2003). Other institutions such as the California Polytechnic, also endeavored to promote the "learning by doing" practice, where students combine theoretical knowledge and hands on skills during program implementation. This also helps to promote experiential learning program quality.

In African tradition, there was no distinct line between working and learning (Okello, 2009). Teachers were skillful in a particular technology. Learners were introduced into life sustaining skills which enabled them to be self-reliant and useful to the community (ibid). Having no distinct line between working and learning concurs with Aninge et al. (2009: 13) who reported that “learning in workplaces was on job and workers mastered each task in their section of production by experience with the assistance of line supervisors”.

## **2.8 Vocational Didactics in Skills Training.**

### **2.8.1 The Activity Theory and Vocational Didactics**

The analytic approach known as the “activity theory” regards learning as taking place on the basis of human practice and concrete activity (Enerstveldt, 1982). This statement sums up the essence of vocational pedagogy which is learning by doing. The discipline of vocational pedagogy (VP) consists of education oriented towards teaching, training, and learning in relation to work and labour market with major focus on technical and vocational education (Mjelda, 2006). One of the major aims of V.P is to develop a positive attitude towards skills and competences of students in the field of vocational education and training (VET) (Mjelde, 2009).

Nilsson (2009) stated that VP is characterized by three interlinked components namely; practical work (vocational training), vocational theory and general knowledge. The practical work component teaches the technique of practical work, vocational theory gives knowledge about tools and materials and how they work/function while general education focuses on general academic subjects such as language, mathematics to mention but a few. All the three components are important in vocational education. Vocational didactics also integrates the three aspects that include general subjects, vocational theory, and vocational training (ibid). Vocational didactics is a

new concept that has developed in relation to an understanding of teaching and learning process to which workshop learning and learning in working life are central. Thus, learning revolves around the work activity (Mjelde, 2006) and according to Nilsson it is not teaching but learning that is the centre of vocational didactics (Nilsson, 2000).

### **2.8.2 Tasks, Tools and Materials**

Nilsson (2011) suggests that no task can be carried out without tools and materials. In addition, training for high quality skills requires proper equipment, tools and materials for practice by the learners (COMEDAF, 2007). The use of instructional materials enables students to learn while doing. Having proper equipment, tools and materials for practice by the learners is not always the case as schools are not usually economically equipped to buy the latest equipment (Mjelde, 2006b). Nalumansi et al. (2003) when describing technical vocational education in Uganda in a World Bank report noted as follows; that;

*The current BTVET system is not in a position to cater for the present and the future skills requirements of the economy. Most BTVET providers do not refine their students to the required current and future skills needs. The training contains too much theory and too little hands-on experience. Even practical skills are theoretically explained with gestures and pictures.*

The description of Technical Education in Uganda by Nalumansi shows that in Uganda tools used are not only obsolete but they are inadequate which concurs with Coombs (1985) finding that the challenges facing national education systems are shortage of funds, teaching materials, and teachers -a shortage of everything except students. Coombs also presents employers' complaints about costly VET institutions that offered obsolete tools which do not conform to the current needs

of the labour market. Use of obsolete tools implies that the type of skills and competences got from such training institutions are equally obsolete. More so, shortage of tools can be a hindrance to learning and motivation by learners. For example Emerson cited in Raggart and Unwin, (1991) presents students dissatisfaction about theoretical education as follows;

*“We are students of words; we are shut up in schools, and colleges and recitation rooms for ten or fifteen years and come out at last with a bag of wind, a memory of words and do not know a thing. We cannot use our hands or our legs or our eyes or our arms”*

Therefore in training institution, tools should be adequate, appropriate and should relate well with the labour market .This will lead to graduates that are skilled and competitive.

### **2.8.3 Time**

According to Nilsson (2011), a student should be given enough time to interact with tools and materials. The Norwegian mission report (Center of Competence in Skenderaj: Building and construction, 2009: 5), suggests that the theory and practice ratio should be 50:50. The same report gives a guiding principle that there should be a maximum of 30 learners in theory class and a maximum of 15 learners in a practice class. Larger numbers may deter some students from accessing tools and materials, put safety at risk and or reduce learning outcomes for students. In China, before the new reform, 70% of the time was allocated to theory teaching (lecture) and 30% practical (laboratory experiment, field practice, and internships). But the new reforms allocated 50-60% theory (lecture) and 40-50% practical teaching (Shao and Bruening, 2002). The new allocation of more time to practicals combined with a changed mode of assessment from written examinations, assignments, and class performance to oral, written, practical exams, class performance,

assignments, and national standardized skills testing system (p. 3) was done to emphasize the need for practical skills.

According to the programme document for the Department of Agriculture, KyU, BVS and BED programmes (KyU,1999) animal production for semester I third year and crop production semester II second year, lecture hours are 15 while practical hours are 90 hours, semester II soil science II, lecture hours are 30 and practical hours are 60, agronomy and crop physiology, 30 to 60 lecture to practical, soil science I, 30 to 60, farm projects 15 to 30, annual and perennial crops 30 to 60, introduction to soil science 30 to 60, crop protection, 45 to 60 hours. The same time is allocated to practicals for the BED programme. This puts time stipulated for practicals to be twice the time for theory. This shows that practicals are emphasized by the programmes in the Department of Agriculture.

#### **2.8.4 Tutoring**

Equipping learners with agricultural skills for self-employment and for wage employment has faced the challenge of limited availability of skilled instructors to carry out the work (Middleton et al., 1993). Yet, according to Kajsa et al. (1991) whatever training strategy taken, the teacher should be skilled professionally with experience and knowledge about tools, work division and organization. The only way to train skilled workers is through extensive practice under supervision by the teacher/ instructor with long experience of conducting similar work operations (NORAD: 2009). These observations show that both instructors of learners in schools and university should have long experience of conducting similar work operations, for example should be farmers.

To have professionally skilled and experienced instructors is in line with Nilsson (2011) who identifies five characteristics of vocational (professional) competence as; long period of education, experience, ethics, different types of knowledge, and qualification (paper). In addition, Kaahwa (2003) reported that a vocational teacher should have technical skills, industrial experience and pedagogical skills. Kaahwa cites a World Bank report where Middleton and Demsky (1989) were quoted to have found out that unqualified teachers adversely affected training quality in 2/3 of the countries studied.

Teacher recruitment and retention is a challenge to most countries as reported by UNESCO in an audit commission reform report of 2002 (Bubb and Earley, 2004). The Education Policy Review Commission of 1989 (Uganda Government, 1989) acknowledges that “No education system can succeed without adequately trained teachers” (pg. 94). This implies that the practical gaps in teaching staff would be reflected in the students they teach. According to Hammond (1999) in Egau Okou (2002), teachers cannot give what they did not have in the first place. This implies that a well trained teacher will always train learners better. Agriculture being a vocational subject requires teachers who should teach both theory and practice. They need both vocational and pedagogical skills because both vocational skills and VET theoretical knowledge are important (NORAD, 2009). According to Sharma (1994) teachers should be encouraged and permitted to visit teachers in other schools to get ideas for instructional improvement especially visiting teachers of the subject they teach.

Teachers with both vocational skills and VET theoretical knowledge will help counteract the traditional understanding of a teacher which according to Reece and Walker (2003), a teacher

has always been known as a fountain of knowledge; one that stands in front of students and students listen passively as recipients of the knowledge. Therefore, these observations mean that caution should be taken such that skills training is not at the expense of VET theoretical knowledge. This research therefore sought to find out how the skills training was being conducted and how the training could affect the competence of agriculture secondary school teachers.

## **CHAPTER III: MATERIALS AND METHODS**

### **3.1 Introduction**

The study was carried out to examine the mode of training of Agriculture secondary school teachers in the DoA at KyU, in relation to the expectations of secondary school agriculture syllabus. The study sought to establish the: expectations for inclusion of agriculture as a subject in the secondary school curriculum, the nature of secondary school agriculture teacher training at KyU and the best options for Agriculture teacher training in the DoA, at KyU. This chapter presents the methodology employed, target population, sampling procedure and research instruments and materials that were used, testing of validity and reliability of instruments through pilot study, data collection procedure, data collection methods, data processing and analysis procedure as well as, ethical issues considered.

### **3.2 Research Design**

The study involved an in-depth study of the agricultural skills training in the Department of Agriculture at KyU. The research design was therefore a case study using the qualitative research approach. According to Amin (2005), qualitative research produces more holistic, discursive and detailed examination of the study situations or phenomena, mostly focusing on humans and human activity. Therefore, I considered the qualitative approach most appropriate for the study because it provided a rich understanding and detailed examination of the study situations.

### **3.3 Target Population and Sample Size**

The number of respondents as target study population was thirty five (35) whose views were analyzed together with the secondary data. Secondary data was generated from KyU programme document for the DoA and secondary school agriculture teaching syllabi for both ordinary and

advanced levels. The target population comprised of eighteen (18) learners in their Final Year of study in the Bachelor of Education (B.ED) (is two years) and Bachelor of Vocational Studies in Agriculture with Education (BVS) programmes (is three years) at KyU for training as secondary school agriculture teachers in Uganda. Final Year students were selected because they had been on the training long enough and thus could give reliable views about the training.

Three (3) teaching staff members from the DoA were selected from the sections of animal, crop and soil science. These areas of study had major practicals in their teaching thus, were the target of my interest in this research.

Five (5) graduate agriculture teachers of Bachelor of Education (B.ED) and Bachelor of Vocational Studies in Agriculture with Education programmes at KyU in five secondary schools were selected having received their training at KyU and were expected to be applying what they had learnt from the training. These schools included Kitante Hill school in Kampala District, Namirembe Hillside High school, Wampewo secondary school, Kitende and Buddo Secondary in Wakiso District (all in Central Uganda). The graduates' respective Heads of Agriculture Department /Head teachers were selected because they are the immediate supervisors of the Graduate Agriculture secondary school Teachers.

At the national level, the Commissioner for Secondary Education (Private), the Commissioner for Secondary Education (Government) and an official from NCDC were interviewed regarding what was expected of an agriculture teacher in secondary schools.

### **3.4 Sampling Techniques**

#### **3.4.1 Teaching Staff**

Purposive sampling was used to get three (3) Teaching Staff members in the DoA from the three teaching areas of Agriculture, that is; crop, animal and soil science. Purposive sampling technique was used because I made decisions concerning the individuals to be included in the sample based upon specialist knowledge of the research problem, capacity and willingness of the respondents to participate in the study. According to Amin (2005), purposive sampling is a process where the researcher usually selects a sample based on his/her experience of knowledge of the group to be sampled and has in mind that these respondents have information he/she requires. I therefore, considered this sampling technique most appropriate.

#### **3.4.2 Graduates**

Graduates who were in the field were scattered and thus the snow ball method (Robson, 1993) was used to get the five graduates who completed their degree programmes two or more years ago. This was done in such a way that after interviewing each graduate he/she was requested for the contacts of his colleagues that did the same course from the DoA at KyU. I also interviewed one of their Headmasters and their respective Heads of Agriculture Departments.

#### **3.4.3 Final Year Students**

Random sampling was used to select 18 learners in their final year of study from BVS and BED Programmes. The names of each group were written on paper and they were selected according to multiples of three: 3<sup>rd</sup>, 6<sup>th</sup>, 9<sup>th</sup> until 9 members were selected from each Programme. This ensured equal representation and reduced the risk of obtaining an unrepresentative sample (Walsh, 2001)

### **3.5 Data Collection Methods and Tools**

The data collected was majorly qualitative. In-depth individual interviews were carried out using an interview guide (Sarantakos, 2005) (Appendix 1) with the Commissioner for Secondary Education for Private and for Government schools, Teaching Staff (Appendix 3), Headmaster/Heads of Agriculture Department (Appendix1), and Graduates / Agriculture Secondary School Teachers (Appendix 2). Interviews were used to gather data because they are essential in creating maximum cooperation and friendliness with the respondents (Mugenda and Mugenda, 1999). Focused group discussions (FGD) with learners in their final year of study were conducted using an interview guide (Appendix 4) as well as observation of facial expressions of the respondents as interviews were in progress. Personal observations were made done with the help of the observation checklist (Appendix 5) and it enabled me observe and explore information which was not mentioned by the respondents and also to confirm whether what the respondents said tallied with what was on the ground thus, triangulate what I heard from the respondents with what I saw on the ground (Robson, 1993). Interview guides had open ended questions that allowed me extract all the necessary information from the respondents because the respondents got an opportunity to express themselves fully (Boyce and Neale, 2006). Recorders, note books helped me to boost, manage and back up the data got during the study. Documentary analysis was done to obtain secondary data with the help of a documentary analysis guide (Appendix 5).

### **3.6 Data Quality Management**

A pilot study with the Third Cohort Students of MVP at KyU in NOMA House II was done. Fifteen students and two mentors were randomly sampled and the research instruments were administered to them to test the reliability and validity of the instruments.

Different methods of data collection were used and this helped me to get reliable data. Different sources of data were used and these included documents and different categories of respondents (Robson, 1993). All this was done to crosscheck and crossbreed the information that I got to ensure that data was accurate.

### **3.7 Ethical considerations**

An introduction letter was got from the School of Post-Graduate Studies and Research, Kyambogo University for my introduction to the Agriculture Department, KyU. I made appointments with the staff respondents, final year students and there after I collected data as I observed research ethical issues which included;

- The respondent's consent was sought before data was collected and all data collected was used for purposes of academic study and nothing more. Building a collaborative relationship of trust and rapport with participants was paramount. Due to the sensitivity and fragility of the study, that is, asking/dealing with people at their workplace or commenting on their institution (students and graduates) raises a more intricate ethical concern.
- The privacy of the respondents was respected to the level that is humanly possible. I conducted the study with a lot of responsibility and care and informed participants about the objective of the study. I also ensured confidentiality by slightly altering the information that could possibly be used to identify specific individuals (Magnuson, 2007). But such changes were minor and were always selected carefully so as to maintain the original flavor of the information. I reassured the respondents that the

information they provided would be protected and not be accessible to an audience posing a potential risk to them without their prior authorization.

- Other people's work cited or referred to in this research was duly acknowledged.
- All contributors to this piece of work - academic, material, spiritual, moral or in kind were duly recognized.

### **3.8 Data Collection Procedure**

#### **3.8.1 Expectations for Inclusion of Agriculture in the Secondary School Curriculum.**

Using an interview guide (Appendix 1), information was sought from the Commissioners for Secondary Education for Private and for Government schools, Ministry of Education and Sports (MoES), NCDC official, Teaching staff of the DoA at KyU (Appendix 3) and Head Teacher/ Heads of Agriculture Department (Appendix 1) on; why agriculture was included in secondary school curriculum, whether teachers are meeting those expectations, and how teachers can be helped to achieve those secondary school objectives/expectations. Secondary data was also got from secondary school agriculture teaching syllabi.

#### **3.8.2 Secondary School Teacher Training at KyU.**

Using interview guides (Appendices 3, 4 and 2), data was sought from Teaching Staff and Final year students in the Department of Agriculture, KyU, and Secondary School Agriculture Teachers already in the field and were trained from Kyambogo University. Data sought was on; how training was being done in relation to tasks involved in the training, tools and materials used, time for learners to interact with these tools and materials ( time allocated for practical tasks), and how best the training can be done. Audio visual data collection tools which included recorders were used.

### **3.8.3 Best Options for Agriculture Skills Training at KyU.**

On best options for agriculture skills training at KyU, data was sought from, the Commissioner for Secondary Education for Private, Ministry of Education and Sports (MoES), NCDC official, Teaching staff of the Department of Agriculture KyU, Heads of Agriculture Departments in Secondary Schools, Agriculture Secondary School Teachers who were already in the field and Final Year Students. Through interviews with them using interview guides (Appendices 1, 2, 3, and 4), data on how best agriculture skills can be trained was got. I obtained secondary data from literature on how other agricultural institutions are carrying out training in agricultural skills.

### **3.9 Data Processing and Analysis**

The data collected was analyzed descriptively following the qualitative approach and presented according to the set objectives. Cohen and Manion cited in Okello (2009) pointed out that “the data collected is known to be raw information and not knowledge by itself. It therefore has to be organized in various stages.” In this case, the data collected by recorders was transcribed and together with written notes, data was edited, reduced, reconstructed and sorted according to the emerging themes. This removed errors, ensured usefulness, completeness of data thus ambiguity/vagueness were avoided. Coding and comparison of different data sets was done. Memoing was done while coding. At whatever level, all sorts of ideas that occurred to me were written. A memo in this case was seen as a theorizing write-up of ideas about codes or categories of data and their relationships as they struck my mind while coding. This exhausted my momentary/temporary ideation or idea formation based on data with perhaps a little elaboration

Data was re-arranged to discover/identify relationships and note new similarities, differences and patterns so as to give it meaning. The data processed was cross-referenced with the related literature, that is, I related and compared the research findings with existing knowledge and experiences from various resources. I studied the arranged data in order to determine inherent facts or meanings (Sidhu, 2001) after which I gave rational interpretations.

Generally data analysis was done through thematic content analysis where findings from key questions or issues in the research tools were edited, sorted, coded, arranged in themes and subtitles (Sarantakos, 2005) and then rational interpretations were done.

## **CHAPTER IV: FINDINGS AND DISCUSSION**

### **4.1 Introduction**

The study was carried out to examine the mode of training of Agriculture secondary school teachers in the Department of Agriculture (DoA) at KyU, in relation to the expectations of secondary school agriculture syllabus. The study sought to establish expectations for inclusion of agriculture as a subject in the secondary school curriculum, assess secondary school agriculture teacher training at KyU and identify the best options for Agricultural teacher training in the DoA at KyU. In this chapter, presentation and discussion of findings was done. The findings were got from the Commissioners for Secondary Education for Private and for Government schools in Ministry of Education and Sports (MoES), Agriculture specialist at NCDC, Teaching staff in the Department of Agriculture at KyU, Head teacher and Heads of Agriculture Departments in secondary schools, Secondary School Agriculture Teachers in the field, Final Year Students of the Agriculture programmes in the Department of Agriculture at KyU, personal observation and secondary data. The findings are presented and discussed according to the study objectives.

### **4.2 Expectations for Inclusion of Agriculture as a Subject in the Secondary School Curriculum**

Expectations for inclusion of Agriculture as a subject in Secondary school curriculum and whether teachers in secondary schools were meeting these expectations was investigated. I obtained secondary data from the secondary school agriculture teaching syllabi.

The Commissioner Secondary Education (private schools) was asked as to why agriculture was included in the secondary school curriculum and he responded as follows;

*Uganda is an agricultural country that is why initially agriculture was made compulsory in secondary schools. The intention was to enable secondary school students that would not finish their education to go back to the community and practice agriculture, produce food for themselves and for others and to earn a living as a student who did not go beyond senior four or senior six was expected to go back to his community. Even schools in urban areas were encouraged to practice modern farming where crops were grown in sacks. Later, agriculture was made optional in secondary schools and now, very few schools are teaching it. Areas emphasized were animal and crop production. Teachers were expected to pass on modern skills to the learners in animal and crop husbandry.*

On whether teachers were passing on modern agricultural skills to the learners, the Commissioner responded as follows;

*Teachers don't teach agriculture as a hands on subject where skills should be passed on. There are no demonstration farms /plots in schools, the few schools that have plots use workers to maintain them, not students.*

From the above response of the Commissioner, Agriculture as a subject was included in the secondary school curriculum to prepare secondary school drop outs and graduates in terms of modern skills and knowledge in animal and crop production so that they are in position to practice agriculture without further training. Schools in urban areas being encouraged to practice modern farming where crops were grown in sacks shows emphasis that agriculture teaching is meant to be practical even when land may be lacking, and this calls for teachers with practical

skills in modern farming. However, Agriculture in secondary schools is not being taught as a hands on subject. This could have led to a gradual decrease on emphasis on agriculture in secondary schools despite Uganda being an agricultural country.

The Commissioner Secondary Education (Government Schools) referred me to NCDC for information, and the respondent at NCDC had this to say;

*“Secondary agriculture education was intended to equip learners with skills and knowledge so that they can take part in agriculture as a business and improve production. For example, a senior four graduate should in a modern way rear successfully 50 birds, a s.6 graduate should successfully and in a modern way rear 100 birds then, a university graduate should in a modern way rear thousands of birds which would be at very large scale. This enables students to produce at different scales depending on the level of education one has and this should be the same case with other sectors of agriculture for example in crop production”.*

The response implies that secondary agriculture education was intended to equip learners with skills and knowledge so that they can take part in agriculture as a business and improve production.

On whether teachers were passing on the skills to secondary school students, the respondent at NCDC was quick to say; *“No. It is mainly theory part that is well catered for”.*

When the respondent at NCDC was asked whether teachers are well trained to handle practical oriented syllabus, so as to equip learners with agriculture skills to improve production, he said;

*No. Personally I was trained from Kyambogo University but the training I received both at diploma and degree level was not enough to make me train secondary students to be successful modern farmers. Me and you are products of read hard, pass and forget. Machinery was down played (poorly handled). That is why here at NCDC, we are designing projects that are aiming at retooling teachers who are already in the field for the next two years so that they are capable of handling our new designed s.6 syllabus which is practical oriented. Teachers in the field are still teaching about the carburetor yet carburetors are no longer up-to-date!*

The response shows that, passing on of agriculture production skills and knowledge to the learners is highly emphasized as one of the expectations for including Agriculture in secondary school curriculum but instead, it is mainly theory that is well catered for. “*Me and you are products of read hard, pass and forget*” said the NCDC agriculture specialist. This observation confirms Uganda Government, BTVET report comment (BTVET, 2003) which indicated that formal education system in Uganda is inclined primarily towards theory and academics, with seemingly little respect for physical work in general and agricultural work in particular. This similar observation was evidenced when Emerson (1984) reported by Raggart and Unwin (1991) presented students dissatisfaction about theoretical education as follows;

*"We are students of words; we are shut up in schools, and colleges and recitation rooms, for ten or fifteen years and come out at last with a bag of wind, a memory of words and do not know a thing. We cannot use our hands or our legs or our eyes or our arms"*

In Uganda this has resulted in an extreme shortage of technical skills (Ministry of Gender, Labour and Social Development (MGLSD), 2001).

A respondent at NCDC said;

*"I was trained from Kyambogo University but the training I received both at diploma and degree level was not enough to make me train secondary students to be successful modern farmers."*

This observation is consistent with, Nanda (1998) who found out that ill trained teachers normally teach to the limits of their knowledge and skills. Similarly, Ali Shah (2009) reported, that no system of education is above the standard of its teacher. Implying that, a teacher cannot train learners if he/she was not well trained.

The Teaching Staff in the DoA at KyU when interviewed as to why agriculture was included in the secondary school curriculum, their responses were as follows;

**Teaching Staff 1:**

*This is an agricultural country (Uganda). Teaching agriculture in secondary schools was to help learners to learn skills in new technologies in agriculture and later students were to apply the*

*technologies or practice them when they go back to their communities so that agriculture production could be improved.*

**Teaching Staff 2:**

*Our country is predominantly agricultural, our soils are relatively fertile and our climate has not been bad. So, teaching of Agriculture was expected to teach learners agriculture skills to help them go out and practice agriculture in a modern way unlike our parents who were using traditional methods of agriculture.*

**Teaching Staff 3:**

*But surely, agriculture is the backbone of our economy. It is the main source of food, income/employment, and security because the army walks on good quality food. Schools therefore, had to participate. It supplements our income in terms of food because you find that practicing agriculture is the only way to have constant food on the table for your home. Even the educated and with jobs have come to appreciate that (growing food for yourself) because sometimes salary is not enough. We (Ugandans) cannot run away from agriculture.*

According to Teaching Staff 3, it seemed obvious that agriculture had to be in the secondary school curriculum. A common finding that runs through the above voices is that Uganda is an agricultural country and that teaching of agriculture in Ugandan schools is aimed at equipping

students with knowledge and modern skills which they would apply in their communities on completion of secondary school education. Acquiring modern agriculture skills from schools implies that those modern skills are not evident in the communities where the learners are coming from.

Teaching Staff 2;

*“Agriculture was to teach learners agriculture skills to help them go out and practice agriculture in a modern way unlike our parents who were using traditional methods of agriculture”.*

This observation is in agreement with Olaitan (1988) who stated that many students from farming homes come to school with farming problems like weed control, which crops to grow and what fertilizers to apply. This means that students were to learn how to overcome these problems and be agents of modern agriculture with solutions to challenges that farmers in their communities are facing. Similarly, Ssekamwa (1997) stated the importance of relating educational activities to the community needs of the people.

Therefore, the Teaching Staff in the DoA at KyU are substantially aware as to why agriculture should be taught in Secondary Schools. It is meant to impart agricultural skills to the students for self employment and improvement of agricultural practice in the community. This very reason for inclusion of agriculture in secondary schools is reflected in the aims of teaching agriculture at O’level that is;

*To enable the learner to acquire in a practical manner basic principles and skills in agriculture to enable him or her to manage agricultural enterprises profitably for self-reliance and to contribute to agricultural modernization (NCDC, 2008).*

To impart agricultural skills to learners is also among the objectives of A' level secondary school agriculture education in Uganda that is;

*to enable student to be able to acquire knowledge and practical skills required for increased and sustainable agricultural production; apply knowledge and skills to improve agricultural production in his or her locality; Apply practical agricultural skills for self- reliance and self- employment ( NCDC, 2012: vii).*

To emphasize the acquisition of agriculture skills at secondary level, imparting of agricultural skills is even among the objectives of the programmes in the DoA at KyU, that is; *to enable teachers to acquire academic and professional knowledge, skills, values and attitudes in vocational agriculture so that they can perform as competent and effective teachers in secondary schools.....*, (Academic programmes DoA, KyU, 1999; 5-6).

This shows that teachers are meant to be equally prepared to pass on agriculture skills to secondary school students.

On whether teachers are passing on modern agricultural skills to the learners in secondary schools, the response from the Teaching Staff in the DoA, KyU was as follows;

**Teaching Staff1:**

*I cannot tell because one can be trained but he/she decides not to train others.*

**Teaching Staff 2:**

*They should really, because some have managed to start for example their own poultry farms.*

**Teaching Staff 3:**

*We train them what is needed for one to be an agriculture teacher and what is in the curriculum like through projects.*

From the above voices, agriculture teachers should be in position to pass on agricultural skills to the learners because they were trained according to the curriculum and they could do so because, they can practice agriculture.

When Heads of Agriculture Departments (HoAD) in Secondary Schools and a Head Teacher were interviewed as to why agriculture was included in the secondary school curriculum, their responses were as follows;

**Head teacher:**

*The Head of Agriculture Department may have better information, I can take you to him.*

**HoAD 1:**

*I was trained from Kyambogo University. Agriculture was included in the curriculum to help learners acquire knowledge and skills in modern farming and later practice modern farming in their communities.*

**HoAD 2:**

*I was trained from NTC Kakoba which was under the current Kyambogo University for a diploma and I got my degree from Kyambogo University. The objectives of teaching agriculture in secondary schools are to train learners in agriculture skills and to give them knowledge that can help them*

*practice agriculture after school, bearing in mind that resources are limited.*

**HoAD 3:**

*I was trained from Kyambogo University. Agriculture was meant to be a vocational subject, but that is not how we are teaching it because my learners are not in position in any way to practice agriculture after secondary education.*

**HoAD 4:**

*I was trained from Kyambogo University. Teaching agriculture was meant to pass on agriculture production skills and give them knowledge needed to carry out agriculture. These skills should help them to be self employed not job seekers, and produce food. You know, Agriculture is a basic sector in Uganda.*

**HoAD 5:**

*I was trained from Kyambogo University. To train students to be modern farmers and give them the foundation for further training in agriculture.*

The Head teacher's response indicated that sometimes Head teachers may not be supportive. The responses of Heads of Agriculture Departments in secondary schools show the influence that KyU has on the teaching of Agriculture in schools. The Heads of Agriculture Departments in Secondary Schools trained from KyU were substantially aware why agriculture should be taught in schools.

On whether teachers are passing on modern agricultural skills to the learners, the responses from Agriculture Heads of Departments in Secondary Schools were as follows;

**HoAD 1:**

*This is not the case because UNEB is not interested in students who know how to practice agriculture as no practical competence is examined. Why should I waste time teaching a student how to dig when he will be asked to identify a hoe or be examined majorly in theory? That would be failing the students in examinations and the school would even put the blame on me as the Head of Department.*

**HoAD 2:**

*But these objectives will remain on paper until UNEB changes examining too much of theory. I have been to NCDC and we looked at the new A'level practical oriented syllabus but it is expensive to implement and us teachers, we are theoretical people. Maybe we shall have refresher courses as NCDC is planning. The skills I went to the university with are the same skills I came out with. Time for practicals was not enough at the university to allow one to have enough hands on experience. Our students pass Examinations highly and that is what is expected of us as teachers. If UNEB changes the way it examines and our students fail due to lack of certain competences we shall revise the way we teach because expectations will have changed.*

**HoAD 3:**

*No no no, as I have told you we just give them a foundation to go to agricultural institutions where they can acquire the real skills and our students pass Examinations.*

**HoAD 4:**

*That would be working as a farm manager and at the same time as a teacher moreover for a small pay.*

**HoAD 5:**

*We try but challenges are many; sometimes you don't know how to conduct a certain practical , no funds for materials, no land so we teach it mainly as a theoretical subject. We are not practical teachers right from our training. Theory determined our passing greatly.*

From the above voices, the teaching staff in the DoA at KyU are expecting secondary school agriculture teachers to be passing on agriculture skills to the learners. However, this is not what is actually done. What is manifesting from the responses is that most teachers teach students mainly to pass examinations but not how to produce agricultural products from the farm. This is because examinations which are mainly theoretical are the determinants of who passes, who fails and who is a good teacher of agriculture in a secondary school, but not the competences a student has acquired. Similarly, Kajubi (1991) made the same observation when he said that physical work is not necessarily considered as essential part of education and that cleverness is still judged only on the basis of ability to memorize and regurgitate theoretical information.

This implies that theory was emphasized which is still the case even with a vocational subject like agriculture. This has resulted in secondary school graduates not being in position to practice

agriculture as indicated by respondent, Head of Agriculture department 3, (4.2) that ;“*Agriculture was meant to be a vocational subject, but that is not how we are teaching it because my learners are not in position in any way to practice agriculture after secondary education*”.

Some teachers teach theory mainly with hope that practical skills will be well catered for from other institutions that students will join after secondary education, Universities inclusive while other teachers teach agriculture theoretically because they are theoretical by training. Teachers emphasizing students’ passing of Examinations which are majorly theoretical confirms the commissioner’s complaint that;

*“Teachers don’t teach agriculture as a hands on subject where skills should be passed on. There are no demonstration farms /plots in schools, the few schools that have plots use workers to maintain them, not students.”*

Teachers not teaching agriculture as a hands on subject is not expected of teachers. This finding is in line with Ssekamwa (1997) point of view that the real approach to the teaching of agriculture was discouraging because Agriculture was taught theoretically and has failed to make an impression on society.

Teacher’s failure to teach agriculture as a hands on subject, not having demonstration farms and using workers to maintain the few demonstration plots that are in existence denies learners the opportunity to acquire skills to use after school so that they can stand on their own. In addition, teachers being theoretical by training, hoping that real acquisition of agriculture skills will be effected in higher institutions also denies learners the opportunity to acquire skills to use after school so that they can stand on their own. Students’ not being in position to stand on their own on completion of secondary agriculture education was also experienced by students of Kampala

Technical School. In their letter to the Binns study of 1951 (Okello, 2009) they complained about the quality of education as follows; (*...The kind of education given to us does not make us fit to stand on our own feet.....*). To make students to stand on their own after secondary agriculture education needs students to learn about and experience the dynamic workplace typical of an agricultural farm (Navarro, 2004).

Therefore, in order to teach agriculture as hands on subject, there is need for practical teachers, demonstration farms or plots that should be maintained by the students and assessment done in both knowledge and practical competences acquired so that a student can directly enter into farming after secondary education without further training.

#### **4.2.1 Overview**

The responses given above affirm that Uganda is an agricultural country, meaning that agriculture contributes significantly to the country's economy which is consistent with NEMA (1996) which pointed out that Uganda's economy is primarily agricultural and agriculture supports close to 90% of the country's population. Fintees Consultants reported that, Agriculture Sector accounts for about 50% of GDP (Fintees Consultants, 1996) and over 90% of the exports and livelihood for about 80% of the household population (BTVET, 2003). Furthermore, employment in Agriculture accounts for about 70% of the entire employment in Uganda, and this share of employment is not expected to drop significantly in the years to come (BTVET, 2011). This therefore makes agriculture the engine of economic growth for Uganda as it is the main source of food, income and employment (NCDC, 2012). Hence the inclusion of Agriculture subject in the secondary schools curriculum to equip learners with knowledge and agriculture production skills for increased

production and self sustenance/reliance as emphasized by both “O” and “A” Level secondary school syllabi for Agriculture.

The key findings of this objective, that is, the expectations for inclusion of Agriculture in the secondary school curriculum, and whether the teachers impart skills to students in their teaching are: All the respondents were substantially aware that Agriculture was included in secondary school curriculum to impart knowledge and agricultural skills to the students for self employment and improvement of agricultural practice and production in the community as it is reflected in “O” and “A” Level teaching syllabi. However due to theoretical nature of assessment by UNEB, Theoretical teachers by training, Head masters not being supportive, inadequate funds, poor pay to teachers, lack of demonstration plots, teachers are not teaching agriculture as a hands on subject resulting in secondary school graduates having more theory than the application of the theories.

### **4.3 Secondary School Agriculture Teacher Training at KyU**

#### **4.3.1 Tasks**

##### **4.3.1.1 Responses from Teaching Staff**

When respondents were asked the kind of tasks done to impart agriculture skills in the students at the University, how tasks are arranged, whether students repeat the tasks to master them and whether students attend, these were the responses;

### **Teaching Staff 1;**

*You were trained here; you know how we trained you. Students first cover theory then they go to the farm or laboratory or field trips for practicals. At the farm, there is the farm manager who is in charge of practicals there. Students usually have projects on the farm. In the laboratory, they do the experiments with the laboratory technician. Sometimes we take them out for field trips to see what we do not have here. For example not all crops can be grown on the University farm because of seasonality and ecological problems.*

When the respondent was asked what he meant by sometimes, he said;

*Sometimes there is no transport to take them for the field trips because students have become many these days. But when they were few, we would take them to Kabanyolo and Namulonge research stations for some days to see how some things are done. One cannot know everything, so we would be given money to give to facilitators if they wanted money to help students in some practical aspects but these days, it is hard to get money from administration to give to such people so you just leave the field trip. Students like field trips. We don't do field attachment here. Evaluation is a challenge because there are no clear practical evaluation guidelines. Unlike theory, where it is clear that sixty percent should be for final written examinations, practicals are supposed to be part of the forty percent of the course work and depending on the interest of the lecturer he may give or*

*not give the practical at all. The farm manager in fact covers up some Lecturers who have a negative attitude towards practicals.*

**Teaching Staff 2;**

*Students first cover the theory to get the concepts then they come to the laboratory or go to the farm for practical in animal and crop production or go for field trips. For example they go to see different soil conservation measures and see some tractor implements. In the laboratory, a practical is first carried out by the laboratory technician as students are observing and after, students are grouped because they are many and they do the same practical in groups as the laboratory technician is supervising them. After each experiment, each group of students writes a report about what they have been doing. The report is marked and it contributes fifteen percent (15%) to the final marks at the end of the semester. Experiments on soil Ph, crop pests and diseases are done.*

When the respondent was asked whether students dodge practicals, the response was that;

*No student can stand to lose 15 marks.*

When the respondent was asked whether students repeat the experiment many times to master it, the response was:

*“No, because time never allows and the laboratories are rarely free”.*

On close observation lectures were being conducted from the Laboratories, implying there could be a shortage of lecture rooms.

### Teaching Staff 3

*You mean you have forgotten what you used to do at the farm! Training begins with theory during lectures. After, students are trained at the university farm of 100 ha, in the laboratory and during field trips. At the farm, students are grouped for animal production activities and shown what they will be doing. There is a poultry unit, piggery unit and dairy unit and each group works in each unit for 2-3 weeks. They give feeds to pigs and birds, clean animal houses. In dairy section, they give dairy meal, observe milking process and few students that are interested try hands on milking and are rewarded. Animal observation is done in the morning and evening but in the evening very few students turn up as they are already tired, they start by 6.30am. Skills that students may acquire are feeding the animals, cleaning animal houses, record keeping, animal observation, disease identification, hoof trimming, and castration. For hoof trimming and castration, very few students used to try hands on but now, they just observe because each method of castration is allocated one male young one (a calf /piglet) and it is done once, observe injecting the animals, spraying, dipping used to be done but ticks became resistant to acaricides in dip tank so these days we spray. Students used to debeak but we would lose many chicks because they would not do it well, so these days, someone from out debeaks as students observe. Crop production projects are done individually. Students do the planning like which crop to grow from different crops they are given, prepare nursery bed with the help of a teaching staff and do all*

*the agronomical practices themselves. Some time back we used to open up the land for them with the tractor (primary cultivation) but these days it is very hard to get a tractor. A project of raising the crop is done once in the whole course and only one vegetable is raised individually. There are no demonstration plots as you can see on the University farm and no tutor carries out agronomical practices with them practically because, most students come from communities which practice agriculture. But an enthusiastic student can find out how other vegetables are raised apart from what he or she has raised from his friends and we recruit students that have been studying agriculture for these courses. There is roll calling at the farm on daily basis which is awarded marks, they write a report about the activities done on the farm and marks are given for the report but of recent writing reports was discovered not to be appropriate, and now practicals make a full unit. Sixty percent is written and forty percent is practical where for example a sick cow can be presented before a student and the student identifies the disease using disease symptoms.*

From the above voices, theory is done first, after which students go to the University farm, laboratory and field trips for practical tasks. There are specific teaching staff members that are known to handle practicals implying not every teaching staff handles practicals. However, there is an indication that effort is made to give practical training as the programmes require. I felt challenged when teaching staff 3 retorted “*you mean you have forgotten what you used to do at the farm*”. The teaching staff feels strongly that the graduates of the programme should be able to pass on/teach agriculture skills after the training they receive in the Department.

#### 4.3.1.2 Responses from Final Year Students

Through focused group discussion with BVS and BED final year students, respondents were asked how they have been trained to acquire agriculture skills at the University, how tasks are arranged, whether students repeat the tasks to master them and whether students attend, and these were the responses;

*After theory we go to the farm for practical part or to the laboratory, or for a field trip if money is released early. On reaching the farm, you are put in groups for animal production practical and told what you will be doing each time you come to the farm for example measuring of feeds, you are shown the container you will be using and how many containers you will give the animals for example pigs. Generally you are shown the equipment you will use on a daily basis like brushes to clean, drinkers. We get up early and by 6.00 or 6.30am we start working and by 8.00 am, we are needed in the lecture rooms for studying. We spend two to three weeks in each animal section that is, piggery section, dairy section and poultry section. The Farm Manager is always there to check on attendance and how we do work. Farm workers do the milking as we observe, measure milk and take records. If one knows and is interested, he can try milking. In crop production, you plan the vegetable you are going to plant alone. Then, we prepare nursery beds for the vegetables with the help of the teaching staff. We open up the land ourselves and do the rest of the work ourselves. We use the theory we first study and some experiences from home to do the works. Crop production activities are done individually, but animal*

*activities are done in groups. Those who don't know are expected to learn from colleagues because our plots are near each other. After we write a report that is marked and it contributes 15% to the total mark, about what we did at the farm. But you can even use theory to write that report.*

*One crop (vegetable) is grown in the whole course and it is grown once. We prepared silage with our Lecturer but few of us went back to see how it came out because we did not have time. We had to read hard for Examinations which were near and after examinations we went home. But sometimes we arrange for field trips and money is never released or it is released late and we do not go. We did a soil pH test in the laboratory and a few other experiments in groups. Some of us did not touch even the equipment.*

The above responses affirm what Teaching staff members said; that after theory practicals are done at the farm, in the laboratory and in field trips. Including theory is in agreement with Nilsson (2011) who said that practical component teaches the technique of practical work, vocational theory teaches about tools and materials and how they work/function while general education focuses on general academic subjects such as language, mathematics to mention but a few. Thus theory is an important component in vocational education and this is acknowledged by both the staff and students in their responses.

In Animal Production section and in the laboratory, tasks are done in groups and assessment is based on written reports which reports can be written using theory knowledge implying they may

not tell whether the student mastered the task/skill or not and the quality of the task. Use of Group work due to shortage of equipment leads to some students not having an experience in using the equipment but just observe, such that students do not learn the skill of manipulating the equipment. *“The Farm Manager is always there to check on attendance and how we do work. Farm workers do the milking as we observe, measure milk and take records. If one knows and is interested, he can try milking”*. This observation means that in a period of one and a half hours, only one technical person, the farm manager is supervising all the activities that is, activities in piggery unit, dairy unit and poultry unit. This is too much work for one person in one and a half hours.

On close observation of these three units, the piggery unit was not very near dairy and poultry units. Farm units being far from each other, limited time, and having one teaching staff to supervise the practical activities means; students sometimes are left in the hands of farm attendants, ensuring that each student participates is hard, evaluating each student’s work and ensuring that each student has learnt the skill is a challenge. *“Evaluation is a challenge because there are no clear practical evaluation guidelines”* (Teaching staff 1). This explains why marks are given basing on attendance and the written reports which cannot show that someone acquired the needed skill as observed from Teaching Staff 3; *“There is roll calling at the farm on daily basis which is awarded marks, they write a report about the activities done on the farm and marks are given for the report but of recent writing reports was discovered not to be appropriate”*.

Therefore there is need to have more Teaching staff members participating in supervision of tasks to enhance supervision of practicals if skills have to be acquired by student teachers from the farm.

Generally, from the responses of both Teaching Staff and students, there is pressure of time, low supervision and inadequacy of tools, laboratory equipment and facilitation of field work.

#### **4.3.1.3 Responses from Secondary School Agriculture Teachers in the Field**

Graduate teachers in the field were asked regarding the training they received in agricultural skills. The responses were as follows;

##### **Teacher 1**

*We used to go to the farm for practicals in animal production very early in the morning. We recorded milk, dipped animals, gave feeds to birds and pigs. We used to work in groups in the animal sections for three weeks in each section. Roll call was a must. I also grew a vegetable crop but never harvested it, weeded coffee. They opened up land for us with the tractor to grow crops, but I did the rest of the work. We had laboratory practicals like on soil pH, we looked at workshop tools in Mechanization room but did not use those tools. Apart from animal production the rest were done once that is why we feared mechanization practicals because you would see once a certain tool and the next time is during an examination and you are told to identify it. We also used to go for field trips. There is a lot in the field than we were exposed to at the university.*

**Teacher 2**

*We did the practicals after theory. We went to the farm, they opened the land for us with the tractor, but the rest of the work I did it myself. We would write a report about what we did at the farm and we would use theory knowledge in most cases to write it not what we did exactly at the farm. Sometimes we went to the laboratory for experiments and rarely would we go for field trips. We were trained basically to be classroom teachers.*

**Teacher 3**

*We used to get up very early in the morning to go to the farm to do practicals. Then, practicals resumed in the evening after theory sessions especially for crop production when we would be so tired. We cleaned animal houses, gave feeds to pigs and birds, measured milk, observed; animals, milking, castration, cutting of hooves being done, and few of us tried milking. Soil and water conservation practices on the farm were not done practically except mulching. We grew crops, one crop each student. I sold my friend's crops which she had left in the garden and gave her money when another semester started and she could not believe. We were happy and we forgot all about the stress of the farm. We had experiments in the laboratory also.*

**Teacher 4**

*Our first days were good. We worked on the farm and grew crops as a project. We would drive the tractor in the field, attach implements on the*

*tractor. I requested land from our farm manager at the University farm I grew my own crops sold to the University kitchen and got a lot of money. I went to the University when I was poor but came out when I was a rich man (smiling face). We were few, one lecturer was in charge of animals and he would take us to Kabanyolo University farm, another lecturer was in charge of crops and he would take us to Namulonge and we would see and learn many things. But these days, things are not good.*

When the respondent was asked what he meant by “our first days”, “these days” and “things are not good,” he said;

*those days of eighties, I was at Kyambogo in 1981 for my diploma, I went back for my degree when it was made a University but things had changed, We were many, we did a lot of theory. Also my third born graduated from there of recent on BVS programme and he does not know those things we learnt in 1981.*

This implies that the way practicals have been handled has changed with time despite the fact that teaching staff members are still the same.

#### **Teacher 5**

*We did training from the farm. I grew cabbages on my farm plot. We did brooding of chicks, cleaned animal houses especially pigs. There were cows on the farm also, who ever wanted to milk would milk some. Other practicals were done in the laboratories. We would also use laboratories as*

*lecture rooms. We used to observe workshop tools but we never used them, so I can only identify some and even that is how we were examined, only to identify, and to give uses.*

From the responses above, it is evident that there is little opportunity for students to get hands on experiences particularly in the case of milking, castration and machinery implements among others. Inadequate opportunity for hands-on experience and field trips has worsened with time due to increased numbers of students, besides there being no opportunity for students to repeat the tasks done. Fewer tasks coupled with non repeat of the tasks imply that the integration of the hand, mind and heart is minimal such that chances of having skills developed in the student teachers are limited. Teaching staff 2 when asked whether students repeat experiments, the response was *“no because time never allows and the laboratories are rarely free”*. Teacher1 indicated *“apart from animal production, the rest were done once and that is why we feared mechanization practicals because you would see once a tool and the next time is during an examination and you are told to identify it”*. Teacher 3 pointed out that *“we were trained basically to be classroom teachers”*.

According to Nilsson (2011)<sup>2</sup>, humans and tasks are the two central components of vocational didactics. This means that in vocational education, human beings under training should do a number of tasks. Mjelde (2006a) and Kyakulumbye (2008) are in agreement with Nilsson when they said that the central aspect of vocational pedagogy is the understanding of human learning and the integration of three human parts – the hand, mind and heart. Therefore, minimal integration of the hand, mind and heart results in teachers with limited skill development, thus

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<sup>2</sup> Nilsson is a professor of Vocational didactics. The script is picked from one of his lecture notes to MVP students 2011.

The teachers are not vocational teachers. This observation is in line with Mjelde (2006b) who reported that, no learning is vocational unless the tasks involved are accompanied with impartation of practical skills to perform those tasks. According to Mjelde (2006), even in the purely academic disciplines, subjects must be turned into some kind of practical activity because learning through practice, trying and failing and through action is the basis of true knowledge (Mjelde, 2006). Besides, the analytic approach known as the “activity theory” regards learning as having been developed on the basis of human practice and concrete activity (Enerstveldt, 1982) which sums up the essence of vocational pedagogy, which is learning by doing. However, it should be noted that in the training of Agriculture teachers at Kyambogo University, there were extended periods of students’ participation in farm activities particularly in animal production and students plots.

The final year students and the graduate teachers in the field testify that they participated in practices on the farm. Final year students indicated that *“we get up early and by 6.00 or 6.30 am we start working and by 8.00am, we are needed in the lecture rooms for studying.”* The graduate teachers in the field responded in a similar manner. Teacher 4 said *“Our first days were good .we worked on the farm and grow crops as a project.”*

Therefore, in case of training Agriculture teachers at KyU, practical tasks should be increased for the students to acquire manipulative skills and true knowledge that they will pass on to the learners in secondary schools. In this way, they will help the students to become practical people thus achieving expectations of offering Agriculture in the secondary schools.

Further, I observed that there were no demonstration plots on the University farm and the coffee plantation that students including myself weeded was bushy (fig.1) due to lack of enough workers on the farm to maintain it. Teaching staff 3 pointed out that *“There are no demonstration plots as you can see on the University farm and no tutor carries out agronomical practices with them practically because, most students come from communities which practice agriculture”*.

Besides, I noted that the Agriculture Programmes do not provide for field attachment to help learners acquire agricultural skills in a field setting which could have been a precise avenue for acquiring agricultural skills. Lack of field attachment was also pointed out by Teaching staff 1, that *“We do not do field attachment here”*.

From the responses, there are also instances of poor attitude of teaching staff and students towards practical tasks. Teaching staff 1 points out that *“the farm manager in fact covers up some teaching staff members who have a negative attitude towards practicals”*. Final year students indicated that *“we prepared silage with our lecturer but few of us went back to see how it came out.”* Attitudes influence ones involvement in a practical. The negative attitude towards vocational education, agriculture inclusive was also observed by Ssekamwa (1997). Having a poor attitude may make someone an observer instead of an active participant. Yet, learning takes place through the active behavior of the student (Tyler, cited in Biggs, 2001). According to Reece (2003), if students lack the right attitude, learning becomes superfluous. That is why one of the major aims of Vocational Pedagogy is to develop a positive attitude towards skills and competences of students in the field of vocational education and training (Mjelde, 2009). According to Sharma (1994), attitudes can only be developed in direct application to the actual experiences of the learner and the worker.

However, despite instances of poor attitude of staff and students, there were also instances of positive or changed attitudes. Teaching Staff 3 (4.2) reported that *“It supplements our income in terms of food because you find that practicing agriculture is the only way to have constant food on the table for your home. Even the educated and with jobs have come to appreciate that”*. Teacher 3 reported that *“I sold my friends crops which she had left in the garden and gave her money when another semester started and she could not believe. We were happy and we forgot all about the stress of the farm.”* Teacher 4 reported;

*“I requested land from the farm manager at the University farm, I grew my own crops sold to the University kitchen and got a lot of money. I went to the University when I was poor but came out when I was a rich man”*

Therefore, it is necessary that the right attitude in both learners and lecturers is developed if learning and teaching of vocational skills is to take place so that teachers of agriculture can fit in their world of work which is practical oriented.

At KyU there is evidence that effort is made to give training in agricultural skills at the University farm, laboratory and field trips as indicated by Teaching staff 1(4.3.1.1) that; *“ Students first cover theory then they go to the farm or laboratory or field trips for practicals.”*, Final Year Students (4.3.1.2) said that; *“ After theory we go to the farm for practical part or to the laboratory, or for a field trip if money is released early”* and Agriculture Teacher 3 in the field ( 4.3.1.3) said that; *“ We used to get up very early in the morning to go to the farm to do practicals”*.

#### **4.3.2 Tools and Materials**

Respondents were asked the kind of tools and materials used for training, whether the tools and materials were sufficient or not, and whether they relate well to those in the labour market.

#### **4.3.2.1 Responses from Teaching Staff**

##### **Teaching Staff 1**

*We are slightly better than villagers, but we cannot compare ourselves with other universities. Students use hoes these days to carry out primary and secondary cultivation which is traditional. But some time back we would open up the land for them using a tractor but these days, it is so difficult to access a tractor. I had made an appointment with you to meet yesterday but when you called me I was still waiting for the animal feeds that is why I could not meet you and even today I am still waiting, they have not yet given the feeds to me. Materials cannot be enough for example in castration, for each method, one piglet is castrated as students are observing how it is done. We don't practice irrigation due to lack of facilities yet sometimes rain delays planting. The store and calf pen are in a poor state (fig.2 and fig.3). They are not improved on or repaired. If a student learns from such structures/facilities as appropriate, that is what he will teach.*

##### **Teaching Staff 2**

*In the laboratory, equipment is modern but not yet enough for the students, which makes students to work in groups. More equipment is being procured but the procurement process delays and affects the practicals.*

### Teaching Staff 3

*Sometimes you just have something to show. Tools are not modern. We had two tractors but when they got spoilt they were never repaired up to today.*

The responses of the teaching staff members indicate inadequacy of tools and materials and how teaching is affected. However, modernity could be carried too far. A hand hoe could be appropriate, for example on a small scale where as a tractor is modern but for large scale farming. According to Epeju (1989), Uganda is a country of small scale farmers with the size of a typical small farm holding being 2-5 hectares in Buganda and western Uganda, 10-15 hectares each holding in Northern and Eastern Uganda. Epeju (1989; 6), continues to report that “schools that teach agriculture have attempted to emulate the farm size of the small holdings in the communities they happen to be”. The sizes of these holdings since 1989 must have reduced further due to land fragmentation which is a common practice in Uganda. Small land holdings in Uganda therefore make the hoe an appropriate tool. However, there are for example, tools, good seed varieties, good animal breeds, irrigation facilities, chemicals like herbicides, pesticides, fertilizers which are indispensable for modern farming and these need to be made available to facilitate teaching modern practices.

On the other hand, Kyambogo University has to be aware of globalization with its free labour movement, and technological advancement which can make graduates face steep competition on the labour market while looking for jobs. Teaching Staff 1 when asked about the kind of tools and materials used for training, whether the tools and materials were sufficient or not, and whether they relate well to those in the labour market said “*We are slightly better than villagers, but we cannot*

*compare ourselves with other universities.*” Implying that even the teaching staff is aware that their graduates cannot compete with graduates from other Universities. This needs to be looked into so that KyU graduates and learners are not rendered irrelevant.

Epeju (1989; 9) reported “it is difficult to describe a universal set of skills and practices that can be learnt best from school farms through practical agricultural training”. Epeju quoted a study group from Makerere University in 1970 that met and passed a set of agriculture skills, practices and projects that can be learnt on the school farms (Appendix 7). The set was intended for agricultural practical training in secondary schools up to senior four and was mainly for the areas of animal production, crop husbandry and agricultural mechanics. Such a set of agriculture skills, practices and projects can be emphasized even at the University farm to build the confidence of student teachers that are going to handle students in secondary school.

#### **4.3.2.2 Responses from Final Year Students**

*We used the usual hoe and a panga like villagers to dig and cut. I expected to learn to use modern tools but instead I only saw some and did not use them even. Milking is done by hand. Tools were rudimentary. The few modern ones were few in the laboratory. On the market a graduate of agriculture is expected to know how to use a tractor but it is not on the farm we just looked at it in a field trip and in diagrams*  
(Laughter from the group members in support of the submission)

From the responses above, tools were rudimentary and did not meet the expectations of the students let alone the expectations of labor market. In one instance however, the response is

extreme such as “*We used the usual hoe and panga like villagers to dig and cut*”. On the other hand the expectations are high such as “*to know how to use the tractor*”.

#### **4.3.2.3 Responses from Secondary School Agriculture Teachers**

##### **Teacher 1**

*Same ordinary tools were used, same vegetables were grown. We learnt about the tractor theoretically with diagrams.*

##### **Teacher 2**

*Local tools were used. No difference between the educated and the uneducated.*

##### **Teacher 3**

*We used the hoe to dig, weed and harvest. We used watering cans to irrigate, fetched water with jerry cans to scrub animal houses, used improvised containers like small cut jerry cans to measure animal feeds like in piggery! The whole work was tiresome.*

##### **Teacher 4**

*We were few and equipment was enough but not that modern. Tractors were there but we never used them, we would drive them in the field only.*

##### **Teacher 5**

*We used the hoe on the farm, and other simple tools .I cannot say there was much difference in tools .The University just needs to improve on the tools to make the work easy .Some of our friends had personal gumboots, some*

*of us did not have. I think that is why students hate those practicals at the University.*

The responses by the graduate teachers indicate use of inappropriate tools and excessive improvisation of tools and materials in the course of their training. Also, frustration on the part of the trainees as a result of excessive improvisation of tools and materials is apparent. There is need to match skills training with appropriate tools.

Nilsson (2011) said “no task can be carried out without tools and materials”. Furthermore, training for high quality skills requires proper equipment, tools and materials for practice by the learners (COMEDAF, 2007). This implies that VET institutions which have enough and up-to-date training equipment have a better chance that their students will perform well once they are outside in the world of work. In a state of affairs where tools are obsolete or few and materials are insufficient, then graduates are more likely to lack modern skills and competence. This state of affair was noted by Nalumansi et al. (2003) when describing technical vocational education in Uganda in a World Bank report that;

*The current BTVET system is not in a position to cater for the present and the future skills requirements of the economy. Most BTVET providers do not refine their students to the required current and future skills needs. The training contains too much theory and too little hands-on experience. Even practical skills are theoretically explained with gestures and pictures.*

According to Mjelde (2006), schools are not economically equipped to buy the latest equipment. However it should be noted that shortage of tools and materials makes learners hate practical sessions as evidenced by the responses from the graduate teachers.

### **4.3.3 Time for Practicals**

Respondents were asked regarding the time learners spend interacting with these tools and materials, for example time allocated to practical tasks;

#### **4.3.3.1 Responses from Teaching Staff**

##### **Teaching Staff 1**

*Time is not enough. In a crop project, students are supposed to market their produce so as to find out whether they have made profit or loss but time is usually short and they leave their crops in the field. A skill in milking takes some time for one to learn. When someone is recruited on the farm when he does not know how to milk, it takes eight months for him to learn but students take three weeks.*

##### **Teaching Staff 2**

*Since students almost do practicals last, time is always limited. It would be better to teach as one demonstrates because a lot of time is saved.*

##### **Teaching Staff 3**

*Time allocated to practicals depends on the teaching staff member. Sometimes on the timetable it may be indicated that it is practical time but a lecturer teaches theory. The attitude of the Lecturers towards practical determines how much time is given to it. But generally time is*

*not enough because there is a lot of theory to be covered. Sometimes you even lack time to finish the theory part.*

What is emerging from the above voices is that time is not enough for practical work as they are done last and the lecturer determines how much time to set aside for practicals. It was also suggested that time can be saved if practicals are integrated with theory teaching. Lack of time has led to project work not being completed for example, leaving crops in the field. However from the previous responses irrigation is not practiced on the University farm where by, delay of rain also delays planting of crops. Implying students wait for the rains to plant and may plant late thus the semester ends before a crop matures. Lack of irrigation facilities, fewer marks given to practicals and not necessarily up to the end of the project as well as late release of materials could all contribute to the leaving of the crop in the field.

According to the programme book (KyU, 1999), farm projects consists of; project identification, project choice, implementation, and evaluation. This helps the student to get meaning out of the project but if crops are left in the field, then the student may not understand why he/she did the project. According to Ali Shah (2009) projects are based on principles of purposefulness of activity, reality experience, life experience, cooperation, flexibility and democratic approach, development of individuality and enrichment of areas of learning. Thus teachers should guarantee that the projects given are meaningful to learners.

#### 4.3.3.2 Responses from Final Year Students

*University farm work starts from 6.00am for animal production and by 8.00am we are needed in the lecture room for theory session. We spend two to three weeks in each animal section that is piggery section, dairy section and poultry section. This is little time. For crop production we worked in the garden in the evenings when we are tired and sometimes in the morning and by 8.00am you are needed in the lecture room. We left our crops in the field because the semester ended before they were mature. We also prepared silage with our lecturer but we did not go back to see how it came out because we had to prepare for examinations. We did soil science practicals on soil pH in the laboratory, but it was done once and I do not think I can do it again now. Theory takes a lot of our time.*

The above voices indicate that time was not enough but also the fact that students could get time to prepare for theory examination, implies that time was not the only factor. Other factors such as which of the two, that is, examinations and checking on silage was awarded marks must have come into play which resulted into prioritizing theory which carried 60% of the total mark compared to practicals which only contributes 15% (Response of teaching staff 2 to Tasks-4.3.1). Therefore it would appear that practicals should be assessed and marks should be known to students for the students to put in that extra effort.

#### **4.3.3.3 Responses from Secondary School Agriculture Teachers**

##### **Teacher 1**

*Time was not enough. The University cannot expose one to a lot of experiences because the programme gives practicals less time. I have experienced a lot of challenges and learnt a lot while in the field practicing agriculture than I did at the University because there, we read a lot.*

##### **Teacher 2**

*Time was limited and I think that is why we would get up very early in the morning.*

##### **Teacher 3**

*Time was not enough for practicals. We covered a lot of theory and some of it I felt was not necessary. Time not being enough made practicals to be done at Awkward hours like early in the morning and late in the evening which demotivated us .We did not even see how our crops yielded because examinations were very near and were the major determinants of our passing. After examinations we went home and left the crops in the field.*

##### **Teacher 4**

*Time was not enough. It needed someone who is very interested if one had to learn many skills.*

#### Teacher 5

*Time was not there for one to try again and again. I never harvested my crop.*

The above voices affirm that time set aside for practicals is not enough and despite the opportunity for more time by doing the practical at 6.00am and late in the evening, personal initiative and interest are crucial if one has to learn some skills in the short time given. Little time for hands on experiences means that skills will not be acquired and the confidence needed for a teacher to handle practicals will not be attained. Little time for practicals leading to less acquisition of skills is in line with Taabazuig (2012) who carried out a tracer study on agricultural graduates in Ghana and revealed that the training of agriculture graduates tend to emphasize theory rather than the application of the theories. Besides, the student teachers or trainees come with a lot of practical gaps from their former schools. The commissioner (4.2) reported that; *“Teachers don’t teach agriculture as a hands on subject where skills should be passed on. There are no demonstration farms /plots in schools, the few schools that have plots use workers to maintain them, not students.”*

Unfilled practical gaps even at the university indicate that teachers finally may not be confident enough to handle practicals due to a mismatch between theory and practicals. A mismatch between theory and practicals in graduates agrees with Taabazuig (2012) who revealed that there is a mismatch between the knowledge and skills given to agricultural graduates in Ghana.

However, lack of a practical approach to agricultural training appears to be an endemic problem here in Uganda. According to Epeju (1989) the Permanent Secretary, Ministry of Education expressed concern on lack of practical approach to agricultural training as follows;

*“Reports reaching my desk indicate that although most schools and colleges are teaching agriculture and have teachers of agriculture, the subject is handled theoretically. This is wrong agriculture education. Classroom work should be supported with practical work in the field. This should be in a way of experimental gardens where students practice and observe different methods of raising crops, raising yield levels etc...student practical involvement is mandatory as it cuts down costs and provides the practical training.”*

In China, before the new reform, 70% of the time was allocated to theory teaching (lecture) and 30% practical (laboratory experiment, field practice, and internships). But the new reforms allocated 50-60% theory (lecture) and 40-50% practical teaching (Shao & Bruening 2002). The new allocation of more time to practicals combined with a changed mode of assessment from written examinations, assignments, and class performance to oral, written, practical exams, class performance, assignments, and national standardized skills testing system has been done to emphasize the need for practical skills. According to the Norwegian mission report (2009), the theory and practice ratio should be 50:50 (Center of Competence in Skenderaj: Building and construction, 2009). The same report gives a guiding principle that there should be a maximum of 30 learners in theory class and a maximum of 15 learners in practice class. Larger numbers may deter some students from accessing tools and materials, put safety at risk and or reduce learning outcomes for students.

In addition, Epeju (1989) quoted a 1983 UNESCO report on Education in Uganda and they described the situation of Agricultural Education and training in Uganda as follows;

*“Implementation of the secondary agriculture programme faces a number of difficulties. In some cases the courses apparently are largely limited to theoretical Classroom presentation, because of lack of farmland but mostly because of shortage of simple hand tools, irrigation equipment and consumables such as fertilizers, pesticides and seeds. Without the provision of farmland, and equipment, it is not possible to build sound attitudes to farming since the practical aspects, which are most important, cannot be provided. The same problems occur in the training of agricultural teachers. Curriculum plans at the NTCs and at the faculty of Education are balanced between theory and practical work but the proper condition for implementing practical work do not exist. The NTCs farms are not sufficiently equipped and need tools and consumable materials. The agricultural department of the NTC Kyambogo (later ITEK) (now University) needs additional financial support to complete construction of classrooms and laboratories and reinforcement of the farm as well. The agricultural unit of the faculty of Education at Makerere requires transportation for field visits to farms .since the faculty does not have a demonstration farm, transportation is necessary to carry the students to the Kabanyolo farm of the faculty of agriculture.”*

According to the programme document for the Department of Agriculture, KyU, BVS and BED programmes (1999), time stipulated for practicals was twice the time for theory but from the findings, theory takes more time than practicals. Theory taking more time than practical indicates that time for practical is used for theory.

*“Time allocated to practicals depends on the teaching staff member. Sometimes on the timetable it may be indicated that it is practical time but a lecturer teaches*

*theory. The attitude of the Lecturers towards practicals determines how much time is given to practical”, (Teaching Staff 3; 4.3.3.1).*

This shows that the programme guidelines are not followed. The academic education/theory component is promoted at the expense of equipping trainees with necessary skills that can enable them to survive, be productive in the labor market and train productive learners in secondary schools. Another factor that could limit skills training is the large number of students handled in a class.

However, it should also be noted that the missing theory component could have been the cause of poor attitude and motivation towards vocational education. The Education Policy Review Commission (Uganda Government 1989 and the Government White Paper (Uganda Government 1992) recommended continuity for Vocational Education so that Vocational Education is not seen as being terminal or inferior. Hence, there appears to be need for a balance between theory and practical in VET.

#### **4.3.4 Tutoring**

Respondents were asked whether teaching staff knew how to handle practicals.

##### **4.3.4.1 Responses from Teaching Staff**

###### **Teaching Staff 1**

*I have no problem with handling practicals. I have the experience so I know what these people need. Very few lecturers get involved in practicals though.*

**Teaching Staff 2**

*I have no problem.*

**Teaching Staff 3**

*You cannot be an expert in all areas. For example when we take them for field trips, the experts explain to the learners.*

Responses from the teaching staff indicate that some of the teaching staff members feel they are confident but in some cases teaching staff members seek the assistance of experts. According to NORAD (2009), the only way to train skilled workers is through extensive practice under supervision by the teacher/instructor with long experience of conducting similar work operations. This shows that both instructors of learners in schools and in University need knowledge and experience of conducting work operations. To have professionally skilled and experienced instructors is in line with Nilsson (2011) who identifies five characteristics of vocational (professional) competence as; long period of education, experience, ethics, different types of knowledge and qualification. Similarly, according to Kaahwa (2003), a vocational teacher should have technical skills, industrial experience and pedagogical skills. Middleton et al. (1993) noted, Vocational education requires instructors who have technical skills, industrial experience and pedagogical skills; requirements which are higher than those for teachers in general education. Kaahwa cites a World Bank report where Middleton and Demsky (1989) were quoted to have found out that unqualified teachers adversely affected training quality in two thirds (2/3) of the countries studied. Also, Nanda (1998) found that ill trained teachers normally teach to the limits of their knowledge and skills because their own lack of knowledge and skills holds back what they do in classroom. Thus, the products of any education level are what they are mostly because of the teachers that trained/taught them. In support of this, Ali Shah (2009) said that no system of education is better than its personnel and no system of education can be above the standard of its teacher. The

Education Policy Review Commission of 1989 (Uganda Government,1989) acknowledges that “no education system can succeed without adequately trained teachers” ( pg. 94).This implies that the practical gaps in teaching staff would be reflected in the teachers that they train and later in secondary school students.

The teaching staff should therefore aim at upgrading their skills by attending refresher courses, seminars and workshops. According to Sharma (1994) visiting other teaching staff members especially those of the subject they teach can help them upgrade their skills. These strategies can give teaching staff new ideas for professional and instructional improvement more so in this era of rapid technological advancement.

#### **4.3.4.2 Responses from Final Year Students**

*The few practicals that are done are handled well. Few teaching staff members take part in practicals. All practicals on the farm are majorly handled by one teaching staff that is, in crop production and animal production field practicals. Sometimes he calls in people from out to show us how certain things are done. In the laboratory, practicals are majorly done with the help of the laboratory technician. For animal nutrition, one practical was done on the farm about silage preparation with a teaching staff.*

The voices above indicate that practicals are limited and Teaching staff participation in practicals is also limited. At the University theory is separated from practice whereas in traditional education/work place training, theory and practice are integrated. According to Kajsa e t al. (1991)

whatever training strategy is taken, the teacher should be skilled professionally with experience and knowledge about tools, work division and organization. Agriculture being a vocational subject requires teachers who should teach both theory and practice. They need both vocational and pedagogical skills because both vocational skills and VET theoretical knowledge are important (NORAD, 2009). Teachers with both vocational skills and VET theoretical knowledge will help counteract the traditional understanding of a teacher which according to Reece and Walker (2003), a teacher has always been known as a fountain of knowledge; one that stands in front of students and students listen passively as recipients of the knowledge.

#### **4.3.4.3 Responses from Secondary School Agriculture Teachers**

**Teacher 1.**

*Those few teaching staff members who handled practical knew what they were doing.*

**Teacher 2.** *The few practicals that we did, were taught well.*

**Teacher 3.** *I knew some of the things like using the hoe .Other areas were handled well.*

**Teacher 4.** *No problem with handling of the few practicals that we did.*

**Teacher 5.** *Teaching staff members were knowledgeable*

A common finding that runs through the above voices is that although few practicals are done they are handled well. Unfortunately few teaching staff members take part in these practicals. According to Middleton et al (1993), equipping learners with agricultural skills for self-employment and for wage employment has faced the challenge of limited availability of skilled instructors to carry out the work. From the information got from other respondents above, the

attitude of the teaching staff determined whether to have or not to have a practical. More so, unavailability of tools, materials, funds and having a lot of theory work to cover could have been the causes of few teaching staff participating in practicals. There could be other pertinent factors or reasons as to why few teaching staff members take part in practicals. These pertinent factors need to be found out through a thorough search so that a solution can be got.

At NCDC, when the respondent was asked whether teachers are well trained to handle the practical oriented syllabus, so that objectives of secondary school agriculture education are achieved, he said;

*No. That is why here at NCDC, we are designing projects that are aiming at retooling teachers who are already in the field for the next two years so that they are capable of handling the new designed s.6 syllabus which is practical oriented.*

When he was further asked regarding the way forward for teachers that are still undergoing training he said;

*“As NCDC we have involved two teaching staff members from the department of agriculture Kyambogo University so we hope they will adjust their training so that their graduates are able to deliver”.*

This implies that graduates/agriculture teachers in the field may not be able to handle a practical oriented syllabus of secondary agriculture syllabus effectively basing on training they got and the current training due to lack of practical skills yet, they are expected to pass on agriculture skills to the learners and even practice agriculture. This observation of graduates not being able to

practice agriculture concurs with Taabazing (2012) who revealed that agricultural training tends to produce job seekers but not entrepreneurs who can create their own jobs or effectively help the private sector develop. This was reiterated in another tracer study on effectiveness of agricultural training programmes in Botswana, Lesotho and Zambia in which SCARDA, (2012) identified lack of practical experience/hands on skills in agriculture graduates. Lack of practical agriculture skills in Ugandan agriculture teachers was noted by Ssekamwa (1997) when he said that Ugandan teachers lacked agriculture skills since the colonial times. On the other hand teachers are perceived as greatest sources of educational change in an orderly society (UNESCO, 1976 reported in Wheeler & Perraca, 2000). Therefore, since teachers lack the skills, they cannot ignite the right skills, attitudes and competences in learners because teachers cannot give what they did not have in the first place (Hammond, 1999 in Egau Okou, 2002).

#### **4.3.5 Overview**

It is apparent that the training of agriculture teachers at KyU is characterized by fewer practical tasks, non repeat of tasks, rudimentary tools, insufficient materials, less funding, less time for practicals, fewer teaching staff members taking part in practicals leading to poorly supervised tasks, lack of modern facilities like irrigation, a lot of theory and large classes of students. All these factors do not favour acquisition of skills by teachers and imparting of modern agriculture skills to learners by secondary school agriculture teachers. Yet, they are expected to train secondary school students to be modern farmers. These findings are in agreement with Coombs (1985) who reported that the challenges facing National education systems are shortage of funds, teaching materials, and teachers; a shortage of everything except students .

In conclusion, different methods are used to train students in agricultural skills and knowledge for the labour market. The methods used depend on the availability of tools and materials,

funding, time and attitude, and knowledge of the teaching staff. For instance methods used to teach vocational practice include; project work, field trips and laboratory experiments.

#### **4.4 The Best Options for Agriculture Teacher Training in the DoA at KyU.**

The best options in the training of Agriculture teachers at KyU were sought from the respondents basing on their experiences using appendices 1, 2, 3 and 4, and the findings are described below.

##### **4.4.1 Responses from the Teaching Staff on the Best Options for Agriculture Teacher Training in the DoA at KyU.**

###### **Teaching Staff 1:**

*In animal production, let students do practicals right from feed mixing not buying already mixed feeds; egg incubation not buying chicks and do all the animal practices on the farm, even if it means losing some animals through practices like debeaking, castration, dehorning, needle teeth removal and many others, such animals will have died in the spirit /heart of science and agriculture in particular . That is when teachers will teach not only what they will have been taught, read and observed, but also what they will have done and experienced. However this calls for a dedicated and interested administration which should not look at the University farm as a profit making project only, but majorly as a farm/centre for training agriculture student teachers in agriculture skills. These structures of 1990 are old they should be renovated. Modern facilities on the farm like irrigation need funding, laboratories, and these should be in secondary school also. Let other teaching staff*

*members take part in practical work. Let top administration show interest and be supportive. When recruiting workers on the farm, it needs one who knows the challenges that these teachers will face in the field so that he or she trains them to overcome them not someone from Kakira sugar works who does not know what teachers are going to do in schools.*

**Teaching Staff 2:**

*Theory should be accompanied with practice, because this will save time and Students understand better. Adequate and timely financing of practical activities should be done.*

**Teaching Staff 3:**

*First let there be a list of practical agricultural skills needed and they should be put in the curriculum. There should be a formal way of examining each skill. Proper assessment of practical need to be addressed with known marks just like how it is known that end of semester examinations take 60%. Students need to go to the communities sit there, see what it is, practice and learn. Time for practicals should be respected not every teaching staff determining what he can do during that time. The attitude of both teaching staff and students towards practical should be improved so that the whole practical work on the farm is not left to the farm manager. Due to limited time, resources/funding, technicians being busy, seasonality and ecological location influencing projects at the*

*University farm, students should be attached to modern farms to get the experience for like ten weeks the way we do with school practice .Let laboratories be improved and maintained. Enough materials should be available for hands on training in the University. Hands on training from a training centre like Kabanyolo is essential. The environment; strikes, there should be respect for people. Well maintained demonstration plots at the University farm are essential also.*

From the above responses of the teaching staff, the following were the suggested best options for Agriculture Teacher Training in the DoA at KyU: Identification of needed skills, having modern facilities on the farm, combining theory and practicals, attachment to modern farms and recruiting experienced instructors were suggested to enhance training in agriculture skills. More to the suggested above, enough materials, well stocked laboratories, field trips, well maintained demonstration plots at the University farm and timely financing of practical activities are equally important. Top administration showing interest in practicals for example looking at the University farm not as a profit making project but majorly as a centre for training agriculture student teachers in agriculture skills, positive attitude of teaching staff and students, and creating a friendly learning environment were suggested to enhance training in agriculture skills. Hence, the emphasis by Teaching Staff 1 that;

*“Even if it means losing some animals through practices like debeaking, castration, dehorning, needle teeth removal and many others, such animals will have died in the spirit /heart of science and agriculture in particular. That is when teachers will teach not only what they will have been taught, read and observed, but also what they will have done and experienced”.*

The respondent is appreciating the fact that even if a student makes a mistake in carrying out a certain practice, such a mistake will have helped the student to learn better. Similarly, Mjelde (2006) made an observation that true knowledge comes from trying and failing and trying again.

Teaching Staff 3 noted that; *“The attitude of both teaching staff and students towards practical should be improved”*

The above observation shows that attitudes affect teaching and learning of agriculture skills which ultimately influences the performance at work place. The same observation was noted by Reece (2003) that unless your students have the right attitude, learning becomes superfluous. However, Sharma (1994) says that attitudes can only be developed in direct application to the actual experiences of the learner and the worker.

#### **4.4.2 Responses from Heads of Agriculture Departments (HoAD) in Secondary Schools on the Best Options for Agriculture Teacher Training in the DoA at KyU.**

##### **HoAD 1:**

*But madam, whatever the training, what is expected of us after the training is to make students pass and we have done this for a long period of time. But I hear there is a new A-Level syllabus that emphasizes practicals. May be that one will necessitate a change in the training of teachers and still on condition that UNEB changes its setting of examinations. But as I told you I was trained from*

*Kyambogo University and I have all the notes that are needed for these students to pass.*

The respondent has no problem with the training as one is considered a good teacher by making students pass but the respondent has fears of being outdated with the coming of a practical oriented syllabus. Thus, a change in the training is paramount to effect the new A- Level syllabus. This implies that any training should always depend on the labour market requirements. This is the very reason why NCDC involved the teaching staff of KyU, DoA so that they can examine their training curriculum and if found necessary revise it.

**HoAD 2:**

*Enough time for practicals and materials have to be put in place but this is very expensive. You wait, the issue of emphasizing hands on has been said many times but because it is expensive, it has never been implemented. Secondly, practicals should be awarded marks like written examinations.*

**HoAD 3:**

*Time for practical needs to be increased, more field trips conducted, modern tools to ease work and provide experience should be acquired.*

**HoAD 4:**

*More time for practical and more funding for field trips and on farm training. You get the skills when you practice them. Let teaching staff members be interested in practicals not leaving them for a few individuals and let practical contribute more marks so that they are taken seriously by students teachers.*

**HoAD 5:**

*More hands on experiences for confidence building because few practicals are given during training at the University.*

From the responses above, there is need for more time for practicals, more funding for field trips, on farm training, modern tools and enough materials. Also, awarding practical work the same marks as written examinations was recommended if acquisition of agriculture skills is to be effected. Enough time for practicals and awarding same marks like written examinations (Head of Agriculture Department 2) indicates that however much more time is set aside for practicals, if assessment is not revised, then the time for practicals may be misused. This could be the reason why in China there used to be 70% theory teaching (lecture) and 30% practical work (lab experiment, field practice and internships). However, when the new reforms stipulated 50-60% theory (lecture) and 40-50% practical teaching it caused a change in the mode of assessment from written exams, assignments, and class performance to oral, written, practical examinations, class performance, assignments, and national standardized skills testing system (Shao and Bruening, 2002).

**4.4.3 Responses from Graduate Teachers in the Field on the Best Options for Agriculture Teacher Training in the DoA at KyU.****Teacher 1:**

*Let the University acquire modern tools so that there is a difference between a graduate and one that never reached the University. No lecturer can stand there to teach you how to use a hoe or regulate water for irrigation using a watering can, but if it is a tractor or a sophisticated irrigation system, he knows he has something new to train you in.*

From the above response, the level of technology used in the training affects the participation of the teaching staff.

**Teacher 2:**

*Modern farming with modern tools should be done at the University farm. Students should use the tools not just to see them or observe what the tools can do. Supervision of practical sessions should be improved and evaluation made clear. This will help student teachers to acquire skills to manipulate modern tools and will pass on the skills to the learners in secondary schools. Adjustment in time for practical! Getting up so early again you rush for theory was risky and tiresome. It even made me hate the whole idea of practical. More field trips are needed for more exposure.*

**Teacher 3:**

*If it is possible an appropriate time can be got for practical. Time saving and labour saving methods in animal production and crop projects like use of herbicides, machine milking should be used so that one is motivated to learn something new. Demonstration plots help one to learn. Attachment to successful modern farms helps one to learn a lot. The field is very challenging.*

**Teacher 4:**

*Field trips help to learn things not on the farm. Enough hands on experiences teach a lot. Enough materials for a large number of students for each one to try on his own and learn.*

**Teacher 5:**

*Let what someone does in practical be awarded same marks as theory.*

*Students will participate highly and more willingly and in the process they will acquire the skills.*

From the responses above, modern farming with sophisticated tools should be done at the farm. Students should use the tools, more field trips, appropriate time for practicals, time saving and labour saving methods in production, demonstration plots, attachment to successful modern farms, enough materials, enough hands on experience and practicals awarded same marks as theory helps one to learn a lot. These strategies will help graduates to acquire the necessary skills and thus overcome field challenges.

On the best options for agriculture skills training, Final Year Students said;

*Time for practicals should be increased because most of the time is spent in theory. This can be done either by reducing on the theory taught or by increasing the time for the course. This will solve the problem of doing practicals at awkward hours where students end up missing. Industrial training for a year for example at Kabanyolo or from other agricultural institutions for further exposure to modern farming methods like breeding and others. Specialization like in agronomy or animal husbandry or Extension like at Makerere should be done, to avoid shoddy training. Emphasis should be put on hands on experience thus practicals should be marked basing on what someone has done. Marking written reports does not work.*

From the responses above field training is being strongly suggested as one of the best options for agricultural skills training as similarly indicated by Teacher 3; *“Attachment to successful modern farms helps one to learn a lot. The field is very challenging”*. This observation is in agreement with Oloruntoba (2008) where a farm practical year programme at the University of Agriculture, Abeokuta, Nigeria showed that, the programme provided students with ‘hands-on’ experience and opportunity to apply theory learnt in the classroom to a real-life field situation in which students had to adapt and solve problems on a daily basis. Students also felt strongly that, the farm practical would contribute to their professional career and employability on graduation. Similarly, Oladele et al. (2011) carried out a descriptive survey to examine the effectiveness of Field Practical Training (FPT) for competence acquisition among students and from the list of 47 agricultural tasks on which the competence levels of students were examined, students reported that their level of competence changed from not competent to competent in 31 out of the 47 tasks. These were predominantly in the areas of soil and crop production and animal science. Oloruntoba (2008) further reported similar findings among students from the University of Agriculture, Abeokuta, Nigeria that the farm practical year programme improved their competence in many agricultural tasks.

At the University of Swaziland (UNISWA) a field attachment or internship program is offered in agriculture designed to offer students practical experience in the actual work environment (Moichubedi, 2003). According to Mohd et al. (2009), engineering students’ perception after Industrial Training Placement in Malaysia showed beneficial effects and had significantly improved their ‘personal attitude’, ‘communication’ and ‘work attitude’. The experience gained, the author reported gave them the opportunity to become better students and could, in the future,

provide them with better employment prospects. According to Papler (2008) the instructional strategy to teach vocational subjects should be in such a way that students learning experiences are in a work environment. Therefore field practical training programme reinforces the theory from the class and thus, helps in preparing better graduates for future employment world. This confirms that this strategy essentially equips graduates with agriculture skills and is worth trying in KyU.

While the training at KyU could be offering adequate theory coverage, the students would still like to see a hands on training in agricultural practices and this aspect is appreciated by the teaching staff as well as students as indicated by Teaching staff 2 who said; *“Theory should be accompanied with practice, because this will save time and students teachers understand better. Adequate and timely financing should be done.”*

According to Moichubedi (2003), other institutions like the California Polytechnic endeavored to promote the “learning by doing” practice, where students combine theoretical knowledge and hands on skills during program implementation which helped to promote experiential learning and improved program quality. Furthermore, in African tradition there was no distinct line between working and learning (Okello, 2009). Learners were introduced into life sustaining skills which enabled them to be self-reliant and useful to the community (ibid). Having no distinct line between working and learning concurs with Aninge et al. (2009) who reported that learning in workplaces was on job and workers mastered each task in their section of production by experience with the assistance of line supervisors. In China, training launched by Food and Agricultural Organization (FAO) project recommended discussion, project work, case study, and field investigation to be the

modern methods to use if knowledge, skills and attitudes are to develop (Shao and Bruening, 2002). This is mainly because these methods involve learning by doing by the students.

Teaching staff 3 observed that, *“First, let there be a list of practical agricultural skills needed and they should be put in the curriculum. There should be a formal way of examining each skill”* This observation indicates that if skills are not tested and certified, through developing Occupational Competence based assessment tests, trainees/student teachers cannot discover what skills they have, what they can easily manage and how well they must be able to do it to meet standards set by the employer, consumer or the society.

It is therefore desirable that agricultural training programmes should adopt competency based curricula to enable the graduates to master the necessary agricultural skills. This appropriately applies to Bachelor of Vocational Studies in agriculture with Education as well as the Bachelor of Education (Agriculture) programmes at KyU whose graduates can opt to be teachers of agriculture in schools, employed in agricultural firms or to be self employed in agriculture.

Also from the above findings, the respondents are aware of the possible options for training in agricultural skills but there are factors which have proved to be a hindrance to the implementation of these options. The hindrances include the high cost and unavailability of inputs, time tabling of practical sessions, attitude and initiative of both students teachers and staff, lack of opportunities for hands on training, appropriate and corresponding curricula and institutional support.

However, what is coming through as critical is that the hindrances being pointed out have been there for a long period of time. Kato (1980 unpublished) in his evaluation of the farm practicals programme for academic year 1980/81, from the students' point of view in the National Teachers' College, Kyambogo (NTC), the fore runner of the Institute of Teacher Education Kyambogo (ITEK)

and KyU found that students regarded staff attitude towards their plots, organization of the farm practicals, conduct of practicals, coverage of practicals scheduled, staff regard for practicals and staff example regarding practicals as all poor. As to whether staff valued practicals left the students in doubt. The students also described their attitude towards individual plots and farm practicals as only satisfactory. Kato (1980 unpublished) also quoted the then Director of NTC expressing his disappointment over the students' plots as follows;

*“Another thing which has very much disappointed me is the students' plots. The plots do not impress me as agricultural work. I had always thought that the students' plots were a part of their practical work. If they are, then I would grade them very low indeed. With five Tutors, one of the largest any subject can boast of, surely supervision can be distributed for effective work.”*

Hence seeking the best options for Agriculture teacher training at KyU would need to address a wide range of issues ranging from curricula, delivery of training and facilities available.

#### **4.4.4 Responses from Ministry of Education and Sports Officials on the Best Options for Agriculture Teacher Training in the DoA at KyU.**

The Commissioner for Secondary Education (Private) had the following to say regarding the best options for Agriculture Teacher Training at KyU;

*I am happy that something is being done like this research you are carrying out. Researching on this matter will help to improve training. Let teachers pass on the skills in crop and animal husbandry to the learners in secondary schools. Agriculture should be visible, practical and hands on.*

*For teachers to effectively pass on the skills to the learners, they should first acquire the skills.*

The response above shows that all efforts should be geared towards the practical aspect of agriculture training so that something tangible can be seen to have been done. However, this requires skilled teachers.

When NCDC official's opinion was sought regarding agriculture skills training options especially for those student teachers that are still undergoing training at the University, he said,

*As NCDC we have involved two Teaching Staff Members from the Department of Agriculture Kyambogo University. So we hope they will adjust their training so that their graduates are able to deliver.*

According to the response above, graduates from the Department of Agriculture at KyU have not been in position to handle the expectations of secondary School agriculture education. NCDC has involved teaching staff members from KyU as one of the stake holders on board. Therefore the teaching staff of the Department of Agriculture should be aware through the representatives of what is expected of their graduates in the world of work, that is; to be in position to handle a practical oriented agriculture syllabus that aims at imparting agriculture production skills to secondary school learners. This means NCDC is expecting adjustments in the mode of training of Agriculture graduate teachers which should relate to the requirements of the world of work. According to The BTVET Sector, relating training to the requirements of the world of work

involves revitalization of training facilities, new and improved curricula and human resource development for instruction and management of training (BTVET, 2011).

#### **4.4.5 Overview**

Agriculture teachers from KyU are expected to equip learners in secondary schools with knowledge and agriculture production skills for increased production and self reliance as emphasized by both “O” and “A” Level secondary school syllabi for Agriculture. All the respondents interviewed were substantially aware that Agriculture was included in secondary school curriculum to impart knowledge and agricultural production skills to the students for self employment and improvement of agricultural practice in the community so that learners are able to practice agriculture after secondary education without further training. However, there are factors that do not encourage practical skills training approach in secondary schools. Assessment by UNEB is theoretical in nature, the teachers are theoretical by training, the head masters may not be supportive and there is inadequate funds to buy materials for teaching. Schools lack demonstration plots and in many instances workers are asked to maintain the demonstration plots that are in existence instead of students. Teachers hope that real acquisition of agriculture skills will be effected in higher institutions and they do not teach agriculture as a hands on subject resulting in secondary school dropouts and graduates having more theory than knowing how to apply the theories.

However while practical skills need emphasis, it should be noted that it was worthwhile to have examinable Agriculture syllabi at “O” and “A” level secondary school education to provide for continuity. The Uganda Education Policy Review Commission of 1989 observed that continuity was a missing link in VET (Uganda Government, 1989).

At KyU there is evidence that effort is made to give training in agricultural skills at the University farm, laboratory and field trips. However, the training of agriculture teachers consisted of fewer practical tasks that are not properly supervised and evaluated. The attitude of both teaching staff and students teachers towards practical tasks is low. Besides, there is insufficient materials, less funding, less field trips, inadequate facilities, less time for practicals, fewer teaching staff members taking part in practicals, absence of demonstration plots and absence of field attachments. It is also possible the training is burdened by large classes of students. All these factors do not favour acquisition of agriculture production skills by the graduates let alone imparting of the same skills to secondary school learners. These findings are in agreement with Coombs (1985) who said that the challenges facing National education systems are a shortage of everything except students. This has resulted in graduates at both secondary level and University level having a lot of theory and less application of the theories.

Therefore, if the secondary school Agriculture education expectations and the objectives of DoA programmes are to be realized, revitalization of training facilities, review of curricula and human resource development for instruction and management of training has to be done so that all efforts are geared towards the practical aspect of agricultural training. This can be done through a number of ways;

Agricultural training programmes at the DoA should aim at students doing many tasks for the needed skills to be acquired. Adoption of competency based curricula where by the needed skills are identified and tested to ensure that they are acquired is needed. This will enable the graduates to master the identified necessary agricultural skills. Well stocked laboratories, adequate and appropriate tools and materials are crucial. It should be acknowledged that training in practicals

require more time so that students interact with the tools and materials as they do many tasks with the help of experienced instructors. Practical tasks can be increased through combining theory and practicals, attachment to modern farms, field trips, demonstration plots at the University farm and timely financing of practical activities. Also, top administration showing interest in practicals for example looking at the University farm not as a profit making project but majorly as a centre for training agriculture student teachers in agricultural skills. There is real need for a positive attitude of both teaching staff and students and creation of a friendly learning environment to enhance training in the necessary agricultural skills.

Most of the respondents in this study knew about these options but there are factors which have proved to be a hindrance to the implementation of these options. The hindrances included the high cost and unavailability of inputs, time tabling of practical sessions, attitude and initiative of both students and staff, lack of opportunities for hands on training, appropriate and corresponding curricula and institutional support. It should be noted that over thirty years down the road these shortcomings are still prevalent as pointed out by the respondents in this study. Therefore, while the Agriculture programmes at KyU have very clear learning objectives and outcomes, delivery falls far short of skills training, an aspect that needs very urgent attention.

## CHAPTER V: SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 5.1 Summary

The study was carried out to examine the mode of training of Agriculture secondary school teachers in the Department of Agriculture (DoA) at Kyambogo University (KyU), in relation to the expectations of secondary school agriculture syllabus. The study sought to examine the expectations for inclusion of agriculture as a subject in the secondary school curriculum, secondary school agriculture teacher training at KyU and the best options for Agricultural teacher training in the DoA, at KyU.

It was found that reasons for the inclusion of Agriculture subject in the secondary schools curriculum were to equip learners with knowledge and agriculture production skills for increased agricultural production in the community and for self reliance/employment in Agriculture. The teachers in secondary schools and staff in the DoA at KyU were substantially aware of this. The objective of teacher training programmes is to enable teachers to acquire academic and professional knowledge, skills, values and attitudes in vocational agriculture so that they can perform as competent and effective teachers in secondary schools. This was to ensure that teachers are equally prepared to pass on agriculture production skills to secondary school students. However, due to theoretical nature of assessment by UNEB, the theoretical teachers by training, non supportive head masters, inadequate of funds, lack of demonstration plots meant that teachers in secondary schools did not teach agriculture as a hands on subject.

Efforts are made at KyU to give practical training in agricultural skills through activities on the University farm, in laboratories and field trips as the teacher training programmes require. Unfortunately, the training is characterized by fewer tasks which are inadequately evaluated, non

repeat of tasks, lack of demonstration plots, lack of field attachment, inadequate funding for field trips, inadequate materials, inadequate time designated for practicals and minimal participation of teaching staff in practical tasks that culminate into poor supervision and instruction of practical tasks. A lot of theory teaching and large number of students deny graduating teachers the opportunity to acquire agricultural production skills and the competence needed to pass on the skills to the secondary school learners. The emerging best options for improving agriculture teacher training at KyU include giving more practical tasks, closer supervision of demonstration plots and field attachment. Teaching staff need to take greater part in practical tasks to enhance supervision of tasks and projects given to students. Besides, identification of needed skills which should be tested and certified through developing occupational competence based assessment tests need to be considered. Tools and materials provided should match the technological advancement so that graduates are competitive in the field of work.

## **5.2 Conclusion**

Whereas there is awareness that Agriculture subject in the secondary schools curriculum was to equip learners with knowledge and modern agriculture production skills for increased agricultural production in the community and for self reliance/employment in Agriculture, the teaching is theoretical. Theoretical teaching is brought about by the theoretical nature of assessment by UNEB, the theoretical teachers by training, non supportive head masters and inadequate funding. Thus, teachers in secondary schools do not teach agriculture as a hands on subject and secondary school leavers cannot practice agriculture.

Despite the fact that efforts are made at KyU to give practical training in agriculture skills through activities on the University farm, in laboratories and field trips as the teacher training programmes require, there are fewer tasks done which are inadequately supervised and evaluated. Field attachment to improve attitude and practice should be considered. There is inadequate time designated for practicals and minimal participation of teaching staff in practical tasks that culminate into poor supervision and instruction of practical tasks. Hence graduating teachers do not acquire adequate agricultural production skills and the competence needed to pass on the skills to the secondary school learners. There is a mismatch between vocational theory and vocational practice. This has resulted in graduates having a lot of theory and less application of the theories

### **5.3 Recommendations.**

Basing on the study findings and conclusions, the following recommendations are made:

- In the training of Agriculture teachers at KyU, practical tasks should be increased by the DoA for the students to acquire manipulative skills and true knowledge that they will pass on to the learners in secondary schools. In this way, teachers will teach not only what they will have heard, seen and done but also what they will have experienced and they will help the students to become practical people thus achieving expectations of offering Agriculture in the secondary schools.
- Demonstration plots should be given due emphasis so that agriculture teachers can learn from them and also learn how to make them so that they can establish them in the schools where they will be teaching.
- Field attachments should be introduced by the DoA to enhance acquisition of skills and practice.

- More Teaching staff members in the DoA need to take part in practicals sessions to enhance supervision of practical tasks and projects if skills have to be acquired by student teachers. Besides, cooperation and teamwork are crucial virtues in vocational training and practice.
- Skills to be acquired should be identified, tested and certified, through developing occupational competence based assessment tests so that trainees/workers can discover the skills they have and how well they can do the tasks to meet standards set by the schools and communities where they live.
- Skills training should be matched with adequate tools and materials so that students acquire manipulative skills and facilitation of field work should be enhanced. Tools provided should match the technological advancement so that graduates from KyU can compete with graduates from other Universities and are not rendered irrelevant.
- There should be allocation of more time to practical tasks by the teaching staff in the DoA. Time can be saved if practicals are integrated with theory teaching so that confidence needed for a teacher to handle practicals is attained.
- The right attitude in both learners and teaching staff should be developed if learning and teaching of vocational skills is to take place so that teachers of agriculture can fit in their world of work which is practical oriented.
- Uganda government through MoES should ensure that enough resources are provided to schools and the University so that learners can use them effectively to acquire the needed agricultural skills. When funding is inadequate, income generating production units need to be boosted and others introduced in schools and KyU so as to facilitate the funding of practical activities.

- Great care should be taken to ensure that there is a balance between vocational theory and vocational practice particularly to acquire skills and providing for continuity.

#### **5.4 Areas for Further Research**

More research needs to be done to determine why challenges facing agriculture training have persisted for such a long period of time. Also, more research should be conducted to find out other pertinent factors responsible for low participation of teaching staff in practical tasks.

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**Appendix 1:**

**Interview guide for Commissioner Secondary Education, Headmaster and Head of Agriculture Departments**

Dear Sir/Madam, I am carrying out research on the mode of training of secondary school agriculture teachers at KyU. The data is intended to contribute to the improvement in equipping secondary school teachers with agricultural skills. I would like to request you to give me some of your precious time and answer a few questions I have prepared. This information may help to improve vocational education and training in Uganda. The information you are going to give will be treated with utmost confidentiality and used specifically for this study.

Thank you for your cooperation.

**SECTION A:**

**Section 1: Demographic Information of the respondent**

Name of Key Informant .....

Age group:  26-35  36-45  45-55  56 & above

Level of Education  Degree  Diploma  Others

Area of specialization:.....

- **To analyze the expectations for inclusion of agriculture as a subject in the secondary school curriculum**

In your opinion why was agriculture included in secondary school curriculum (expectations)

Are the teachers meeting those expectations? Why?

- **To determine the best options for Agricultural teacher training in KyU, DoA**

How can teachers be helped to achieve those secondary school agriculture objectives/ expectations?

**Thank you once again for your time.**

## Appendix 2

### Interview guide for Secondary school agriculture teachers

Dear Sir/Madam,

I am carrying out research on the mode of training of secondary school agriculture teachers at KyU. The data is intended to contribute to the improvement in equipping secondary school teachers with agriculture skills. I would like to request you to give me some of your precious time and answer a few questions I have prepared. This information may help to improve vocational education and training in Uganda. The information you are going to give will be treated with utmost confidentiality and used specifically for this study.

Thank you for your cooperation.

#### SECTION A:

##### Section 1: Demographic Information of the respondent

Name of Key Informant .....

Age group:  20-25     26-35     36-45     46-55     56 & above

Area of specialization:.....

#### Section B

**4. To assess the secondary school agriculture teacher training at KyU (Tools, materials, time, trust, tutoring).**

How were you trained in agriculture skills? What tasks would you do during training?

How were tasks arranged ( group, individual)

Did you repeat the tasks?

What kind of tools did you use ?

Were tools and materials enough?

In your opinion, comment on the time for practicals. How much time was allocated to practical tasks compared to vocational theory and general knowledge?

In your opinion comment on how tutors were handling practical tasks.

Where would you get assistance /help during practical tasks?

In your opinion do you think from the training that you got you can train your learners to start and run profitably an agriculture enterprise? Why?

**5. To determine the best options for Agricultural teacher training in KyU, DoA**

How would you have been trained to become more competent to pass on agriculture skills to your learners?

**Thank you once again for you time.**

### Appendix 3

#### Interview guide for Teaching staff

Dear Sir/Madam,

I am carrying out research on the mode of training of secondary school agriculture teachers at KyU,DoA. The data is intended to contribute to the improvement in equipping secondary school teachers with agricultural skills. I would like to request you to give me some of your precious time and answer a few questions I have prepared. This information may help to improve vocational education and training in Uganda. The information you are going to give will be treated with utmost confidentiality and used specifically for this study.

Thank you for your cooperation.

#### SECTION A:

##### Section 1: Demographic Information/ particulars of the respondent

Name of Key Informant .....

Age group:  20-25     26-35     36-45     46-55     56 and above

Level of Education  Degree     Masters     Others

Area of specialization:.....

## **SECTION B**

### **To analyze the expectations for inclusion of agriculture as a subject in the secondary school curriculum**

1. In your opinion why was agriculture included in secondary school curriculum (expectations)
2. Are the teachers meeting those expectations? Why?

### **To assess the secondary school agriculture teacher training at KyU**

1. How are your students trained in agricultural skills? /What tasks do they engage in during training.
2. How do you handle practical tasks?
3. How often do you engage your learners in practical tasks?
4. Do they repeat the tasks?
5. Do you examine practicals and what percentage do they contribute to the pass mark?
6. How much time is allocated to practical tasks compared to vocational theory and general knowledge?
7. How do you organize learning activities (Group work, individual)?
8. In your opinion comment on the tools you use for training/ What type of tools and materials do you use during training?
9. Are they sufficient or insufficient for the students?
10. How do the tools, materials and equipment used during instruction relate to those on labour market? In your opinion how are the tools you are using during training.
11. How do you rate yourself in handling of practical tasks?
12. Give a comment on agriculture skills training in your department.

**To determine the best options for Agricultural teacher training in KyU, DoA To determine the best options for Agricultural teacher training in KyU, DoA**

1. How can teachers be helped to achieve those secondary school agriculture objectives/ expectations?
2. How do you think your students can be helped to better acquire agriculture skills?
3. What challenges do you face while conducting your duties?
4. What development would you wish to see in your skills training and the section at large?

**Thank you once again for you time.**

## **Appendix 4**

### **Interview guide for 3<sup>rd</sup> year students /trainees (FGD)**

I am carrying out research on the mode of training of secondary school agriculture teachers at KyU. The data is intended to contribute to the improvement in equipping secondary school teachers with agriculture skills. I would like to request you to give me some of your precious time and answer a few questions I have prepared. This information may help to improve vocational education and training in Uganda. The information you are going to give will be treated with utmost confidentiality and used specifically for this study.

Thank you for your cooperation.

#### **SECTION A:**

#### **To assess the secondary school agriculture teacher training at KyU/ Mode of content delivery (tools, materials, tasks, tutoring, time, trust)**

How were you trained in agriculture skills? What tasks would you do during training?

1. How were tasks arranged ( group, individual)
2. Did you work with your instructors?
3. What activity(s) were you involved in when it was time for practicals and where would do you conduct your practical from?
4. Did you repeat the tasks?
5. What kind of tools did you use?
6. Were tools and materials enough?

7. In your opinion comment on the time for practicals. How much time was allocated to practical tasks compared to vocational theory and general knowledge?
8. In your opinion comment on how tutors were handling practical tasks.
9. Where would you get assistance /help during practical tasks?
10. In your opinion do you think from the training that you got you can train your learners to start and run profitably an agriculture enterprise? Why?

**To determine the best options for Agricultural teacher training in KyU, DoA**

In your opinion how would you have been trained to become more competent to pass on agriculture skills to your learners?

How has the training got from KyU equipped you with the skills to pass on to your students/ help you achieve agriculture secondary education objectives? Why?

**Thank you once again for you time.**

## **Appendix 5: Observation checklist**

(a) Programme of study,

b) Duration of lectures

- 2 Tasks performed
- 3 Time spent on task
- 4 Teaching methods used
- 5 Evidence of situated learning in work place contexts
- 6 Catering for collaborating learning
- 7 Display of handling of changing requirements at workplaces
- 8 Types of tools and materials used in instruction
- 9 Organization and storage of tools and material
- 10 Nature of operation of the available tools
- 11 Teachers mastery of vocational pedagogical skills
- 12 Trainees enthusiasm in performing tasks

## **Appendix 6: Document analysis guide**

Programme document analysis

Programme title

Goals, aims, and objectives

Admission requirements

Structure

Content

Training methods

Catering for practice

Assessment

Award

## Appendix: 7

**A set of skills, practices and projects that were set and passed by an agriculture study group of Makerere University in 1970**

### Practical Skills

Key: S=Skill. D=Demonstration. P=Project.

#### 1. ANIMAL HUSBANDRY

##### (a) Cattle

- D Delivering calves
  - S Bucket –feeding of calves
  - D Dehorning-hot iron
  - D Castrating-burdizzo, elastrator, knife
  - S Milking
  - D Spraying against ticks
  - S Taking blood slide
  - S Drenching cattle
  - S Calculating and measuring rations
  - D Giving injections
  - D Butchering cattle
  - S Skinning and drying hides
  - D Care of sick animal
  - S Judging cattle
  - S Keeping cattle records
- ##### (B) Poultry
- D Setting eggs under a broody hen

- D Setting eggs in an incubator (if available)
- S Grading and candling eggs
- S Calculating and mixing a ration
- S Feeding poultry
- S Estimating age of a hen
- S Estimating laying condition
- S Taking a blood slide
- S Killing, plucking and feathering
- S Dressing poultry for table
- D Care of sick bird
- S Judging poultry
- S Culling
- S Keeping poultry records

## II CROP HUSBANDRY

### (a) Soils

- S Judging different soils by vegetation, depth, appearance
- S Examining soil profiles in pits

### (b) Soil fertility

- S Soil sampling
- S Soil testing for N, P, K, Ca, & Ph using a kit
- S Crop nutrient deficiency symptoms
- S Making farmyard manure
- S Making compost
- S Judging value of organic manure

### (c) Soil Conservation

- S laying out contours - by eye
- S laying out contours – line level
- S Simple surveying, dumpy level
- S Making tied bunds
- S Making grass strips and water ways
- S Making bench terraces
- S Making cut off drains and pits
- S Protecting house compounds from erosion.

(d) Forestry

- S Identification of locally important trees
- S Felling trees (other cultural operations are covered under perennial)

(e) Cultivations

- S Clearing land
- S Draining swamps
- S Leveling land
- S Primary cultivation, choice and use of tools
- S Subsequent cultivations, choice and use of tools

(f) Plant Diseases. insects and pests.

- S Identification of disease and insect damage
- S Deciding appropriate methods of control for various diseases, insect pests
- S Precautions when handling toxic chemicals
- S Mixing chemicals
- S Operating sprayers
- S Calculating chemical application rates
- S Spraying

S Servicing air cleaners, fuel and oil filters

S care of battery

S Safety precautions

(2) Farm machines

(a) S Setting and using wheel- type push cultivators

S Maintenance and use of grist mills

S Setting and use of hand seeders

S Maintenance and use of two wheel garden tractor with mower , plough and use of small farm-size tractor with disc plough and trailer

(b) Ox Drawn equipment

S maintenance and use of Ox- plough

S Maintenance and use of cultivators

S Maintenance and use of hand Ariana toolbar and attachments including A .H.Seeders

(c) HAND TOOLS

S use of basic wood work and metal work tools

S maintenance and use of paintector sprayer

S maintenance and use of Jones boom sprayer

S maintenance and use of hand coffee pulper

S fitting a hoe handle

PROJECTS

Making one or more of the following from wood:-

P milk stool

P chicken feeder

P saw horse

P nesting box

- P Gate
- P Peg marker for seeding
- P Wheel barrow
- P cart
- P chicken ark
- P Rabbit hutch
- P Small chicken house
- P poultry ark
- P door
- P Window

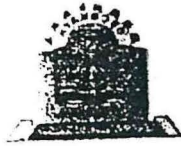
Making one or more of the following from metal:-

- P Chicken waterer
- P Egg candler
- P feed scoop
- P Hinges, hooks for gates
- P chicken brooder

**Appendix: 8**

**Introduction Letter**

KYAMBOGO



UNIVERSITY

P. O. BOX 1 KYAMBOGO  
Phone: 041-285001/2 Fax: 041-220464, Kampala  
Website: www.kyambogo.ac.ug  
*Kyambogo University Graduate School*

---

Date: .....

To:  
.....  
.....  
.....

RE: LETTER OF INTRODUCTION

This is to introduce .....  
Registration No. .... who is a student of Kyambogo University pursuing  
a Masters Degree in Vocational Pedagogy.  
He/She intends to carry out a research on:

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

as partial fulfillment of the requirements for the award of the Degree in Masters of Vocational  
Pedagogy.

We therefore kindly request you to grant him/her permission to carry out this study in your organisation.  
Any assistance accorded to him/her shall be highly appreciated.

Thank you.

SIGNED: F. Nakiwala  
AG. DEAN, KYAMBOGO UNIVERSITY GRADUATE SCHOOL

## Appendix 9: List of Figures



Figure 1: A bushy coffee plantation at KyU farm



Figure 2: A dilapidated milking parlour, store and the milking equipment/tools used at KyU farm



Figure 3: A dilapidated Calf Pen at KyU farm