

**AGRICULTURAL EXTENSION SERVICE TRAINING IN UGANDA AND  
DELIVERY COMPETENCE ACQUISITION**

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**A THESIS SUBMITTED IN FULFILLMENT FOR THE AWARD OF THE  
DEGREE OF MASTERS OF VOCATIONAL PEDAGOGY OF  
KYAMBOGO UNIVERSITY**

**2013**

**DECLARATION**

I Nanono Kiwanuka Milly, declare that the content of this research thesis is my own original work and has never been presented for any award of a diploma or a degree in any university.

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## APPROVAL SHEET

This is to certify that this research presented by Nanono Kiwanuka Milly entitled: *“Agricultural extension service training in Uganda and delivery competence acquisition”* was carried out under my close supervision. I hereby recommend it for presentation to the Board of Examiners in partial fulfillment of the requirements for the award of the Degree of Masters in Vocational Pedagogy of Kyambogo University.

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## **DEDICATION**

I dedicate this work to my late father Mwanje Ekoyas Salongo, my beloved mother Nalongo Namala Margret, my husband Kiwanuka Katende Godfrey, my brothers and sisters and all their family members and my beloved children: Gertrude Ryan Naluyima, Albert Davis Magoba, Andrew Kisagala Jooga, Ibrahim John Migadde and Rebecca Nabatanzi Talintya.

## TABLE OF CONTENTS

STUDENT’S DECLARATION .....	i
SUPERVISORS’ APPROVAL .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
LIST OF FIGURES .....	viii
LIST OF TABLES .....	ix
ACRONYMS .....	x
ABSTRACT .....	xi
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.3 Statement of the Problem .....	6
1.4 Purpose of the Study.....	6
1.5 Specific Objectives of the Study .....	6
1.7 Scope of the Study.....	7
1.7.1 Geographical Scope .....	7
1.7.2 Content Scope.....	8
1.8 Justification of the study.....	8
1.9 Significance of the Study.....	8
1.10 Conceptual Framework .....	9
1.11 Definition of Key Terms .....	11
1.12 Organization of the report.....	12
CHAPTER TWO.....	14
LITERATURE REVIEW.....	14
2.1 Curriculum content and competence acquisition .....	14
2.1.3 Behaviors and Attributes .....	20
2.2 The Teaching and Learning Methods and Competence Acquisition .....	21
2.2.1 Vocational didactics in relation to delivery competence .....	21

2.2.2	Approaches to teaching and learning .....	23
2.2.3	Expertise of instructors .....	28
2.2.4	Availability of tools, equipment and materials in relation to delivery competence acquisition.....	33
2.3	Relevance of training to delivery competence requirement acquisition .....	34
2.3.1	The significance of Agricultural Extension Training to knowledge acquisition .....	34
2.3.2	Relevance of Agricultural Extension Training to Delivery Skills Acquisition .....	37
2.3.3	Attitudes towards Agricultural Training to Service Delivery Attitude Acquisition.....	39
CHAPTER THREE .....		42
RESEARCH METHODOLOGY .....		42
3.1	Research Design .....	42
3.2	Target Population .....	43
3.3	Selection Procedure and Techniques.....	43
3.4.3	Documentary analysis.....	45
3.4.4	Open Interviews.....	46
3.4.5	Observation.....	47
3.6	Data collection procedures .....	48
3.7	Data Processing and Analysis .....	49
CHAPTER FOUR: RESULTS AND DISCUSSION.....		50
4.0	Introduction.....	50
4.2	Social Demographic Information of Respondents .....	50
4.1	Crop Production Curricula and Agricultural Extension Service Delivery Competence Acquisition .....	51
4.3	Crop Production Curricula and Extension Service Delivery Competence Acquisition .....	51
4.1.1	Acquisition of the required Agricultural Extension Service Delivery Knowledge .....	51
4.1.2	Content of the Crop Production Curricula in relation to skills for Agricultural Extension service delivery.....	58
4.1.2	Content of the Crop Production Curricula in relation to skills for service delivery.....	58

4.1.3	How the content of the crop production curricula supports service delivery attitude acquisition.....	65
4.2	How methods of teaching and learning used in the Crop Production Department enhanced extension service delivery competence acquisition.....	68
4.2.1	Knowledge acquisition for crop production for agricultural service delivery.....	68
4.2.2	Skills Acquisition for Agricultural Service Delivery .....	78
4.2.3	Attitudes for agricultural service delivery. ....	95
4.3	Relevance of the agricultural extension training to the service delivery competence requirements .....	100
4.3.1	Knowledge acquisition .....	100
4.3.2	Skills acquisition for agricultural service delivery .....	104
4.3.3	Service delivery attitude acquisition for agricultural extension .....	107
CHAPTER FIVE .....		111
SUMMARY, CONCLUSIONS, RECOMMENDATIONS .....		111
5.0	SUMMARY .....	111
5.1	CONCLUSIONS .....	112
5.2	RECOMMENDATIONS .....	112
5.3	AREAS FOR FUTURE RESEARCH.....	113
REFERENCES .....		115
APPENDICES .....		119
Interview guide A .....		119
Interview guide B .....		120
Interview guide C .....		121
Interview guide D .....		122
Interview guide E .....		123
DOCUMENTARY ANALYSIS GUIDE.....		124

## LIST OF FIGURES

<i>Figure; 1.1 Conceptual Frame work</i> .....	10
Fig 2.1: Components of Vocational Didactics .....	22
Fig 2.1: Components of Vocational Didactics .....	22
Plate1: Students attending a lecture at one of the Institutes .....	69
Plate 2: Some demonstration plots in one of the selected Institutions .....	79
Plate 3 students from Bukalasa Agricultural College explaining how they could raise some vegetables from the nursery bed.....	80
Plate 4: a banana demonstration garden at one of the training Institutes .....	81
Plate 5: Some of the farms near one of the selected Agricultural Institutions .....	88
Plate 6: One of the farmers showing me her coffee trees which were cut down by the students during the outreach program. ....	106

## LIST OF TABLES

Table 1: Summary of the Category, Numbers and Selection Methods of the Respondents.....	44
Table 2: Nature of content of the curriculum for degree students doing crop production and management at Makerere University research institute Kabanyoro .....	52
Table 3: Nature of content of the curriculum for diploma students doing crop production and management at Bukalasa National Agricultural College .....	53
Table 4: Nature of content of the curriculum for diploma students doing crop production and management at Mityana Agro-Vet Institute.....	55

## ACRONYMS

ABI	Agricultural Based Industries
ABO	Agricultural Based Organizations
ATVET	Agricultural Technical and Vocational Education Training
BAC	Bukalasa Agricultural College
CMOD	Center for Management and Organization Development
DAO	District Agricultural Officer
DCC	District Coffee Coordinator
DNC	District NAADS Coordinator
DPMO	District Production and Marketing Officer
E/W	Extension Workers
FAO	Food and Agricultural organization
ICT	Information and Communication Technology
IT	Industrial Training
ICT	Information and Communication
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
MAI	Mityana Agro-Vet Institute
MUARIK	Makerere University Research Institute, Kabanyoro
NGOs	Non-Government Organization
NAADS	National Agricultural Advisory Services
NCCE	North Carolina Cooperative Extension
SMS	Subject Matter Specialist
S/C	Sub-county
UCDA	Uganda Coffee Development Authority
VEDCO	Volunteer Effort for Development Concern

## ABSTRACT

Agriculture training in Agricultural Institutions has a bearing on the quality of the competences needed for appropriate agricultural service delivery. However, knowledge, skills and attitudes for agricultural service delivery still remain a challenge in farming communities to cater for the vast and dynamic agricultural needs. The study investigated how the content of the crop production curriculum taught at Agricultural Institutions supported service delivery competence requirements, assessed the extent to which teaching and learning methods enhanced competence acquisition and determined the relevance of the training given to Agricultural Extension Workers to the competence requirements. A descriptive study design was adopted employing a qualitative approach. Respondents were students, lecturers, farmers and agricultural institutions administrators. Responses were also collected from extension workers, the district Production and Marketing Officers, the Agricultural Officer and NAADS coordinators at the District. Interviews, observation and documentary analysis aided the process of data collection. Data analysis was done qualitatively by sorting, editing, and coding of the findings. It was found out that the content of the crop production curricula supported acquisition of the required knowledge, skills and attitudes for service delivery to a limited extent. The teaching and learning methods enhanced acquisition of the required crop production knowledge, skills and attitudes for extension service delivery to a limited extent. The methods included: lectures, team teaching, research discussions and Information technology: projects, demonstrations, outreach programs, industrial training, study tours and exhibitions. The teaching and learning methods were influenced by the expertise of lecturers/instructors, time allocation and the availability of tools, equipment and materials. While the training of the extension workers would be relevant to the service delivery competence requirements, it provided limited crop production knowledge, skills and attitudes. To cater for the mismatch, it was recommended that; relevant course content of the crop production curricula such as crop agronomy, pest and disease control, soil and water conservation, agricultural extension methods should be maintained. More time need to be accorded to the practical component; teaching and learning methods should be modified and integrated; tools, equipment and materials be availed; the lecturers and instructors should be provided with pedagogical skills of teaching; the training should be integrated with training students at agricultural research centers, farmers' farms and at other agricultural related fields such as agro-based industries, agro-processors and agro-input providers.

## **CHAPTER ONE**

### **INTRODUCTION**

This chapter presents the overview of the study, experience, motivation, background of the study, statement of the problem, purpose of the study, specific objectives of the study, research questions, scope of the report, justification of the study, significance of the study conceptual framework and definition of the key operating terms.

#### **1.1 Overview of the Study**

Agriculture has for a long time been and continues to be the mainstay of rural economies in Sub Saharan Africa, Asia and throughout the developing world (Collet & Gale, 2009). The agricultural sector accounts for almost 40% of gross domestic products (GDP) and provides employment to approximately 80% of the labor force (FAO-UN Report, 2009). Crop production alone in Uganda contributes to about 65% of the agricultural output (Baffoe, 2006). Uganda's agriculture sector contributes to the national economic growth, poverty reduction, food security and export performance. The last three decades clearly reveal that the sector has been and still is critical to the improvement of people's livelihoods and the socio-economic transformation (Uganda National Budgets (UNB), 1990-2012).

Agricultural extension service training offered to extension workers by Agricultural Training Institutions in Uganda is meant to offer high quality training that imparts the necessary competencies needed for appropriate agricultural service delivery. Agricultural extension graduates serve farmers through provision of technical guidance on agricultural production. The services

rendered to these farming communities are expected to improve agricultural production to ensure food security and increased income. Much as agricultural extension services provide professional and technical expertise to the farming communities, Uganda's crop productivity remains low (Betmall, 2010). Therefore, the type of training given to extension workers needs to match the necessary agricultural extension competences that enhance proper service delivery.

Based on a personal experience as an Extension Worker, there is a general outcry among farmers over the low production levels, incidences of food insecurity, lack of market information for the few products, lack of proper agricultural technologies and good agronomic practices coupled with high incidences of pests and diseases. All these would be answered by competent agricultural extension workers who are charged with giving technical advice to the farming communities. Therefore, there is need to establish how the content of crop production in training programmes supports service delivery competence acquisition. Furthermore, it is vital to examine how the teaching/learning methods used enhance delivery competence acquisition. Relevant content coupled with a strong integration of theoretical and practical experiences as well as general knowledge during the course of teaching and learning ensures production of competent agricultural extension workers (Mjelde, 2006)

### **1.1.1 Personal experience**

Professionally, I have served as an agricultural extension worker and the Home Economics specialist in the Department of Production and Marketing of Luwero District for over 25 years. I have served as a part-time Lecturer in the Department of Human Nutrition and Home economics, under Faculty of Vocational Studies of Kyambogo University since 2006 to date.

Agricultural extension workers in Uganda are trained by Universities, Colleges, and Farm Schools. From my experience as an agricultural extension worker and scholar from the agricultural colleges, the type of training at the agricultural institutions is theoretical with only a few hours accorded to practical aspects. The training departments of the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and Non-Governmental Organizations (NGOs) organize in-service training programs for agricultural extension staff. These training programs are of very short periods ranging from one to two weeks. Much as training is organized basing on emergent issues, the period of instruction is very limited compared to the packages that are passed on to the extension workers. As a result, there is accumulation of a lot of theoretical knowledge without hands on experience, yet it is important to integrate both theory and practice for acquisition of the required knowledge, skills and attitudes for service delivery. Such issues prompted me to carry out an investigative study on the Agricultural Extension Service Training and the Delivery Competence requirements.

### **1.1.2 Motivation**

Having worked closely with individual farmers, farmer groups, women groups and the youth for twenty five years, I have noticed a gap in the kind of competences needed by extension workers to serve the farmers. The training institutions would be charged with providing quality training that would enhance competence acquisition. As a pedagogue and a part-time lecturer handling teaching methods and particularly working closely with and training teachers in vocational subjects, I felt motivated to examine agricultural extension training and the delivery competence requirements of the extension workers in the Agricultural Institutions. Focus was put on how the content of the curricula and teaching/learning methods enhanced acquisition of knowledge, skills and attitude for service delivery and the relevance of the training to the service delivery competence requirements.

## 1.2 Background of the Study

Agricultural extension service training offered at the Agricultural Training Institutions has a significant role to play in the enhancement of the required knowledge, skills and attitude for service delivery by the graduates of these institutions. Farmers would benefit more when they receive technological packages from qualified or well-trained Extension Workers (Azizah, 2011, p. 149). However, there is a general concern about the poor extension services delivery offered by the Agricultural extension personnel. Lack of the required production knowledge, skills and attitudes is exhibited by the agricultural extension workers. This implies that proper technical advice on production practices is not fully provided to the farmers.

Worldwide analysis of the status of agricultural extension reveals a low level of formal education and training of field extension agents in developing countries (Swanson et al., 1997, p.1).

Shortages of qualified and experienced staff to deliver agricultural extension services and lack of training opportunities to develop professional and technical expertise in many Sub-Saharan African countries including Uganda have been highlighted and still remain a challenge (De Muro et al., 1998, p.5). Formal training or retraining programs provide opportunities for extension workers to acquire the delivery competences which include knowledge, skills and attitudes that are required for adequate agricultural extension service delivery (ibid, 1998).

Extension is essentially education which aims at bringing about positive behavioral changes among farmers (Syngeta, 2012, p. 1). The extension services in developing countries have been criticized for not being able to bring the necessary change in the farming populace especially the rural and resource poor. This was attributed to lack of promotion opportunities, motivation, competence and credibility of extension workers (Mukone et al., 2005). This ultimately leads to poor service

delivery and low efficiency. In Uganda, agricultural extension is charged with providing farmers-demand based knowledge in agronomic techniques and skills to rural communities in a systematic, participatory manner. This is done with the objective of improving the farmer's production, income, and quality of life.

Extension workers provide technical advice in form of agronomic practices. These include adequate field preparation for different crops, selection of proper seeds for planting, timely agronomic operations.<sup>1</sup> Apart from giving technical advice, the agricultural extension agent is supposed to fulfill other socio-economic roles in the farming communities. However Nalumansi (2003) expresses that the extension services offered by the extension workers in terms of provision of proper advice on good agronomic practices is still lacking. Future extension professionals need to be more skillful and futuristic to serve the needs of diverse audience (Seevers et al., 2007 cited in Okwoche et al., 2011, p. 121).

The type of training given to the extension workers determines the quality of services rendered to the farmers. Agricultural production levels have always lagged behind, a situation which would be addressed by competent extension workers who can provide adequate knowledge, skills and attitudes about good agronomic practices. However, inadequate training of agricultural extension has been identified as part of the cause of the relative ineffectiveness of most extension workers in the field (Crowder et al., 1999 p.1). Therefore, I was prompted to carry out a study investigating the agricultural extension training offered by the agricultural training institutions and extension delivery competence requirements. While various courses are offered by the agricultural training

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<sup>1</sup>This includes planting, weeding, thinning, pest and disease management, harvesting techniques, proper drying and storage of the farm products

institutions, this study concentrated on the Crop Production and Management courses because most of the farmers are engaged in crop production.

### **1.3 Statement of the Problem**

Agricultural extension graduates serve farmers by providing technical knowledge for improving agricultural productivity. The type of training given to the extension workers at the Agricultural Institutions has a bearing on the quality of the competences needed for appropriate agricultural service delivery. However, lack of the required crop production knowledge, skills and attitudes for extension service delivery still exists. This poses a great challenge which could result in perpetual inadequate extension service delivery that will affect agricultural production. Therefore, there was need to examine the relationship between service delivery competence requirements and the agricultural extension training.

### **1.4 Purpose of the Study**

The purpose of the study was to investigate the agricultural extension training in the agricultural training institutions of Uganda and the service delivery competences acquisition. . Makerere University, Bukalasa National Agricultural College and Mityana Agro-Vet Institute were selected to represent the agricultural training institutions.

### **1.5 Specific Objectives of the Study**

(i) To establish how Crop Production curricula at Makerere University, Bukalasa National Agricultural College and Mityana Agro-Vet Institute supports the required agricultural extension service delivery competences.

(ii) To examine how the teaching and learning methods used in the Crop Production departments of the selected Agricultural Institutions enhance agricultural extension delivery competence acquisition.

(iii) To establish the relevance of the training given to the work of an Agricultural Extension Worker.

## **1.6 Research Questions**

(i) How has the curriculum content of crop production supported service delivery competence acquisition at Agricultural Institutions of Makerere University, Bukalasa National Agricultural College and Mityana Agro-Vet Institute?

(ii) How have the teaching and learning methods used in the Crop Production departments enhanced service delivery competence acquisition in the selected agricultural institutions?

(iii) Is the training offered in the selected agricultural training institutions relevant to service delivery competences of Extension Workers?

## **1.7 Scope of the Study**

### **1.7.1 Geographical Scope**

The study was carried out in three Agricultural Training Institutions of Uganda: Makerere University in Kampala district representing Universities; Bukalasa National Agricultural College in Luwero District representing the National Agricultural Colleges and Mityana Agro-Vet Institute in Mityana District representing privately owned agricultural training institutions. All these districts are found in the central region of Uganda.

### **1.7.2 Content Scope**

The study established how the crop production curriculum at Agricultural Institutions supported service delivery competence requirements. Assessment of how the teaching and learning methods used in the crop production enhanced competence acquisition was done. In addition, the relevance of the training given to Agricultural Extension Workers to the competence requirements was established. The study was also conducted in comparison with the existing literature related to the research questions of agricultural extension training and the service delivery competence requirements in the agricultural training institutions.

### **1.8 Justification of the study**

Agricultural extension is a vital service that should be rendered to the farming communities with the aim of improving production levels for food security and increased income. This is done by educating the farmers about the best agronomic practices that they can use to achieve their targets. The foregoing services could be delivered by extension workers who have undergone training in the Agricultural Institutions. Training of extension workers would enhance acquisition of adequate service delivery competences that are required of them.

### **1.9 Significance of the Study**

The study population will benefit as they realize the gaps reflected in their content of the curricula, the mode of training and lay strategies for improvement. The results will also act as a resource for policy makers and implementers as they seek to improve the agricultural extension service training and delivery in Uganda. Consequently, this will lead to improved agricultural productivity for food

security and increased household income levels for better livelihood. Future researchers this will also use the findings as a basis for further investigations in agricultural extension services.

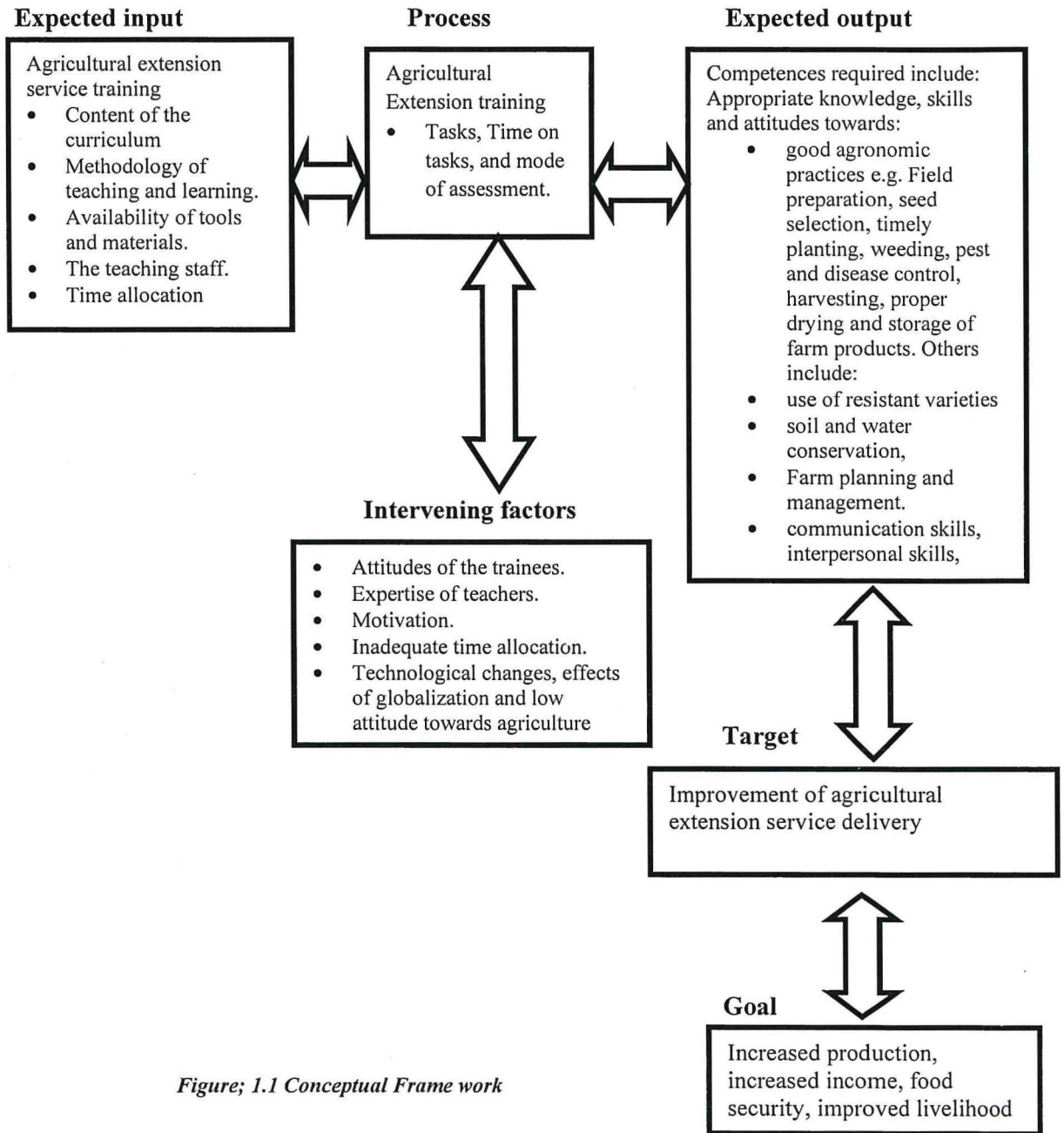
### **1.10 Conceptual Framework**

The conceptual framework illustrated in figure 1.1 explains the different variables in the study. It has been based on the pragmatic philosophical view of education which emphasizes that education should aim at producing individuals who will make a positive contribution to society (Nafukho, Amutabi, & Otunga (2012 cited in Kulabako, 2010, p. 9).<sup>2</sup> In this framework, Agricultural Extension Service Training which is the independent variable<sup>3</sup> aims at producing graduates that can exhibit competences in carrying out agricultural service delivery to the farming communities.

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<sup>2</sup>This was cited in her research proposal which was submitted to the Post Graduate Studies and Research in Partial fulfillment for the award of the Masters of Vocational Pedagogy of Kyambogo University.

<sup>3</sup> It highly influences the agricultural extension service delivery competence requirements for the extension workers who are charged with offering extension services to the farming communities such as good agronomic practices, research developments in production, market information to mention but a few.



Figure; 1.1 Conceptual Frame work

Among the competences required of the agricultural extension workers, are the knowledge, skills and attitudes toward delivery of good agronomic practices to the farmers which have been highlighted in figure 1.1. The training program of the extension workers might be influenced by the socio-economic intervening variables<sup>4</sup>. These include changes in technology, effects of globalization, and scarcity of funds to procure tools and materials. Others include low attitudes towards agriculture, low motivation for both the students and the instructors, and the learning abilities of the trainees. Consequently, the ultimate goal of increased agricultural production levels, food security, increased income, and improved livelihood for the farmers will be affected.

The above can only be achieved by using relevant curricula, appropriate methods of teaching, the correct type and number of tools, equipment and materials, having instructors with the required expertise and the proper use of the available time. The training process would include the number and arrangement of the tasks, the time allocated to these tasks and the mode of assessment used to evaluate the trainees.

### **1.11 Definition of Key Terms**

**Agricultural extension:** describes the services that provide rural people with knowledge and information they need to increase productivity and sustainability of their production systems and improve their quality of life.

**Extension service delivery** is the way Agricultural Extension Workers systematically disseminate information to the farming communities about good agronomic practices and any other related

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<sup>4</sup> The intervening variables indirectly affect the training offered and the ultimate competence acquisition for the agricultural extension workers.

information that can enhance improved productivity and increased production in the farming communities.

**Competence:** is the knowledge about agricultural production issues, skills of disseminating the knowledge, and the behavioral and positive attitudes towards agricultural service delivery.

**Relevance:** refers to the close relationship between agricultural extension service training and service delivery competence requirements.

## **1.12 Organization of the report**

The report took a structured approach. It was organized around five chapters

### **1.12.1 Chapter One: Introduction**

This chapter gives an overview and background to the study- which contextualizes the study, Personal experience, motivation for the study, problem statement, purpose and specific objectives of the study, research questions, scope of the study, justification and significance of the study, conceptual framework, definition of key terms and the structuring of the report.

### **1.12.2 Chapter Two: Literature Review**

This chapter explores and discusses the relevant existent literature on the study variables as well as the emerging trends. It also gives a balanced critique of scholarly views expressed by different authors

### **1.12.3 Chapter Three: Research Methodology**

This chapter articulates the methods adopted in this study, in particular, the chapter highlights the research design- a qualitative approach, target population and sample size selection, data collection

tools- which included; documentary analysis, open interviews, Focus Group Discussions and observation. The chapter also highlights the validity and reliability of instruments, data collection procedures, processing and analysis

#### **1.12.4 Chapter Four: Results and Discussion**

The chapter contains results from the study and the discussion thereof. The discussion and results are presented under themes that reflect the major objectives of the study as highlighted in chapter one.

#### **1.12.5 Chapter Five: Summary, Conclusions, Recommendations and Suggested Areas for Future Research.**

This is the final chapter of the study. As such, the chapter offers a summary of the focus of the study, conclusions drawn from the study and recommendations advanced by the researcher and areas that warrant further research investigation.

## CHAPTER TWO

### LITERATURE REVIEW

This chapter is composed of the review of related literature as a reflection of other writers and scholars with in Uganda and other countries about the agricultural extension training and the competence requirements for service delivery. The review of the literature was based on the specific objectives of the study. These included; establishing how the Crop Production curricula supported acquisition of extension service delivery competence; examining how the teaching and learning methods used in the crop production departments of the agricultural institutions enhanced agricultural extension delivery competence acquisition; establishing the relevance of the training given to the work of Agricultural Extension Workers.

#### **2.1 Curriculum content and competence acquisition**

Competence is a highly valued qualification that accounts for the effective use of one's knowledge and skills in a specific, usually complex context. Competence is regarded as an outgrowth of what one feels after successful completion of a task or a course of study. It is interpreted as the result of a satisfactory 'effectance' which is the drive or motivation to have a manifest effect on one's environment (Westera 2001, p. 1). From an operational perspective, competences seem to cover a broad range of higher order skills and behaviors that represent the ability to cope with complex, unpredictable situations (ibid, p. 5). This operation definition includes knowledge, skills attitudes and strategic thinking

A competence is the capability of applying or using knowledge, skills, abilities, behaviors, and personal characteristics to successfully perform critical work tasks, specific functions, or operate in a given role or position.<sup>5</sup> Competencies not only exist for individual efforts but also for work functions that require team collaboration. With global competition and technological advances in the agricultural sector, organizational success is depending more on team efforts.<sup>6</sup> When we talk about developing competencies we mean the development of the necessary behaviors and attributes as well as knowledge and skills required to deliver agricultural extension services in a way in which we realize our potential and provide the highest quality service to our customers. Every member of staff through this system has the opportunity to develop the competencies (skills, knowledge, behaviors and attributes) needed to carry out his or her role effectively. To achieve this, appropriate approaches to competency development and learning supports must be put in place, both in the workplace and through training interventions

### **2.1.1 Content of the curricula and knowledge acquisition**

Knowledge is essentially the information we need to do the job (CMOD 2010, p. 4). For instance, we need to know all the relevant information about any case or situation we are dealing with. We may need to know about legislative or accounting procedures or about details of legislation or regulations. We need to know about policies, organizational structures and so on. How do we acquire knowledge we need? According to (CMOD 2010, p. 4), acquiring knowledge could be by contact with relevant people and situations, by discussion and asking questions, by asking someone to brief us on a situation, by observation and listening, regular meetings, use of bulletin boards and e-mail, reading files, publications, legislation, books, reference material manuals, use of

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<sup>5</sup> [en.wikipedia.org/wiki/Competence\\_\(human\\_resources\)](http://en.wikipedia.org/wiki/Competence_(human_resources))

<sup>6</sup> [www.nda.agric.za/docs/sectorplan/sectorplanE.htm](http://www.nda.agric.za/docs/sectorplan/sectorplanE.htm)

A competence is the capability of applying or using knowledge, skills, abilities, behaviors, and personal characteristics to successfully perform critical work tasks, specific functions, or operate in a given role or position.<sup>5</sup> Competencies not only exist for individual efforts but also for work functions that require team collaboration. With global competition and technological advances in the agricultural sector, organizational success is depending more on team efforts.<sup>6</sup> When we talk about developing competencies we mean the development of the necessary behaviors and attributes as well as knowledge and skills required to deliver agricultural extension services in a way in which we realize our potential and provide the highest quality service to our customers. Every member of staff through this system has the opportunity to develop the competencies (skills, knowledge, behaviors and attributes) needed to carry out his or her role effectively. To achieve this, appropriate approaches to competency development and learning supports must be put in place, both in the workplace and through training interventions

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<sup>5</sup> [en.wikipedia.org/wiki/Competence\\_\(human\\_resources\)](http://en.wikipedia.org/wiki/Competence_(human_resources))

<sup>6</sup> [www.nda.agric.za/docs/sectorplan/sectorplanE.htm](http://www.nda.agric.za/docs/sectorplan/sectorplanE.htm)

Internet/accessing websites, by availing of opportunities to experience new situations, induction policies and practices, overlap period when changing job, formally organized seminars, conferences and training events, coaching, by developing and using job guides, by e-learning.

The agricultural training Institutions use designed curricula which are supposed to equip the trainees with the required competences for their jobs. Nilsson, (2011, p. 1) during his presentation notes to MVP students of Kyambogo University described curricula as a tool for renewal and for giving vocational education legitimacy which is not only important but a necessary tool for development of vocational competence. It refers to organization of education and learning and as the way education is structured in terms of intentions for education such as goals, content, time allocation and distribution, strategies to be used and expected results. Identifying competencies needed by Extension agents is a determining factor for adequate education curricula, training, and retention (Benge et al.; 2011).

Agricultural and extension education professionals continue to play an important role in agricultural and rural development.<sup>7</sup> Proper education and training, as reflected in higher education curricula, are essential to the success of these professionals. However, due to demographic changes in society and the fast-changing fields of agriculture and rural development, there is a significant challenge in keeping agricultural and extension education curricula relevant (Acker & Grieshop, 2004, 89). One of the major problems hindering the effectiveness of agricultural extension services in Africa is the low level of training of a large proportion of extension staff (Nnadi, et al; 2009, 1),

From experience as an extension worker, there are many changes that crop up in the farming communities that need corresponding interventions. These might include infestation of pests and

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<sup>7</sup> [www.aiaee.org/attachments/article/1059/001.pdf](http://www.aiaee.org/attachments/article/1059/001.pdf)

disease, drastic seasons, soil degradation to mention but a few. With this type of uncertainties, the curricula for training extension workers has to be designed in such a way that it provides for competences that can be used by the extension workers to respond to the farmer's needs. It is unfortunate that many extension workers have limited knowledge and skills required working in the complex and rapidly changing agricultural environment.

Unresponsive Universities and Colleges rarely offer extension-training programs that address the changing demands of the work environment.<sup>8</sup> Compounding these problems, the academic discipline of agricultural extension is marginalized in agricultural institutions with only a negligible number of credit hours allocated to agricultural extension. Formal extension education programs can play an integral role in developing students' job skills by providing a curriculum uniquely tailored to the competencies required of extension professionals (Harder, 2009, p. 23). Curriculum is the overall rationale for any educational program as supported by Kelly (2004 cited in Harder, 2009). Students must be immersed in authentic curriculum contents and tasks that are demanding and relevant to their lives and futures (Nicolaide, 2012, p. 621).

In order to address the above mentioned problems, there is need to design the curricula for training extension workers starting from the aims of the training programs to ensure that the most salient issues for the farmers are addressed. Apart from that, the content of the curricula would be designed in such a way that it provides the competences which are required for quality extension services. It is of paramount importance to allocate ample time to the different activities of the training program so that the intended objectives of the training programs are achieved. Experience shows that time allocation in the training institutions is a still a challenge.

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<sup>8</sup> [www.fao.org/sd/exdirect/exan0027.htm](http://www.fao.org/sd/exdirect/exan0027.htm)

### 2.1.2 Content of the curriculum and skills acquisition

According to (CMOD 2010, p. 5), skills are the things we need to be able to do the job. What we can do with people (interpersonal and communication skills), what we can do with information (cognitive skills), what we can do with objects/things (technical skills). We learn the skills we need by observing the activity. In order to acquire the ability "to do" something we need clear guidance or to observe someone else carrying out the activity first. For example, if we observe effective practice at meetings or effective handling of customers this is a first step in learning how to do this activity ourselves. It is in the workplace that we have opportunities to observe the actual steps in performing an activity;

Practice the activity;

According to (CMOD 2010, p. 6), Real progress in skill development comes when we start "doing" the activity ourselves, ideally under the guidance of a good coach (a colleague or manager usually). Opportunities to learn by doing are created when managers delegate, entrust responsibility and provide support and guidance. Effective delegation and coaching and acknowledgement of a task well done are, perhaps, the most powerful competency development tools.

Reaching a point of error;

It is natural for learners to make mistakes. We learn by our mistakes in a supportive and non-blaming culture. (*Think of when you learned to drive or cycle!*) Managers have to manage the process of learning by allowing trial and error while, at the same time, ensuring that inappropriate

levels of error do not occur. The learner needs adequate opportunity to practice under guidance and with support (CMOD 2010, p. 5).

Getting feedback or finding out why the error is occurring and how to improve;

According to (CMOD 2010, p. 6), constructive feedback is an essential component of the practice stage. The learner needs encouragement and recognition of progress. She or he needs to hear what was done well in order to build on that. It is also important to receive constructive suggestions on how to improve, progress learning and reach a higher level of achievement. It is clearly important to give feedback in a manner which is sensitive and constructive. The focus of feedback should always be on the task and effective performance of that task. The more specific the feedback, the more useful it will be. Feedback also needs to be timely.

Repeating practice until the activity is perfected;

(CMOD 2010, p. 6) revealed that all learners need lots of opportunities to practice a skill and to experience increasing levels of challenge as learning progresses. The learner needs the right level of challenge and an increasing sense of achievement to make progress and become proficient in the skill. It is only by observation, trial, error, feedback and repeated practice that we can learn to use a computer, speak in public, draft legislation, manage staff, deal with customers or manage budgets. The opportunities we have to observe and then do things, preferably with the guidance of a good coach, determine whether or not we develop our workplace skills.

The curricula used for Agricultural extension and training might have been used for so many years in training Agricultural Extension Workers. This is supported by Okou,<sup>9</sup> who during his

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<sup>9</sup> Okou, C. (2011). *Research in Vocational Didactics, A case of Didactics at Arapai Agricultural College*. Lecture presentation to MVP march 15<sup>th</sup>, Kyambogo University

presentation to MVP students of Kyambogo University pointed out that a survey was carried out by an organization by the names of K2 Consults in 1995 which recommended for a review of the curriculum used at Arapai Agricultural College. Unfortunately, this had never taken place and one wonders whether the content of the curricula that is used adequately addresses the concerns of the stakeholders.

From my experience as an agricultural extension worker, there are so many changes in the farmers' demands that frequently occur. This raises a question whether the content of the curriculum offered equips the trainees with the required skills to deal with these demands. Experience shows that farmers are interested in having their problems practically answered. This could only be achieved by providing information that is viable and can help the farmers achieve their goals of increased production for improved food security, increased income and improved livelihood.

### **2.1.3 Behaviors and Attributes**

Experience indicates that enhanced performance can best be achieved and maintained if we focus not only on the knowledge and skills required for a job but also on behaviors and attributes. The combination of knowledge, skill, behaviors and attributes determine whether we handle situations appropriately and professionally at work. Competency is now a highly prized concept in human resource management world-wide (CMOD 2010, p. 7). CMOD further revealed that the PMDS Competency Framework encompasses more than the skills and knowledge required for a job. It includes a focus on attributes and behaviors required for effective performance within the Irish civil service.

In order to develop behavioral competencies, this guide looks at each behavioral competencies in turn. The material includes a description of the competency and some points to reflect upon or to discuss between jobholder and manager with a view to competency development. While emphasis is placed on "on-the-job" learning, quick, neat and easy solutions to the development of a particular competency may not always be possible. In many cases, competency development may require analysis of the factors involved and coaching or other learning interventions over a period of time (CMOD 2010, p. 7).

Egau, (2002, p. 20) observed that training is still dominated by examinations at all stages without adequate provision for other objectives of the curriculum, such as promotion of moral values and practical skills that are equally important in these areas. Although Extension trainees would need to be updated frequently to match with the farmers demands, It is obvious that even the instructors would need to be equipped with the latest knowledge, skills and attitudes that they would pass on to their learners. There is no way agricultural extension training can be effectively done, when their instructors lack the required competences needed to equip the learners with relevant skills of extension service delivery. Therefore, intensive programs to update the instructors are crucial in redesigning the agricultural extension program.

## **2.2 The Teaching and Learning Methods and Competence Acquisition**

### **2.2.1 Vocational didactics in relation to delivery competence**

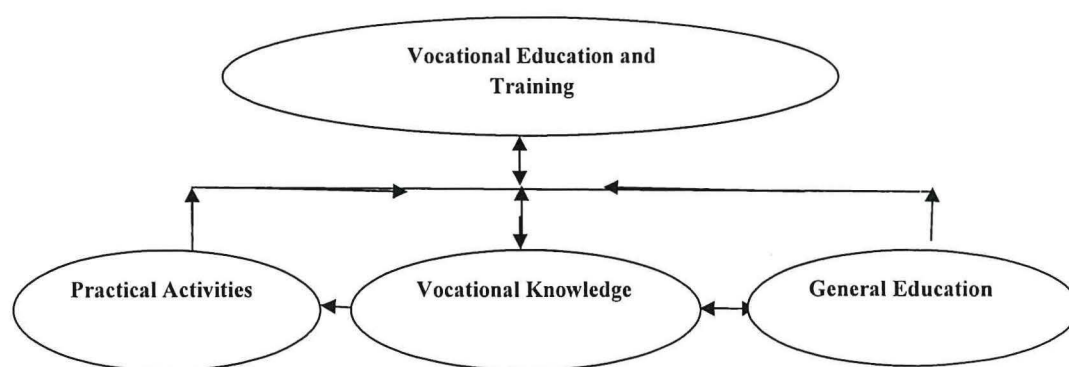
Vocational education and training disciplines have three components. According to Nilsson<sup>10</sup> vocation didactics contains practical work (work technique), vocation theory (practical knowledge) and general knowledge (applicability). The practical component comprises the training techniques

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<sup>10</sup> This is a citation by Professor Lennart Nilsson during the Master of Vocational Pedagogy facilitation at Kyambogo University.

of practical work; the practical component comprises of the training techniques of practical work; the vocational theory component has to do with teaching about tools and materials used and function; the general education component teaches general academic subjects such as language, social studies and subjects of scientific nature (Mjelde, 2006, p. 53).

The learning arena for related activities is the workshop and for general subjects is the classroom (Mjelde, 2006, p. 44). This makes acquisition of knowledge and skills dual in nature that conducts training simultaneously in two places of learning-out in the fields as well as in the classrooms (indeed it could be instruction given under a tree ) for a definite duration. The aim of training in the institutions is to provide well-ordered training for crop production and productivity and the qualifications and competences required to deliver extension services to the farmers. The aim is to produce skilled extension workers in a changing world of work.



**Fig 2.1: Components of Vocational Didactics**

Extension service trainers in Uganda provide only vocation knowledge and the little practical skills are provided without explanation of their origins and significance to Uganda. This makes it difficult for the students to understand the significance of this type of training; apply and manipulate the acquired skills to solve the farmers' crop production problems. There is need for the

extension service curricula developers and workers to consider all the three aspects of vocational pedagogical training like it is done in most developed countries (Russ, 2001, p. 6).

Vocational education and training (extension training) in most cases is treated in the same way as general academic education. General education is separated from the vocational part (practice) (Mjelde 2006, p. 52). A holistic approach adopts the integration of general knowledge into training strategies. This is the case in countries where extension training has been practiced with remarkable success. The three components of vocational didactics (vocational knowledge, practical activities and general education) are emphasized with an aim of equipping the trainees with skills and competences that can be used to enrich their specified trade which, in this case (Nilsson, 1998 cited in Mjelde, 2006, p. 53).

General education has a knowledge area that is mostly related to a cognitive learning theory streaming from the academic disciplines (Mulder, 2004, p. 171). This means that learning occurs in the mind of the learner as he listens and is seen as an activity (hands) and feelings (heart). The cognitive type of education has slowly trickled into rural societies through extension workers. However, it has not benefited them because the concepts commonly used are developed for the formal learning system which is not appropriate to solve food security problems.

### **2.2.2 Approaches to teaching and learning**

In order to achieve quality teaching and learning, greater attention must be paid to teaching and learning practice (Stensaker, 2008 cited in Nicolaide, 2012, p. 622). Traditional methodologies of 'talk and chalk' which are teacher centered are not adequate for current students. Effective teaching and learning is not taking place at the desired levels. High-quality learning outcomes are achievable provided that students assume greater control over their own learning (ibid, p.622).

Experience in the MVP program shows that learning is fostered by teaching methods where the learner is fully involved in the process. The mentors do guide the learning process. Learners research, analyze and present their findings for further guidance. This indicates how much competences the learners acquire. The current type of teaching in most of the institutions is teacher centered and this does not give chance to the learners to utilize their capabilities of learning. There is need to revise the approach of teaching so that learners develop competences that can be used to solve problems as they manifest.

In terms of the social constructivist paradigm, learning is a social process which is neither limited to an individual, nor is it passive, Meaningful learning only takes place once an individual is engaged in social activities. These include developing the capability of students to use ideas and information, testing of ideas and evidence, generation of new ideas and evidence, facilitation of personal development and development of a student's capacity to plan and manage their learning experience ( Nicolaidis, (2012, p. 621).

Project-organized training defines a middle ground between subject teaching and training tasks in workshop. Good projects invite students to explore and develop new terrain. The projects don't have a fixed answer. The projects invite cooperation and creative use of all resources. Project work always necessitates integration of theory and practice and multi-disciplinary approaches. 'The guide' pays particular attention to the students own attention. Project work is one of the several different integrative forms of learning (Froyland, *et al*, 1997, p.45).

Experience is a subjective awareness of a present situation. The meaning of experience is partly determined by past individual learning. Experiential learning is a type of learning that demands a combination of action and reflection. This presentation looks at "learning by doing" as a basis for experiential learning where knowledge is developed in a process of action and reflection (Mjelde, 2006). While Kolb discusses experiential learning from a merely cognitive dimension, we look at experiential learning as embracing all three dimensions of learning that is, the cognitive, the emotional and the social dimension. This links our understanding to a more holistic concept, as Dewey's experience concept does. (Dewey, 1963).

According to Olaitan *et al*, (1981, p 201) the lecture method is an instruction technique by which the teacher seeks to create interest, influence, stimulate, or mould opinion to promote activity, impart information or to develop critical thinking, mainly by use of lectures, with minimum class participation; a minimum number of related teaching aids or instructional materials are used to supplement the lecture. It has advantages which include: helping the teacher to introduce a new topic; helps in giving the students the details of that topic prior to a practice class; it stimulates students to read further on their own. On the other hand the lecture method has disadvantages in that there is minimum participation by the class and students might become bored. Unless properly motivated. The class will not listen attentively to the lecture. It is also tiring for the teacher.

Lectures are probably appropriate teaching method in many circumstances and for many students; especially for communicating conceptual knowledge, and where there is a significant knowledge gap between lecturer and audience. To enable lectures to be effective for learning, the process of communication therefore needs to be controlled by the lecturer. If communications from the audience are too frequent or uncontrolled, for example too many questions or discussions

interrupting the flow of discourse, then this will sabotage the necessary authority structure in a way that will undermine learning (Charlton, 2006)

Hatcher , (1973, p. 156) reveals that the demonstration method of teaching involves the presentation of procedures and processes to be learned. In addition to providing concise information, demonstration is a means of exemplifying high standards for the process being presented. The method has advantages which include: creating a high degree of attention, concentration, and interest which can further be exploited by other techniques and further study; helps the person demonstrating to develop poise and the ability to talk and act at the same time and also to understand the importance of organization and timing

Demonstrations can be performed by the teacher or the student and is particularly valuable in learning specific skills. It provides a concrete and realistic visual picture of what is being presented to supplement word images and usually results in a more lasting impression. It is less time consuming than individual experimentation and can be used with large or small groups of any age under controlled conditions. It can also be repeated in part, or entirely, slowed down or speeded up, and easily adapted or adjusted to the group.

The demonstration method on the other hand has disadvantages which include the following; they require careful planning detailed preparation, and considerable skill to be effective. Without proper direction and guidance, students may concentrate upon the aids used and ignore the lesson.

Equipment and materials for a demonstration may be expensive, difficult to obtain and hard to handle and store. Demonstration is best adapted to science subjects. Certain complications may arise during the demonstration such as poor functioning of equipment, breakage or unpredictable results (Olaitan *et al* 1981, p. 203).

The discussion method is one of the most effective techniques for stimulating the learning process. It involves group interaction in which an individual expresses herself and listens to the opinions of the others, thus forming the best ideas and judgments. This method has advantages which include: it involves group interaction; makes people think aloud together, ideas tend to become more meaningful because they are talked over; helps to correct mistakes; they are superior in contributing to the application of the material learned and in building attitudes that are important in shaping behavior patterns; helps in social development of the participants and teaches them to listen to others' views about a problem; discussed topics are not easily forgotten. On the other hand, discussions if not carefully planned and without a good leader will not be successful. In large discussion groups, students may not participate effectively and not all topics can be discussed effectively (Olaitan *et al*, 1981, p. 190).

According to Hatcher and Halchin in (Olaitan *et al*, 1981, p. 208), field trips are a method where trips are made to various places in the community to obtain information directly by seeing things as they really are. This approach is a structured attempt to provide an on-the-spot observation of some specific process or activity. Field trips help to bridge the gap between the school and the community. They foster valuable opportunities to foster vocational and educational guidance by providing some explanation and understanding of a range of occupations or professions. Students are challenged by the new ideas and impressions they receive and are influenced by them long after they return to classroom.

Critical thinking is developed and horizons are broadened by seeing how people work in different occupations. Class work becomes more meaningful as it is related to real life situations. Through these trips, students develop their personal traits of responsibility, cooperation, dependability and

courtesy. Students get a chance of breaking away from classroom routines and tensions. The students are furnished with information that may not be available in any other way. First-hand experience with materials in the natural setting may increase the students' understanding of the subject. Students are motivated to learn as they have opportunities to examine materials and form new ideas.

However, field trips may become extremely time-consuming and costly and require continuous evaluation in the light of education values. Lack of careful attention to the many essential details of planning and preparation can result in embarrassing situations. Unforeseen emergencies, distractions, and a variety of other personal and group problems are likely to arise and should be anticipated and controlled as far as possible

### **2.2.3 Expertise of instructors**

The Ministry of Education and Sports in their findings indicated in the BTVET Strategic Plan (2011-2020) first draft observed that the main quality challenges are the shortages of appropriately qualified and competent BTVET Instructors. Basing on this submission, one wonders whether the instructors in the Agricultural Institutions are really passing on the required competences that can match with the current demands of the farmers. The world is dynamic and needs corresponding interventions which need updates from time to time to enhance good agricultural extension training program. For that matter therefore, it is important to find out whether the Agricultural training Institutions have the same challenges of instructors that have problems of passing on the right competences needed by the trainees to offer quality agricultural extension service delivery.

Sennarud<sup>11</sup>, during his presentation to MVP students of Kyambogo University, revealed that the final report from the Norwegian Mission of May 2009, about the qualifications of VET teachers, found out that it would probably be difficult to find candidates for those that meet the ideal recruitment criteria of possessing the necessary vocational skills and (long) practical work experience, as well as relevant pedagogic and didactical qualifications. He further highlighted that there was a suggestion that skilled workers that were being recruited as VET teachers should undergo pedagogical training prior to the opening of the Center of Competence ( CoC), in Kosovo or and in Norway.

The problem of skilled and competent VET teachers has been an issue not only in Uganda but even in other nations as indicated earlier. This creates a very big question as to how these teachers can pass on the required competences to their learners when they themselves cannot measure up to the required standards. Program excellence in the Cooperative Extension Service is contingent on an educator's ability to identify and prioritize issues, develop and implement educational programs, evaluate outcomes, and utilize evaluation results to redirect future planning ( Nav, 2011, p. 6).

It could be true that most of the instructors undergo training in various institutions where they accumulate a lot of knowledge theoretically. With vocational education and Agricultural Extension training in particular, there is need to combine the theory, the practical elements and general knowledge. The three elements of VET are: vocational theory, vocational practice and general

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<sup>11</sup> Sennarud, R. Facilitation on Teacher training program "Status" for Curricula development to cohort two MVP students at Kyambogo University in 2011

knowledge Nilsson (2010)<sup>12</sup>. There is need for the teacher to use a variety of teaching methods in order to achieve the desired goals.

The Agricultural Technical and Vocational Education (ATVET) colleges in Ethiopia use the most common ways of teaching agriculture which range from formal lectures to practical classes on nearby farms and fields.<sup>13</sup> Experienced teachers employ several methods in a single presentation, and are actively encouraged to do so by their curriculum guide. ATVET college instructors commonly use a combination of two or more types of teaching methods: lectures, discussions, demonstrations, field trips and assignments (Vandenboach, 2006, p. 77).

Basing on the practical nature of their work, the extension workers need a lot of help from their instructors. This would make them give the most appropriate advice to the farmers on how best they can do farming in order to get high yields, ensure food security, maximize profits and lead a meaningful life. In order to get meaningful results from teaching, there is need to use various methods of teaching that enhance development of cognitive, psychomotor, and affective domains.

Learning by doing is a well-known concept that came out of Dewey's laboratory school research in Chicago. Another of Dewey's relevant perspectives is important in this context: A form of fruitless theory stands to practice but real scientific theory is located within practice and functions as the impetus for expansion and provides direction towards new possibilities (Mjelde, 2006 p 97). This concept points to the need of an effective learner centered approach where students are given tasks, mentored and are left to investigate and make research by themselves, critically observe situations, reflect on their findings, draw conclusions and suggest recommendations that are feasible.

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<sup>12</sup> Lecture presentation to MVP second cohort students by Dr Prof Lennart Nilsson about the elements of VET.

<sup>13</sup> [siteresources.worldbank.org/INTAFRREGTOPEducation/.../Post\\_Prima...](http://siteresources.worldbank.org/INTAFRREGTOPEducation/.../Post_Prima...)

Learning by doing is better than the traditional academic oriented type of education which is characterized by a top down approach. Here the teacher is viewed as the ultimate source of knowledge that disseminates material to the learners, who are in turn expected to reproduce it at examination time. This leaves no chance for the students to acquire hands on experience which would help him to acquire the competences that are needed in the field. The experience as a trainee was that there were various courses offered although emphasis was put on theory rather than practice. There were no expeditions carried out for exposure and there was no requirement of doing research. Emphasis was put on individual work rather than discussions and group assignments. Furthermore there were no outreach programs and exhibitions organized during the study.

Similarly, Okello (2009 b, p. 26) observed that the nature of the Ugandan education system is generally theoretical. He emphasized that even the courses that would be practical are taught theoretically. He attributed these to limited of technology, lack of practice among the teachers of Vocational education and poor attitude among the highly educated in the country making the type of education given to students being irrelevant in some instances to the job market requirements. Okello, (2009 b, pp 27-28) further noted that graduates in most training institutions are usually taught about the subject matter, but not given the skills required by an individual to work competently in the work place.

This huge disparity between the kind of education offered and the job market requirements poses a great uncertainty pertaining to how the trainees from such institutions can render quality services in the field. From experience as an Agricultural Extension Worker, the farming communities are more interested in practical solutions than the scientific terminologies that are not useful to the farming communities. It is imperative to note that having a lot of theoretical knowledge about a subject does not automatically translate into relevant competences that are much needed in the field

Okou, (2011) during his presentation to MVP students of Kyambogo University, explained that at Arapai Agricultural College, the Department of Crop Production and Management has objectives which include the following; to train students in crop production and management, Research and innovation in agriculture, Organic Agriculture, extension work, and horticulture. He emphasized that in order to achieve the above mentioned objectives, the methodologies for teaching and learning that would be used included lectures, demonstrations, field trips, field practicals, audio visual aids, outreach program, case studies, and laboratory practicals.

(Halim *et al*, 2011 ) indicates that the most commonly used methods include; Instructor presentation, where the trainer orally presents new information to the trainees usually through lectures, seminar, workshop, and the like; Group discussion where the trainer leads the group of trainees in discussing a topic: Demonstration, where the trainer shows the correct steps for completing a task, or shows an example of a correctly completed task: Assigned reading, where the trainer gives the trainees reading assignments that provide new information: Exercise, where the trainer assigns problems to be solved either on paper or in real situations related to the topic of the training activity: Case study, where the trainer gives the trainees information about a situation and directs them to come to a decision or solve a problem concerning the situation: Role play, where trainees act out a real-life situation in an instructional setting: Field visit and study tour where trainees are given the opportunity to observe and interact with the problem being solved or skill being learned.

Experience shows that the approaches suggested by Abdul are lacking in some of the Agricultural training Institutions. The expedition at Arapai Agricultural College also showcased lack of these approaches with only a few being implemented. There is a general tendency of using teaching

approaches that provide a lot of knowledge to the learners. While knowledge is required in the learning process, it would be better to provide the learner with the necessary skills that would help in transforming the acquired knowledge into practice. For that matter therefore, integration of the teaching methods would be advocated for all teachers and trainers.

As regards assessment, there is need to develop tools that would give learners to exhibit their level of attainment of the expected competences from their training. A curricula review that emphasizes hands-on experience as a basis for allocating grades and promotions to the higher level of the course would be of paramount importance. Assessment would be done to evaluate whether the teaching and learning methods used address the three aspects that institutions try to impart namely, *attitude, skills and knowledge*, the most challenging being attitude. There is need to inculcate value such as honesty and integrity, hard work, patience, respect for others, tolerance to the learners so that the community can trust them.

#### **2.2.4 Availability of tools, equipment and materials in relation to delivery competence acquisition**

Students go out of the vocational institutions with theories not the practice. They go out without knowing the machines only to see those in the industries for the first time in the field with a marvel in their faces because what we have in the workshops are of the 18<sup>th</sup> century and sometimes those of the 20<sup>th</sup> century. Practical are done in theory which is a contradiction (Okello b, 2009, p. 28).

Lamenting on the state of the infrastructure in the TVET institutions, the commissioner in charge of TVET said that BTVET institutions lack institutional materials and infrastructure like lecture rooms, teachers houses, workshops, tools , equipment , books and libraries, yet BTVET is practically oriented and its success is dependent on the availability of teaching materials, tools,

machines and equipment. If these are grossly lacking in the institutions, the products from them will not have the competences directly required in the labor market (Okinyal, 2006).

Lack of working instruments, in the class room makes the teaching of practical related lessons not affordable, therefore teaching is theoretically done. At the end of it all, the products of the practical education system which indeed did not practice the practical aspect of that education system may not be able to meet the requirements for the labor market. Lack of equipment and good infrastructure in the TVET institutions has contributed in influencing attitude towards TVET education system negatively Okello (2009 b, p. 29).

Nalumansi et al (2003) described the technical vocational education in Uganda in a World Bank report as a system which is not in position to cater for the present and the future skills requirements of the economy. Most of the BTVET providers do not refine their students to the required current and future needs. The training contains too much theory and too little hands-on experience. Even practical skills are theoretically explained with gestures and pictures.

## **2.3 Relevance of training to delivery competence requirement acquisition**

### **2.3.1 The significance of Agricultural Extension Training to knowledge acquisition**

General education is the literal type of education. It is not a skill based type of education. It is an academic type of education as opposed to the vocational type of education which is skill based Okello (2009 b, p. 5). Agricultural extensionists constitute the least-trained group of staff in African agricultural organizations. Their initial formal training is usually inadequate and where in-service training is provided it is often ad hoc and not responsive to the changing nature of

extension tasks. Given the low numbers of extension staff, accompanied by low levels of training, it is not surprising that extension organizations are functioning poorly in Africa (Zinnah, 1999).

Zinnah, (1999) further reveals that one of the major problems impeding the effectiveness of agricultural extension services in Africa is the low level of training of a large proportion of extension staff. Most extension staff lacks the knowledge and skills required to work in the complex and rapidly changing agricultural environment. Consistently unresponsive, universities and colleges rarely offer extension training program that address the changing demands of the work environment. Compounding these problems, the academic discipline of agricultural extension is marginalized in agricultural universities and colleges, especially in Africa, with only a negligible number of credit hours allocated to agricultural extension and related courses. The training departments of ministries of agriculture and non-governmental organizations (NGOs) generally run ad hoc in-service training program that do not prepare extension staff adequately to deal with complex agricultural problems

The SAFE initiative recognizes that reshaping or revitalizing agricultural extension curricula should not aim merely for the mastery of the cognitive content (facts and methods) that is imparted to learners, but should aim for experiential learning. The emphasis should be on helping learners to be reflective practitioners and to view learning as a process not limited only to outside experts.

There is an urgent need for agricultural and extension education in African countries Steele et al., (1993 cited in Zinnah, 1998). This initiative clearly demonstrates that there is considerable scope in sub-Saharan African countries to improve the training of agricultural extension staff, especially mid-career staff. Efforts are under way to spread the idea across sub-Saharan Africa. The main aim of this initiative is to share experiences among institutions and agencies committed to the vision of

training mid-career agricultural extension staff. The momentum is already building up, as major universities in Africa, including Alemaya University of Agriculture in Ethiopia, Sokoine University of Agriculture in the United Republic of Tanzania, Makerere University in Uganda and the University of Cape Coast in Ghana, have embraced this new approach to training mid-career extension staff.

Swanson, (2010, p. 184) reveals that pre-service training of agricultural extension workers has been given limited attention and resources in most developing countries since the 1990s. In most countries, field extension workers obtain a two- or three-year diploma from a school of agriculture, which is normally a terminal educational qualification? These diploma-level programs typically teach a cross section of agricultural courses, including crop and livestock production, plus basic skills in extension methods using the “diffusion of innovations” framework, which primarily focuses on technology transfer to larger, commercial farmers. In most cases, the educational content of both agricultural and extension courses is grossly out of date, if these agricultural extension systems are expected to become more decentralized, participatory (farmer led), and market driven in improving rural livelihoods. To do so, however, the skills and knowledge of faculty and staff at schools of agriculture and agricultural universities will need to be updated in course content and teaching methods, as well as being provided with up-to-date, relevant teaching materials.

The dilemma facing most public extension systems today is that due to their top-down organizational structure, continuing commitment to technology transfer, and their lack of adequate financial resources, most systems are neither prepared nor able to effectively increase farm income and improve the livelihoods of the rural poor. In addition these public extension systems lack the

necessary resources (especially training and program funds as well as information and communication technologies, or ICTs) to keep their staff up to date and able to actually carry out more innovative extension program activities in the field. As a result, many development specialists have called for alternative service providers or recommend that these public services be privatized or turned over to NGOs Swanson, (2010, p. 38).

### **2.3.2 Relevance of Agricultural Extension Training to Delivery Skills Acquisition**

The nature of the Ugandan education system is generally theoretical. Even the courses that should be practical are taught theoretically. Reasons are; lack of technology, lack of practice among teachers of vocational education and poor attitudes to work among the highly educated people in the country hence the type of education given to the students is irrelevant in some instances to the job market requirements.

We can now therefore begin with the fifth century Chinese philosopher Lao-tse (Lao-tzu) whose view and the early study of the philosophy of education oscillated, forming a substructure upon which the superstructure of the modern vocational education was built. He had this philosophical assertion during his life time;

*If you tell me, I will listen. If you show me, I will see. But if you let me experience, I will learn<sup>14</sup>.*

However, up to today, the Ugandan education system is producing agriculturalists who do not know the combine harvesters, civil engineers who don't know how to drive a Bull dozer, we are

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<sup>14</sup> (<http://www.unevoc.unesco.org/publication>).

training mechanical engineers who cannot make a mere needle for the sewing machine, neither can they make an engine of a motor vehicle, let alone telecommunication engineers who cannot produce a mere design of a television screen or make a transistor which is an old technology (Okello, 2009). He further indicated that the engineers, vocational graduates being produced by the Ugandan education systems are not even copycats; they are repair technicians who look at the simplest technology from Europe and America or even India and China with amazement. They cannot think beyond being more than repairers of the imported technology. This is because the training does not provide the required skills that could be used to demonstrate or even event tools.

Okello further revealed that the education system is not practically oriented because students are taught by the same people who went through the same type of training. From his view, it was not a surprise to see agriculturalist and engineers who went through technical vocational or University institutions in the necktie, fearing to get dirty with grease or mud. The reason to this is that these graduates never got exposed to the practical aspects of their courses. They were theoretically oriented and took it for granted that these trades are not practically performed.

From his point of view, Okello indicated that as students listen to theories, they may be shown pictures of machines and gestures but they should be given practical, they may see during industrial training but they cannot touch because there had been no industrial training policies in the country, no industrialist is committed to training them, so that they can experience it. In that way students we produce cannot stand on their own and become manufacturers using their technical skills

Current agricultural trends, such as those related to population, gender and environmental issues, are placing diverse and often very complex, demands on extension staff. Agricultural extension staffs are central to facilitating the changes associated with these trends (Kolb, 1984, cited in

Zinnah et al., 1998). It is imperative that formal training (or retraining) program provide opportunities for extension workers to conduct independent or group educational projects in environments similar to those they face in their extension activities. This hands-on approach to extension training builds upon the concept that experiences are the building blocks of learning.

Pluralism in the delivery of agricultural research, extension, and training services so that diverse skills and strengths of a broad range of service providers (e.g. Universities, NGOs, public and the private sectors) can contribute to publicly support agricultural productivity operations. The curricula content would prepare students better with the skills and tools they need for developing and implementing knowledge-based innovation systems FARA (2006. p.19). It would be better to employ a *pluralistic model* in regional program implementation modalities to take advantage of the skills found within public and private institutions in the region, to retain flexibility, and to benefit from the accountability which comes from competition (ibid. p. 25)

### **2.3.3 Attitudes towards Agricultural Training to Service Delivery Attitude Acquisition**

Dr Watson taught Agriculture to the native Africans at Mengo with an idea of imparting skills to the natives, but Reverend Haltersley opposed it. He contended that the curriculum should only consist of the academic subjects. The reason for this was the costs involved if the teaching of agriculture was to go on. Agriculture did not develop in Uganda completely and by the end of 1963, nobody would want to take up agriculture willingly. It was reserved for academic failures. Even parents began to look at education as an escape from manual work such as agriculture, degrading vocational education more Okello (2009, p 15). Today most of the students are not willing to join vocation institutions. But they do so as a last resort (ibid, p. 24).

The colonial education produced people with general education devoid of technical or vocational skills and these products; the educated workers were to serve as clerks, chiefs and administrators. Such jobs attracted heftier benefits in monetary terms than the vocational jobs (Okello, p. 16). The negative attitude towards technical vocation education like agriculture was aggravated by the British popular notion in Uganda that “the ruler ship of the world was not in the hands of the technicians but those who studied humanities” (Ssekamwa, 1997). This was a false impression indeed, for 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. Indeed vocational and or technical education was said to be meant for the academic failures. As much as the there is an upsurge in the demand for vocational education system, people’s attitudes towards it has not been corrected fully. The enrollment of technical and vocational education is still low, for example in 2007, there were only about 30,000 students in all the technical vocational education and training institutions<sup>15</sup>

Okinyal (2006), former BTVET commissioner highlighted that the stigma and negative attitude attached to BTVET courses hinders the sector from getting good learners. Whereas most BTVET subjects are science related, students who pass science do not easily opt for BTVET. So the sub sector continues to admit low grade students into its institutions. As a result of the negative attitude, enrollment is still relatively low.

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<sup>15</sup> (www.education.go.ug/2007)



## CHAPTER THREE

### RESEARCH METHODOLOGY

#### Introduction

This chapter describes the methods used to carry out the study on the Agricultural extension service training and competence requirements for service delivery. It includes description of the study design, target population, data collection methods and tools/instruments, validation and reliability of tools/instruments, data collection procedures, data processing and analysis.

#### 3.1 Research Design

This research used a descriptive study design. This was because the descriptive nature of research would help me establish the content of crop production, the methods of teaching and the relevance of the training that is offered to extension workers. A research design is a stated structure and process of conducting a research project, detailing the plan and method for systematically and scientifically obtaining the data to be analyzed (Amin, 2005 p.144). The choice helped me to establish the content of crop production taught in the selected Agricultural Institutions and the competence requirements for service delivery. The teaching and learning methods used were also examined and the different views, opinions and attitudes towards the relevance of the training to the work of Agricultural Extension Workers were established.

The study used a qualitative approach to data collection and analysis. The qualitative method enabled getting greater understanding of not just the way things are but also why they are the way they are (Amin, 2005 p.42). The qualitative approach was adopted to collect and analyze data following the study objectives. Through face to face interviews, observation sessions and study

documents, data was collected, interpreted, analyzed and discussed. Conclusions were drawn according to the set objects and recommendations suggested.

### **3.2 Target Population**

Eight specific categories of respondents were included in the study. These comprised the principals, students and lecturers in the crop production departments of the three institutions, graduate extension workers, farmers, District agricultural officers, District Production and Marketing Officers and District NAADS Coordinators,

### **3.3 Selection Procedure and Techniques**

A total of 68 respondents were selected for the study using different methods (Table 1). 07 Instructors and 40 Degree and Diploma agricultural extension students were selected using the stratified random sampling method. There were 06 farmers selected out of the 112 on the lists that were obtained from Wobulenzi Town Council NAADS offices using the stratified simple random technique to take into consideration of the heterogeneous nature of the population to be sampled (Amin, 2005, p. 246).

The snowball technique was used to select 08 agricultural extension graduates out of the 22 who were serving in Luwero District as extension workers. Odiya (2009), identified this technique as one that is used when the researcher has no idea of which individuals have the characteristics required for the study. In this case, the first extension worker enabled me get to the next. Through cumulative snowballing the required number was traced.

The purposive technique was used to select the 02 Principals of the selected agricultural training institutions. The same technique was used to select 05 District Officials who were respondents of

the study. Amin, (2005, p.242) supports researchers who use the purposive technique by calling it a process where the researcher usually selects a sample based on his or her experience of knowledge of the group to be sampled and has in mind that these respondents have information he or she requires. Cohen & Manion, in Odiya, (2009, p.157) confirms that purposive sampling is also known as judgment sampling where the participants are sampled on the basis of their typicality, or because they are satisfactory to the research needs.

**Table 1: Summary of the Category, Numbers and Selection Methods of the Respondents**

S/No	Category of respondents	Number	Selection Method
1	Instructors of the Crop Production department	07	Stratified Random Sampling
2	Graduates in the field as Extension Workers	08	Snowball technique
3	Diploma & degree Students,	40	Stratified technique and random
4	Farmers selection from lists of the T/C NAADS Offices.	06	Stratified random
5	District production and Marketing Manager	02	Purposive
6	District Agricultural Officer	01	Purposive
7	District NAADS Coordinators	02	Purposive
8	The principals	02	Purposive
	<b>Total of Respondents</b>	<b>68</b>	

### 3.4 Data Collection Methods

Both primary and secondary sources were used to collect data related to variables in the study. Interviews were carried out on respondents. This is because these are expected to be with the direct information that is needed by the researcher. Data collection methods used included documentary analysis, interviews and focused group discussions and observation. (These methods gave information needed for the research problem of the study.)

### **3.4.1 Primary sources of Data Collection**

Primary data was collected about the content of crop production, the teaching and learning methods used and the relevance of the training to the service delivery competences. In this case interviews were carried out on respondents, this is because these were expected to be knowledgeable and had direct information that was needed for the study.

### **3.4.2 Secondary sources of Data Collection**

Library and archival survey was used as a secondary source of data collection. This method of data collection enhances the analysis of the findings in relation to the objectives of the study as well as the relationship of the extension strategies used by the developed countries. The library and archival survey included documents such as reports, journals, conference proceedings and textbooks in relation to the study. Library and archival survey was further sought to validate the responses given by the different categories of respondents for the study.

### **3.4.3 Documentary analysis**

Using this method, the content of Crop Production and the teaching and learning methods in the selected Agricultural training institutions were established. Furthermore, opinions about the relevance of the agricultural extension training to the work of extension workers were got from some of the literature that was used for the study. Official documents such as the program documents, time tables, brochures, class lists, and farmers' registers were used and reviewed using a documentary analysis guide (appendix 7). This method was also used to analyze the available sources of literature that was related to the study.

### 3.4.4 Open Interviews

There were face to face interactions with the purpose of getting views, opinions and attitudes concerning the crop production content, the teaching and learning methods used and the relevance of the training to the work of agricultural extension workers. Specifically, unstructured type of interviews was used. Different Interview guides with open ended questions derived from the different objectives of the research were used to collect data from different categories of respondents. Open-ended questions are items which call for a free response in the respondents own words (Amin, 2005, p. 274). Some statements from the interviews with the informants were quoted verbatim to stress crucial points of the discussion of the research problem.

Views on the content of crop production curricula and teaching methods used were sought from the students using interview guide A (Appendix 1). Individual interviews and Focused group discussions with 8 students in each institution were carried out in respect to gender. They gave their views, opinions and attitudes about the relevance of the training and the work that they were expected to do in the field at the end of their course.

Instructors of the selected agricultural institutions to seek information about the content of crop production taught and the teaching and learning methods that are used (Interview guide B, Appendix 2). They gave their views about the relevance of the training to the work of agricultural extension workers.

The graduate extension workers working in Luwero District were interviewed using interview guide C (Appendix 3) to give information about the content and the teaching/ learning methods they experienced. In view of the fact that they had undergone training for agricultural service delivery from the institutions, they could give opinions about the relevance of the agricultural

extension training to the competence requirements of the extension workers since they had also been in the field for some time (work places).

The District Production and Marketing Managers (DPMOs), District Agricultural Officers (DAO) and the District National Agricultural Advisory Coordinators (DNCs) of both Luwero and Mityana Districts were purposely interviewed (Interview guide B, Appendix 4). These participants were selected on the basis of their typicality as the immediate supervisors of the extension workers in the field (Cohen & Manion, in Odiya, 2009, p.157). They had a lot of experience about the performance of the extension workers which could reflect the type of training they went through and their delivery competence acquisition.

The farmers from Wobulenzi Town Council in Luwero District were also interviewed (Interview guide E, Appendix 5). These were interviewed to give their experiences and opinions as end-users of the agricultural services rendered by the extension workers.

#### **3.4.5 Observation**

This was used basing on a checklist (Appendix 6 to watch and listen to events as they took place in order to get first-hand information of the events. The events observed included; organization of learning in class, demonstration gardens, farmer's gardens, the tools, equipment, and materials being used and other infrastructures in the selected Training Institutions. A still photo camera and a recorder were used to capture all observations and the content of the discussions made with the respondents.

### **3.5 Validation and Reliability of tools/ instruments**

To ensure validity, the instruments were pre-tested with three colleagues in NOMA, ten first year students and three lecturers of Bukalasa Agricultural College, and three farmers in Wobulenzi Town Council. Pre-testing of instruments was done to identify any ambiguities, misunderstanding or inadequacies in the instruments Amin, (2005). Triangulation was achieved through the use of various methods of data collection such as in-depth interviews, observations, focus group discussions and documentary analysis, Care was also taken to obtain different peoples' opinions of various categories so as to ensure a holistic and unbiased picture of the results such that generalization could safely take place. Reliability refers to the extent to which the research instrument will yield consistent findings (Saunders et al.; 2007). This is the ability of an instrument to produce the same results whenever it is repeatedly used to measure a variable or concept from the same respondents even by other researchers. The researcher will adopt a split-half as follows:

### **3.6 Data collection procedures**

An introductory letter from the School of Post Graduate Studies and Research from Kyambogo University was obtained and presented to all the institutions and other relevant offices and places where research was conducted. Permission from the relevant authorities was sought for interaction, recording, taking photographs and accessing documents. Appointments were scheduled for different activities. To ensure interaction and active participation, safe and convenient places were organized and care was taken to choose time slots which were convenient for the respondents. Primary data was collected from the study population while the secondary data was collected from

the different documents that were got from the relevant institutions such as the curricula, timetables, brochures and other relevant documents for the research.

### **3.7 Data Processing and Analysis**

The data was edited, cleaned, organized and categorized into themes and analyzed qualitatively. Qualitative data analysis helps the investigator to search for patterns of data in form of recurrent behaviors or events, and then interprets them moving from description of empirical data to interpretation of meanings (Amin, 2005, p. 324). Analysis of data was done according to the objectives. Through triangulation techniques reliable data was got for the research study.

## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### Introduction

This chapter breaks down and translates information gathered from respondents that participated in the study of agricultural extension service training and delivery competences in agricultural institutions of Uganda. The chapter gives the presentation, interpretation and discussion of the findings according to the objectives of the study. The objectives included; establishing how the content of crop production curricula at Makerere University, Bukalasa National Agricultural College and Mityana Agro-Vet Institute supported acquisition of extension service delivery competences, examining how the teaching and learning methods used in the Crop Production departments of the selected agricultural institutions enhanced agricultural extension service delivery competence acquisition and establishing the relevance of agricultural extension training to the work of extension workers.

#### Social Demographic Information of Respondents

The response revealed that a total of 68 respondents participated and of these, 34 (50%) were female while 34 (50%) were male. These comprised of Instructors (9.4%), Principals (2.9%), degree students (21.4%), diploma students (41.1%), graduate extension workers (41.1%), farmers (7.9%), district production and marketing officers (1.4%), district NAADS coordinators (2.9%) and district agricultural officers (1.4%).

#### **4.1 Crop Production Curricula and Agricultural Extension Service Delivery Competence Acquisition**

The required competences for agricultural service delivery included: knowledge, skills and positive attitudes towards extension service delivery. For the knowledge to be relevant, it needs to be tailored to a particular field which in this study was crop production. This was true for skills development and consequently attitudes.

##### **4.1.1 Crop production curriculum and knowledge required for Agricultural Extension Service Delivery**

The Crop production curricula offered in the three agricultural extension training institutions of Makerere University, Bukalasa Agricultural College and Mityana AGRO-VET Institutions were covered under various course units. Some of the course units were common in the three selected institutions (Table 4.1). These were spread into semesters of the first, second and third years of study in case of Makerere University and semesters of the first and second years in case of Bukalasa College and Mityana Agro-Vet institute.

**Table 2: Nature of content of the curriculum for degree students doing crop production and management at Makerere University research institute Kabanyoro**

<b>First year</b>				
<b>First Semester</b>				
<b>Course Units</b>	<b>CU</b>	<b>LH</b>	<b>PH</b>	<b>TCH</b>
Introduction to mathematics	3	42	3	45
Introduction to animal science	3	40	5	45
Soil science	3	38	-	38
Gender and agricultural developments	3	33	12	45
Botany	4	33	12	45
Introduction to micro biology	4	34	11	45
<b>Second semester</b>				
Micro economics	3	35	-	35
Climatology and field engineering	3	38	12	45
Animal physiology and zoology	3	40	5	45
Introduction to entomology and nematology	3	36	-	36
Computer application	3	36	9	45
Statistics and agricultural extension	3	34	11	45
<b>Second year</b>				
<b>First semester</b>				
Animal nutrition	3			
Annual crop agronomy	3	34	11	45
Farm power and machinery	3	33	12	45
Soil physics and chemistry	3	33	12	45
Communication	3	38	7	45
Introduction to agricultural extension	3	34	11	45
Biometrics	2	25	05	30
Production Economics and genetics	3	34	11	45
<b>Second semester</b>				
Perennial Crops Agronomy	3	34	11	45
Farm structures	2	25	05	30
Soil Fertility and Management weed science	3	34	11	45
Horticulture (1)	2	23	07	30
Farm management and accounts	3	38	07	45
Livestock Management and Rural Sociology	3	35	10	45
<b>Third year</b>				
<b>First Semester</b>				
Introduction to communication and extension	3	36	09	45
Program development and evaluation	3	35	-	35
Dairy production	3	33	12	45
Soil pedology	2	25	05	30
Entomology	2	25	05	30
Principle of plant breeding	3	34	11	45
Poultry management	3	34	11	45

Farm case studies and pasture management	3	35	10	45
<b>Second semester</b>				
Soil conservation and land reclamation	3	35	10	45
Apiculture (1)	2	25	05	30
Agricultural marketing	3	36	04	40
Animal feeds and feeding	3	36	9	45
Animal Health and hygiene	3	35	10	45
Social research methods (1)	3	36	09	45
Field crop diseases and post-harvest technology	3	33	12	45

NB: The course units for the fourth year were not availed to me

**Table 3: Nature of content of the curriculum for diploma students doing crop production and management at Bukalasa National Agricultural College**

<b>First year</b>				
<b>First Semester</b>				
<b>Course Units</b>	<b>CU</b>	<b>LH</b>	<b>PH</b>	<b>TCH</b>
Crop improvement	3	33	12	45
Introduction to computer	2	25	05	30
Annuals and perennials	3	38	07	45
Introduction to Agricultural Extension	3	33	12	45
Soil science	2	25	05	30
Farm structures	2	25	05	30
Introduction to agricultural economics	3	38	7	45
<b>Second semester</b>				
Horticulture	2	23	07	30
Mechanisms of crop production	3	33	12	45
Soil, water and environmental conservation	3	33	12	45
Agro Forestry	2	25	05	30
Poultry and piggery	3	35	10	45
Small ruminants and rabbits	3	35	10	45
Agricultural marketing and resource management	3	37	08	45
Research methods	2	25	05	30
Information and communications technology	2	25	05	30
Pasture production and management	2	25	05	30
<b>Second year</b>				
<b>First semester</b>				
Crop protection	3	33	12	45
Sustainable agriculture	2	25	05	30
Dairy and beef production	3	35	12	45
Extension methods	3	33	12	45
Rural sociology and participation methods	3	37	08	45
Agricultural statistics, Accounts and farm records	3	30	5	35
<b>Second semester</b>				
Invasive Alien Species	3	32	13	45
Post-Harvest Technology	3	35	10	45
Nutritional and Family Education	3	33	12	45
Land use planning	2	25	05	30
Information and Communication Technology	3	32	13	45
Project work	2	20	10	30

**Table 4: Nature of content of the curriculum for diploma students doing crop production and management at Mityana Agro-Vet Institute**

<b>First year</b>				
<b>First Semester</b>				
<b>Course Units</b>	<b>CU</b>	<b>LH</b>	<b>PH</b>	<b>TCH</b>
Soil science	3	35	-	35
Introduction to extension	3	30	12	42
Annuals and perennials	3	30	12	42
Introduction to computer	3	35	5	40
Crop improvements	3	35	07	42
Farm structures	3	35	07	42
Farm Accounting and statistics	3	34	06	40
<b>Second semester</b>				
Horticulture	3	35	07	42
Communication and research	3	35	07	42
Entomology	3	35	05	40
Agro Forestry	3	34	06	40
Soil and water conservation & Environmental Mgt.	3	35	07	42
Small ruminants and pigs	3	32	10	42
Agricultural marketing and resource management	3	32	10	42
Pasture production and management	3	32	10	42
<b>Second year</b>				
No information was provided				

**KEY:** CU; Credit Units LH; Lecture Hour PH; Practical Hour TCH; Total Contact Hour

Apart from the course units indicated in Table 2, there were other course units covered under the crop production curriculum at Makerere University during the different semesters of the three years. These included; Climatology and Field Engineering, Biometrics, Production Economics and Genetics. For the 2<sup>nd</sup> semester of the second year the students had covered; Perennial Crops Agronomy, Farm Structures, Soil Fertility and Management Weed Science, Horticulture (1), Farm Management and Accounts, Livestock Management and Rural Sociology. In the 1<sup>st</sup> semester of the third year, students covered; introduction to communication and Extension, Program Development and Evaluation, Dairy Production, Soil Pedology, Entomology, Principle of plant breeding poultry management, Farm case studies, and pasture management.

Other course units included soil conservation and land reclamation, Apiculture (1), Agricultural Marketing, Animal feeds and feeding, Animal feed and feeding, Animal Health and hygiene social research methods (1), Field crop diseases, and post-harvest technology. At Bukalasa Agricultural college and Mityana Ago-Vet, other course units done included; Agro Forestry, Entomoforestry, Poultry, Piggery, Small ruminants and rabbits, Research Methods, Crop Protection, Sustainable Agriculture, Dairy and Beef Production, Enterprise, Project Planning and Development, outreach and Industrial Training. As already indicated in the table, there are so many course units that are offered for crop production hence making the program congested. The practical hours allocated for these course units is limited as compared to the lecture hours. Coupled with this, some course units seem not to be applicable to crop production.

Findings indicated that some of the students indicated that most of the content was full of difficult scientific terminologies, which they failed to remember during examinations.

*There are many complicated scientific words which I fail to cram for the examinations*<sup>16</sup>

The trainers expressed concern about the content of crop production that was knowledge intensive. The graduate extension workers revealed that most of the content from the agricultural training institutions had not been used in the field.

*I have only used a half of what I learnt in the college*<sup>17</sup>

The graduate extension workers ear marked some important information was required for adequate agricultural service delivery. This included information about handling Agro inputs, value addition, marketing information to mention but a few. The district officials indicated that the extension

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<sup>16</sup> This was a response from Jacob a student from Makerere University who expressed about the difficult scientific terminologies in the crop production content.

<sup>17</sup> This was a response of David one of the extension workers in Luwero district who revealed that half of what he had learnt from the University has never been put to use in the field.

workers had a lot of knowledge which they acquired from the training institutions. Unfortunately, they complained about failure of the extension workers to translate the knowledge acquired into practical approaches that are most needed for agricultural production. In the same way, the farmers commented;

*Whenever your workers come here, they speak a lot of English yet for me I never went to school<sup>18</sup>*

It is evident that there are many course units for crop production. However, most of the content supports acquisition of crop production knowledge. Findings indicated that the skills and delivery attitude competences (knowledge), psychomotor are not explicitly addressed. Proper agricultural extension education and training, as reflected in higher education curricula, are essential to the success of these professionals (Acker, et al., 2004). The agriculture curriculum is one of the best tools and the school is the best place to disseminate the concepts of agriculture production (Perez-Dlamini, Mbingo, and Dlamini 2003, p. 43).

The curriculum provided knowledge to the trainees. However some of the required knowledge needed for service delivery was missing. Therefore the extension workers could not be able to disseminate the relevant knowledge to the farmers. They faced challenges during their extension service delivery as evidenced from the complaints of both the district officials and the farmers.

The extension workers could not be blamed for the inadequate extension service delivery to a limited extent. On one hand, this is reflected from extension workers who revealed that most of the content got from the training had not been used utilized. On the other hand, extension workers suggested that they needed other training packages for their service delivery. However, good

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<sup>18</sup> Namuli, a farmer from Wobulenzi Town Council commented that Extension Workers use difficult words when teaching them which she could not understand because she had never gone to school.

extension workers are also good learners. In general they have to keep abreast with local knowledge as well as technological change. None the less, since extension workers were trained from the agricultural institutions, their failure to give the required crop production information could be attributed to the scope of the content they obtained from the agricultural training institutions. The future extension professionals need to be more skillful and futuristic to serve the needs of the diverse audience Seevers et al., (2007 cited in Okwoche, et al., 2011, p. 121).

It is evident from the finding that the content of crop production comprised of various course units. A lot of knowledge was accumulated but during service delivery, I realized that most of it had not been used in the field. Instead, I noted that there was some knowledge that was more needed in the field by the farmers which had not been provided for in the training package at college. This was detailed knowledge about some agronomic practices such as soil fertility management conservation, technologies of field preparations of various crops, crop pests and disease management. Through capacity building acquired from workshops, seminars and field visits mainly organized by the NGOs I have worked with in the field, I learnt more of the areas mentioned which had not fully been addressed by the training program. Students must be immersed in authentic curriculum contents and tasks that are demanding and relevant to their lives and futures (Nicolaide, 2012, p. 621).

#### **4.1.2 Content of the Crop Production Curricula in relation to skills for Agricultural Extension service delivery.**

The students expressed concern about lack of practicals in some of the course units which they thought were to be practically taught.

*They are rare but at least we would carry out practical in some important course units like horticulture and banana agronomy since we have a banana garden.*<sup>19</sup>

Through observation and analysis of the crop production program documents of the selected institutions, some of the course units were allocated more lecture contact hours than for practicals. Others were taught using the lecture method, an example of soil science. Some course units that seemed to support agricultural extension service delivery skills acquisition were not given adequate practical contact hours. These included: Annual Crop Agronomy, Introduction to soil science, Participatory Approaches in Agricultural Extension, Agricultural Mechanization, Agribusiness, Integrated Soil management practices, Field attachment, Crop pests and disease management, Farm power and machinery, Organic and sustainable crop production.

Most of the instructors indicated that practicals were not fully addressed due to lack of time. This was attributed to the congested curriculum that had a lot of content which needed to be covered within a semester in preparation for examinations. The extension workers also indicated that they faced challenges in demonstrating some agricultural technologies to the farmers. They attributed this to lack of practical experiences in their training. This was when I asked them a question during the interview:

*Sincerely, I always fail to demonstrate to the farmers what I learnt from the University*<sup>20</sup>.

The district officials who complained about failure of the extension workers to demonstrate the agricultural technologies to the farmers. The farmers too expressed concern about failure of the extension workers to practically give them advice to their diverse agricultural based needs. The graduates revealed that they had very limited technical, interpersonal and communication skills

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<sup>19</sup> Response of one of most of the students to the question asked by the researcher during the interview about their involvement in practical lessons.

<sup>20</sup> A response from the agricultural extension worker who had qualified from Makerere University

because these lacked in the training. This was also evidenced by the trainees' response to the question whether they were getting enough practicals during the training. They responded as follows;

*Even the course units that would be practically taught are theoretically taught<sup>21</sup>.  
Sometimes lecturers use practical time for lectures<sup>22</sup>*

The graduate extension workers indicated that practical units were being taught theoretically. The respondents attributed such situation onto several factors including availability of tools, materials and equipment, very stuffed syllabus which would enforce theory lectures in order to catch up with the semester schedule and theoretically trained instructors among others. From documentary analysis of timetables and the syllabus coupled with observation of Lessons, and responses from graduates and instructors, vocational theory were allocated more time than vocational practice and general subjects.

The content of crop production was not fully supporting acquisition of the required skills for service delivery. It is not enough to acquire relevant knowledge for agricultural service delivery by the extension workers but also transform the knowledge into useful practices that are desired by the farmers. The issue of only reproducing information at the time of examinations does not necessarily presuppose understanding. Understanding presents our intellectual capability to use information in a sensible, meaningful way (Westera, 2001). Knowledge only becomes useful if used to solve problems. To achieve this goal, TVET curricula must focus on outcomes in terms of

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<sup>21</sup> It was one of the students from the selected agricultural training institutions responding to the question whether they were getting enough practicals during training.

<sup>21</sup> The second student response to the question as to whether they were get enough practicals

the skills, knowledge and attitudes required for service delivery. That is, TVET provision should be responsive to the demands of industry Dasmani, (2011, p 70).

Basing on the findings of the study on the types of content and tasks graduates were involved in, and in agreement with Mjelde's (2008) suggestion, indeed there were elements of vocational didactics being put into consideration in vocational institutions in Uganda, although a few still give priority to theory over practice. As Wang (2007, p. 16 cited in Kyakurwa, 2010)<sup>23</sup> observed, examination-oriented features tend to reduce what should mainly be learning of practical skills, to memorization of facts. This was also a point of concern in what Lave and Wenger (1991, p. 109) termed as 'talking about' the practice rather than 'talking within' the practice.

The fact that students singled out the course units where practicals would be done indicated that there are some course units which students think would be more practically done. This implied that they did not get exposed to the practical interventions where they would get the demonstration skills of crop agronomic practices already highlighted in this report. According to Crowder (1996), preparing students to carry out the extension process requires not only technical agriculture instruction but also course units related to the communication and education dimensions of the extension process. Furthermore, it requires experiential learning that provides students with opportunities to relate to rural people in an interactive process that combines scientific technical knowledge with local indigenous knowledge in client-centered problem-solving activities. There was need to improve on the demonstration of tasks to the learners by instructors in the three institutions. The demonstration strategy is pedagogical to an extent because it involves the teacher showing learners how to do something. It is a way of teaching good practices. This technique

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<sup>23</sup> Kyahurwa, P (2010). *Vocational Training and the Labour market needs; a case study of clothing and textiles training in Kyambogo university unpublished.*

allows the teacher to show the results that can be obtained from experimenting with objects, plants and other materials (Abdullahi, cited in Adekoya, et al., 2011).

However, from my observation, there was a tendency of teaching theory before practice. This probably was due to the scarcity of instructional materials probably coupled with the instructors' approaches of theory before practice, as opposed to Mjelde's (2006) point of departure "from practice to theory and back again" The graduates in most training institutions are usually taught about the subject matter and not given the skills required by an individual to work competently in the work place. This form of training within the agricultural sector has been and is still being criticized because it is portrayed as narrow and obsolete. This has resulted into a mismatch between the services delivered by the extension workers and the expectations of the stake holders Okello, (2009, pp 27-28).

The nature of the Ugandan education system is generally theoretical to an extent that even the courses that should be practical are taught theoretically Okello (2009, p. 26). He attributed the situation to lack of technology; lack of practice among teachers of vocational education and poor attitudes to work among the highly educated people in the country hence the type of education given to the students is irrelevant in some instances to the job market requirements. It would be better for agricultural extension related course units to be practically taught so that the students could acquire the desired technical, interpersonal and communication skills required for the extension service delivery to ensure increased crop production, food security and improved livelihood.

VET as a field of knowledge oriented towards trades, occupations and professions. It should therefore be focused towards 'learning by doing' at all levels of training (Mjelde 2006, p. 21).

Vocational education places fundamental emphasis on learning through activity and collaboration (ibid, p: 23). Learning through practice by trying and failing and through action was supported by Applebaum (1992 cited in Mjelde, 2006, p :23). In this respect, therefore, the Education Review Commission recommends curricula at all levels of VET should be oriented towards the acquisition of employable skills, as the Uganda's report of the (MoES, 1992, p.116).

This form of learning in crop production course units could bring about constructive service delivery skills acquisition among extension trainees. In addition, the students could get a chance of transforming the acquired crop agronomic production knowledge into practice. Consequently, they would acquire the required crop agronomic production techniques/ skills for service delivery which they could demonstrate to the farmers for increased crop production, hence food security and improved livelihood.

The agricultural extension trainees need a lot of practical interventions in order to acquire the desired delivery skills needed by the farmers. This would be achieved through observation, practice of the activity, reaching a point of error, getting feedback on his/her task and effective performance of that task, and by repeating the activity until it is perfected (CMOD, 2010, pp. 4-6). Different demands of the farmers need corresponding practical interventions. This can only be derived from content that can fully equip the trainees with agricultural technical, interpersonal and communication relevant skills for service delivery. Relevant agricultural knowledge can only be useful if technical, interpersonal and communication skills are used to transform it practically. The training of well-defined skills to apply this knowledge in an appropriate and productive way seems to be insufficient to start as a professional worker (Kirschner et al.; 1997 cited in Westera, 2001, p. 2). Therefore, the students face challenges of providing technical, interpersonal and communication skills during service delivery.

There is a public outcry, that the current graduates of agriculture are not equipped with the necessary practice skills to guide the farmers. Institutions that teach agriculture presently produce graduates without enough practical skills for considering farming as a business<sup>24</sup>. Lack of practice is an aspect that would create less skills and therefore, unemployable graduates as was a concern of Sergeant 2010 cited in Kyahurwa, (2010, p. 60)<sup>25</sup>.

The skills that were identified from the study that could be acquired during training included: technical demonstration skills, interpersonal and communication skills for agricultural extension service delivery. Agrii which is committed to on-going Research and Development operates the most integrated, innovative and comprehensive trials network in the UK. It aims at ensuring all crops and regions are fairly represented. The 28 demonstration farms for Agrii offer farmers the opportunity to experience the very latest R&D and allow them join up agri-science with practical agronomy. The unique approach to help farmers stay up to date with arable technology and agronomy led solutions to constantly improve yields, grow profitable crops and respond to ‘The Food Challenge’ (Base, 2012)<sup>26</sup>.

Sustainable supply of vegetable material and alleviation of food shortages in the provinces of Mozambique provided practical capacity building activities through farmer field schools, to empower the beneficiary farmers with adequate agronomic practices. This included participatory technology development with the establishment of on-farm training and demonstration units, organization of field days and field exchange visits (GCP/RLA/160/BRA, 2011). It requires the use

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<sup>24</sup> These statements were got from one of the training program documents got from one of the agricultural training institutions that had tried to review its curricula.

<sup>25</sup> A Masters thesis for Kyahurwa, P (2010). *Vocational training and labor market needs; a case study of clothing and textile training in Kyambogo University* unpublished.

<sup>26</sup> www..agrii.co.uk/agri-intelligence retrieved on 5<sup>th</sup> December 2012 Dan Basse of AgResource On Global Supply And Demand Forecasts.

of the above mentioned strategies to ensure that the extension trainees acquire the required skills for service delivery during their course of training.

The course units that support technical demonstration skills, interpersonal and communication skills acquisition should be integrated in the curricular and intensified by allocating them more contact hours as urged by Nilsson (2011)<sup>27</sup>. From the interviews held with the farmers, they had always appreciated the extension workers who could demonstrate agricultural technologies to them so that they also utilize the same to boost their production levels to cater for food security and increased income levels consequently leading to good livelihood. Fortunately, the lecturers/instructors in the three selected agricultural training institutions were aware that the learners had to acquire the technological skills.

#### **4.1.3 How the content of the crop production curricula supports service delivery attitude acquisition.**

Students mentioned that they had lost interest in the training due to lack of practical activities where they would practice what they learn from lectures. They further expressed concern about the poor supervision made by the instructors during their course of learning. The trainers too expressed concern about the students who showed less interest in the training program. They highlighted that students dodged classes and didn't do their assignments in time. In addition students dodged the morning practical about crop agronomy that is indicated on the time table. The analysis of the program document indicated that the most relevant content for service delivery attitude development was not emphasized. Less practical hours were allocated for such course units which

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<sup>27</sup> Lecture presentation to MVP second cohort students by Dr. Prof.Lennart Nilsson about the five 'Ts'.

would play a big role in supporting acquisition of positive attitudes towards agricultural service delivery.

The content of the crop production curriculum offered in the selected institutions indicated that development of the required service delivery attitudes is not well supported. The practical interventions play a big role in arousing positive attitudes towards work. They help students to consolidate their attitudes and values, and spirit of collaborative work as well creativity in performing their own investigations making the process of teaching and learning become more meaningful Eugenia (2007, p. 197)

Much as trainers expressed concern about the students who showed less interest in the training program, this scenario could be attributed to the general perception about agriculture as a subject which is traced from the colonial rule to date. Agriculture education has had a low perception of being reserved for academic failures. Even parents look at other types of education as an escape from manual work such as agriculture, degrading agricultural education more (Ssekamwa 1997). Apart from that, the main contributing factor was the less emphasis placed on the practice that could arouse the students for positive agricultural service delivery attitudes acquisition.

However, other factors contributed to the student's negative attitudes towards agricultural training. These included lack of close supervision of the students during the training process. As students interact with the trainers, they get more interested in the training program. They develop positive attitudes by working closely with experts, who give them a sense of direction in their activities. Consequently, the learners are most likely to achieve their learning objectives. Strong attitudes have more impact on behavior, are less susceptible to self-perception effects, and are more stable over time. Attitude is a complex mental process which is relatively stable and, once adopted, can provide a long-term positive effect (Holland et al., 2002, cited in Meena, 2012).

One of the major learning outcomes is positive attitudes towards work. There is need to instill positive extension service delivery attitudes in the extension workers. Agricultural extension delivery should be done by extension workers who can cooperate with their supervisors and the farmers themselves. Positive delivery attitudes can only be provided by relevant content in the curricula that caters for shaping the extension workers. It would therefore be important to allocate more practical contact hours for these course units other than concentrating on theoretical teaching for the sake of doing examinations at the end of the semester. A heavy reliance of most sub-Saharan African education systems is on “pen-and- paper exams” Bloom et al., (2006, p. 102).

On the other hand, there is need to intensify supervision of the learners during the course of learning. Supervision is a domain of professional practice conducted by many psychologists but for which formal training and standards have been largely neglected. Supervision is proposed as a core competency area for which a number of elements reflecting specific knowledge, skills, and values must be addressed to ensure adequate training and professional development of the trainee (Faleder et al., 2004). In addition, more course units that can cater for delivery attitude development should be introduced in the curricula.

In order to optimize progression of learning and work, which are the main purpose of developing knowledge and use of knowledge in the field of vocational didactics, there is need to group the content of crop production into three groups. These include: the detailed knowledge; the relational knowledge; the overview knowledge (Nilsson 2011, p.2)<sup>28</sup>. The combination of these groups of knowledge will help in the acquisition of the required knowledge, skills and service delivery attitudes development for extension service delivery by the students. There is need to include the

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<sup>28</sup> This was got from the pages of a manuscript; *Vocational Didactics, chapter 3* (Nilsson, L. 2008) which were presented during a lecture presentation by Lennart Nilsson to MVP students at Kyambogo University about knowledge about knowledge

most relevant course units to the curricula content of crop production so that the mostly required service delivery competences are acquired by the students. Furthermore, the practical aspects could be allocated more time to ensure that the competences required are acquired.

#### **4.2 How methods of teaching and learning used in the Crop Production Department enhanced extension service delivery competence acquisition**

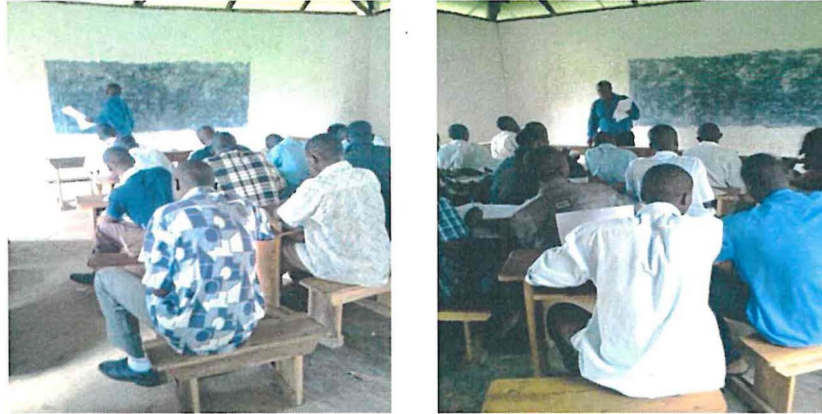
The methods of teaching and learning were lectures, team teaching, research, group discussions, on-farm demonstrations, project work, outreach programs, industrial training (IT), study tours, information and communication technology (ICT), exhibitions, and laboratory experiments. These methods were analyzed according to the acquisition of the required crop production knowledge, skills and attitudes for agricultural service delivery. It is important to note that these methods were not mutually exclusive as some could be used to achieve more than one competence.

##### **4.2.1 Knowledge acquisition for crop production for agricultural service delivery.**

The students and lecturers disclosed that the most teaching and learning methods used to provide crop production knowledge included the lecture method,

The lecturers disclosed that they commonly used the lecture method of teaching. They attributed this to the bulk of the crop production content required to be covered within a specific period of time. The students and agricultural extension workers in the field also revealed that theoretical teaching through lectures with a few practical sessions were experienced during their course of study. They disclosed that no mentoring sessions during instruction and less intense workshop activities were experienced. They further revealed that dictation of notes was mostly done during

lectures. Through observation during the study, the lecturer dictated notes about crop pest management practices to the students from a pamphlet (Plate 1).



**Plate1: Students attending a lecture at one of the Institutes**

During the lecture, it was also observed that the students had spelling challenges. This led the lecturer to write some of the words on the chalk board upon requests by students. Further more, some students raised questions during the lecture. While the lecturer responded to these questions, the students who were sited at the back of the class were seen updating their notes (Plate 1b).

Through guided interviews with students and extension workers, it was pointed out that sometimes lecturers sent abstract, voluminous and difficult handouts to crop production classes which were sometimes discussed or not. The students disclosed that such a situation left them without further guidance during their course of learning. Furthermore, students disclosed that some of the hand written notes availed to them were not legible and had been recycled for several years. They expressed concern about possibilities of getting some out dated information.

*Madame, there is 'recycling' style of handouts where lecturers use the same handouts every year without updating them yet the world is dynamic<sup>29</sup>,*

The likely attribute for the pre-disposing statement could be that the lecturers were charged with accomplishing the content of crop production in time in preparation for examinations. As a result, the students missed out some points during the lecture which consequently affected acquisition of the required competences for extension service delivery. Several research studies urge that lecturing enhances acquisition of basic knowledge about the content also known as the cognitive domain which provides intellectual capability (Anderson, 2001). The method is less effective for higher cognitive levels and practical skills, than demonstrations and laboratory work. The students could only recall what is being taught to them and later use the acquired knowledge especially at the time of examinations when they are required to reproduce the same information on paper. This implied that the students were unable to acquire the required skills needed for service delivery. Furthermore, lecturing is less effective than discussions for changing attitudes towards agricultural extension service delivery. The students remain passive during lectures and as such their interest is not aroused compared to the more involving methods which are practically done. It is important that the students understand what is being taught so that they can finally utilize the acquired knowledge for extension services.

On the other hand the lecture method had disadvantages in that there was minimum participation by the class and students became bored. The fact that some students updated their notes while the lecturer was responding to some questions raised by other students indicated that some students missed out some important points that could be required for crop production. In addition, the uniformity of notes was questionable. With such scenarios, consequently the lecture failed to create

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<sup>29</sup>One of the students complained about the hand outs that are used every academic year without being updated.

interest, influence, stimulate, or mould opinion to promote activity, impart information or to develop critical thinking as already highlighted by Olaitan et al., (1981, p 201). As a result, the extension workers faced challenges as they delivered extension services as already submitted in this report.

The fact that there was no close cooperation in the learning process between the students and their instructors/lecturers could be attributed to the nature of the lecture which is a teacher-centered method. It was important that the students worked together, and consulted one another while the teacher went around the classroom advising and instructing each group. Co-operation with the teacher and with other students is fundamental to the learning process Dyrdal (1995 cited in Mjeide 2006, p. 80). Where there is no cooperation between lecturers and students, learning does not meaningfully take place. This implies that the desired knowledge, skills and service delivery attitudes for crop production were not fully enhanced.

On the other hand, the issue of using handouts had an effect on the acquisition of the required knowledge as indicated by the students. The hand outs needed to provide knowledge which students could assimilate and relate to the learning objectives. They ended up cramming and releasing the same information at the time of examinations as expressed by Egau, (2002). This implied that the students could not gain the ability of assimilating the acquired crop production knowledge required to create a change in the farming practices of the communities. Consequently they would face challenges in the field due to lack of the required competences for adequate extension service delivery.

The three components of vocation didactics are emphasized with an aim of equipping the trainees with knowledge, skills and attitudes that can be used to enrich their specified trade which in this case is agricultural extension (Nilsson, 1998 cited in Mjelde, 2006, p. 53). The lecturer method

needs to be integrated with other methods in order to enhance acquisition of the required competences for service delivery.

Through guided interviews, one lecturer from one of the selected institutions identified team teaching as one of the methods of teaching crop production and management. She indicated that a number of lecturers from the crop department made arrangement for team teaching in a particular class about a given topic. These presented in turns and at the end of the teaching session, students were always given an opportunity to interact with their lecturers, gave their opinions, asked questions and asked for clarifications accordingly<sup>30</sup>. However, the students mentioned that this method is rarely used by the lecturers although they liked it.

One of the lecturers mentioned the use of this method indicated that it was valued as an effective method that enhanced crop production knowledge acquisition. Team teaching needed to be given consideration so that the desired objectives of enhancing the required competences for service delivery are acquired. As students interact with a number of subject matter specialists a lot of confidence is built between the students and their lecturers (Goetz, 2000). In this arrangement, students could get knowledge from various lecturers. Through close interaction with the lecturers, the students could acquire a lot of crop production knowledge, skills in communication and self-expression, and even develop positive attitudes towards agricultural service delivery.

According to Buckley (2012), the team-teaching approach allows for more interaction between teachers and students. Faculty evaluates students on their achievement of the learning goals; students evaluate faculty members on their teaching proficiency. Emphasis is on student and faculty growth, balancing initiative and shared responsibility, specialization and broadening

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<sup>30</sup> <http://www.google.co.ug/search?q=in%20team%20teaching>.

horizons, the clear and interesting presentation of content and student development, democratic participation and common expectations, and cognitive, affective, and behavioral outcomes. Studies have it that the combination of analysis, synthesis, critical thinking, and practical applications can be done at all levels of education, including the crop production training (Buckley, 2012).

Therefore, team teaching should be intensified in the course of teaching and learning in the agricultural training institutions so that the students acquire the required extension service delivery competences.

Using in-depth interviews, students and the lecturers identified research as one of the teaching and learning method that could enhance acquisition of the required knowledge for crop production service delivery. Students revealed that they were given chance to select their topics of research and assigned supervisors. However, they mentioned some challenges such as; difficulties in getting reliable literature about their research and poor supervision of the research process. Both the students and their lecturers revealed that most of the books in the libraries of their respective institutions were very old.

Vocational pedagogy intends to promote action oriented and interactive research for positive change. It aims at imparting skills that help learners create valid social knowledge where one goes from the process of anticipating a phenomenon to knowing through a research process (Mjelde 2006 p.184). As one searches for information about a given phenomenon, a lot of competences are acquired. Research can be used to test the validity of existing research findings, theories and to develop new theories. Research in education contributes to knowledge in four ways that is; *descriptive, prediction, improvement, explanation.* (Amin 2005)

Basing on the fact that libraries had old text books, indicated that the trainees missed some important knowledge about crop production. Considering the trend of development, out dated books can not avail the required information. This consequently affected acquisition of the required knowledge of crop production. Experience shows that there were a lot of challenges that had cropped up in the agricultural sector. These included infestation of crop pests and diseases, degradation of soils, adverse weather conditions, and environmental destruction. On the other hand, there have been a lot of developments from the agricultural research units that needed to be disseminated to the farmers. These included innovations such as new varieties of crops and their agronomic practices. Failure to get the right sources of information indicated that the students could fail to acquire the required crop production knowledge which could be transformed into the required demonstration skills and enhance acquisition of attitudes for agricultural extension service delivery. Consequently, these extension workers would not be able to deliver adequate knowledge, skills and attitudes for crop production service delivery as highlighted by those already serving in the field.

In regards to poor supervision of the research process, this situation could be attributed to various scenarios. The first one was derived from the submissions of the students that they selected their topics for research. At this stage of learning, it was difficult to tell whether these students were able to choose topics that were related to the required knowledge for service delivery. This could be one of the reasons why supervisors failed to supervise the students. If they had got involved in the selection of the topics that could provide knowledge required for crop production, they would be motivated to actively supervise the students. Motivation is the process that arouses, energizes, directs, and sustains behavior and performance. That is, it is the process of stimulating people to action and to achieve a desired task (Luthans, 1998).

Lack of supervision led to negative results from research. This clearly indicated that even if the topics of these students could provide knowledge, possibilities were that the students missed the relevant findings in their research. This was evidenced by the students who revealed that failure of the supervisors to do their task, led them to ask for assistance from their fellow students who were also in the same state. Other students revealed that they took the research work to 'experts' paid for the services and got their research done. In such a dilemma, students missed acquiring the required crop production knowledge for adequate service delivery as reflected by the farmers who complained about lack of the right service delivery knowledge by the extension workers.

It would be necessary for the students and their lecturers to work together right from the selection of the research topics, and through the entire process of research. This would enable the students to receive proper supervision for their research and acquire the required extension service delivery crop production knowledge. There is need for the institutions to provide text books and other reading materials that have latest crop production information that students require to extend meaningful extension services to the farming communities.

During the interviews, students and lecturers identified Information and Communication Technology (ICT) as one of the methods of teaching used to provide crop production knowledge. However, both students and lecturers highlighted that computers were few and their use was highly restricted. On the hand, internet services were not reliable and in some instances, it was totally lacking. The use of ICT could play a big role to both the students and the lecturers.

Failure to use the computers indicated that students could miss out vital crop production technological knowledge that had been highlighted earlier in this report. This implied that they were curtailed in acquiring the required knowledge, skills and attitudes for agricultural service

delivery. Apart from getting crop production related information for their research, they could also access vital knowledge about crop production technologies that can be useful in extension service delivery. Need based information with regard to improved agricultural practices, better employment opportunities etc., can only be made accessible through Information and Communication Technologies (ICTs) (Meena, 2012). Furthermore, as students interact with the computers, they gain a lot of skills and develop attitudes that are required for extension service delivery.

E-learning refers to communication and learning activities through computers and networks. In agriculture related fields, e-learning is still in the early phase of adoption and implementation (Tsai and Machado, 2002 cited in Ahmadpour et al.; (2012, p. 35). E-learning as a modern mode of training can be used to improve the effectiveness and efficiency of training in extension services. The dynamic nature of agriculture requires corresponding interventions if the levels of production are to be improved upon. Sourcing for the required crop production knowledge from the internet would be vital in giving a back up to what knowledge the students had acquired from class. There was need to procure enough computers and ensure the stability of the internet services. As a result, the students would be able to acquire the required crop production knowledge, skills in using computers and acquire skills that relate to crop production that are demonstrated on line. Furthermore, the students will be able to develop service delivery attitudes as they get exposed to the new knowledge and skills from internet. Consequently they would not face challenges as they go out to render agricultural service deliver

Findings revealed that group discussions were used as a teaching and learning method for crop production. However students and lecturers revealed that most of them were unguided. Students preferred the guided ones because, they interacted with their lecturers, gave their opinions; asked questions for clarity and they got the required guidance.

As already indicated in the literature review section 2.2.7, discussion is one of the most effective techniques for stimulating the learning process. It involves group interaction in which an individual expresses herself and listens to the opinions of the others, thus forming the best ideas and judgments. This method has advantages which include: involves group interaction; makes people think aloud together, ideas tend to become more meaningful because they are talked over; helps to correct mistakes; they are superior in contributing to the application of the material learned and in building attitudes that are important in shaping behavior patterns; helps in social development of the participants and teaches them to listen to others' views about a problem; discussed topics are not easily forgotten. On the other hand, discussions if not carefully planned and without a good leader will not be successful. In large discussion groups, students may not participate effectively and not all topics can be discussed effectively (Olaitan et al., 1981, p. 190).

Use of group discussions as a teaching and learning method is vital mainly because; learning is most effective when individuals participate actively, instruction is geared to the level of understanding of the group, practical experiences of individuals are utilized, and students are more inclined to gain competences of doing something about a solution that they have helped to formulate (Alemayehu, 2006 cited in Vandenoach 2006, p. 77). While unguided or minimally-guided learning approaches are very popular and intuitively appealing, evidence from empirical studies over the past half century consistently indicates that they are less effective and less efficient

than learning approaches that place a strong effort on guidance of the student learning process (Kirschner et al., 2004).

Discussion is one of the ways of acquiring knowledge for crop production, interpersonal and communication skills as they interact with each other extension service delivery and develop attitudes towards agricultural service delivery as they actively participate in the discussions. From what has been observed earlier in research, students need supervision and guidance. In cases where they are left alone for the discussion, they are likely to miss some important competences such as crop production knowledge acquisition for service delivery, skills for demonstrating crop production technologies, lack of self-expression and development of positive attitude towards agricultural extension service delivery.

#### **4.2.2 Skills Acquisition for Agricultural Service Delivery**

Findings of the study revealed that the methods of teaching and learning that enhanced acquisition of some skills for agricultural service delivery included: on-farm demonstrations, project work, outreach programs, industrial programs, study tours, information and communication technology, exhibitions and laboratory experiments.

##### **On-farm demonstrations**

According to the interviews held with the students, on-farm demonstrations were confirmed to be one of the teaching and learning methods that could expose them to the real environment of the expected job of agricultural extension service delivery. However, they revealed that the on-farm demonstrations in their institutions did not enhance acquisition of the required skills for demonstrating crop production technologies needed for service delivery. The students attributed

this to poor administration of the demonstrations by incompetent lecturers/instructors, poor supervision and lack of tools, equipment and materials. Findings revealed that explanations of processes during training had replaced demonstration. This was attributed to practically less-skilled instructors. The students further showed concern about demonstrations that were always being talked of in classes and rarely done in the gardens.

During the guided interviews, student appreciated the guidance given to them by the instructors but point out that some sessions would be much better if their lecturers also devoted time and offered them necessary guidance. This would ease connection of the theory learnt from class and the practice. Through observation, some of the demonstration sites where the demonstration of agronomic practices had been used as a teaching and learning method showed poor results. These were not in good conditions although they had sign posts indicating certain types of crop husbandry technologies (Plate 2).



**Plate 2: Some demonstration plots in one of the selected Institutions**

Findings further revealed that some of the graduate extension workers failed to demonstrate crop production agronomic practices. This was disclosed by district officials, farmers and some of the extension workers themselves. This could be attributed to lack of demonstrational instruction by the respective lecturers/instructors who finally widened the gap between theory and practice.

At one of the selected institutions, students declared that they had learnt how to raise vegetables well due to the lecturer who closely worked with them at all stages. This was evidenced by the students who could explain the whole procedure of raising some of the vegetables right from nursery bed to the field.



**Plate 3 students from one of the selected Agricultural Colleges explaining how they could raise some vegetables from the nursery bed**

From plate 3 and from the interviews held with the students, it was observed that the students had acquired knowledge about vegetable growing, the actual skills of raising vegetables and had developed good attributes and attitudes towards crop production. Apart from that, I realized that there was interpersonal relationship held between the students and their lecturer and amongst

themselves as they worked on the demonstrations. Furthermore, students had acquired communication skills as they could competently explain the different procedures of raising vegetables. However, a demonstration garden of bananas intercropped with a few coffee trees was observed in Plate 4.



**Plate 4: A banana demonstration garden at one of the training Institutes**

In this demonstration garden, there were few and scattered coffee trees. There was a rubbish pit full of plastic materials which had stretched to the garden. The lecturers and students highlighted that tools, equipment and materials were not enough for the practicals. When contacted for more information, the principals disclosed that the little funds available could not enhance procurement of the inputs. This implied that the students were not able to interact with the actual tools, equipment, and materials found in the field. This was further affirmed by the district agricultural officer who mentioned:

*Some of the extension workers lack skills of using some equipment like spraying pumps.*

*Some farmers are even better.<sup>31</sup>*

The above findings mean that on-farm demonstrations were recognized by the institutions as a vital method of teaching extension workers although there were some loopholes in its implementation.

The method has advantages which include: creating a high degree of attention, concentration, and interest which can further be exploited by other techniques and further study; helps the person demonstrating to develop poise and the ability to talk and act at the same time and also to understand the importance of organization and timing (Hatcher, et al, 1973, p. 156).

A good demonstration involves the presentation of procedures and processes to be learned, provides concise information and is a means of exemplifying high standards for the process being presented (Hatcher & Halchin 1973, p. 156). If the demonstration does not enhance the real crop production knowledge, skills and service delivery attitudes development, the students leave the training without the required skills for service delivery. When learners are provided with chance to learn through the various senses, they develop their work of the mind, heart and hands as supported by (Mjelde 1993).

The essence of demonstrations is to link the crop production knowledge got from the lectures to demonstration skills of the crop production technologies that are needed for extension service delivery. If they are properly set, demonstrations help learners to acquire knowledge, skills and develop attitudes that they can use to imitate and manipulate their activities. With these skills, they develop precision, combine and integrate related issues. Through continued practice, students become experts in executing agricultural extension service delivery Lave and Wenger (2007). The

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<sup>31</sup> The district agricultural officer response when asked about the competence exhibited by the extension workers about the use of agricultural implements and tools.

most important issue is the guidance and monitoring system that would need to be adhered to in the course of planning and implementation of the demonstrations. This lacks at certain stages which makes the program quite deficient.

While demonstrations as an approach of teaching can supplement content and translate descriptive materials into actual practice, demonstrating a skill is also required to enable a learner to fully comprehend, as well as to apply the new knowledge, competencies, skills and concepts (Galbraith, 2004). However, Galbraith (2004 pg 362,) highlighted that demonstration as a method requires accurate portrayal of a procedure, technique, or operation as. Therefore, special skills and abilities are required to perform it effectively. Lecturers/Instructors should be highly skilled in the material or process to be demonstrated.

The demonstration method if used in crop production has advantages which include: creating a high degree of attention, concentration, and interest which can further be exploited by other techniques and further study; helps the person demonstrating to develop poise and the ability to talk and act at the same time and also to understand the importance of organization and timing (Hatcher & Halchin 1973, p. 156).

It is not enough to acquire relevant knowledge for agricultural service delivery by the extension workers but also transform the knowledge into useful practices that are desired by the farmers. Knowledge only becomes useful if used to solve problems. To achieve this goal, the crop production curricula must focus on outcomes in terms of the skills, knowledge and attitudes required by the farmers. That is, crop production training provision should be responsive to the demands of industry (Dasmani, 2011, p. 70).

The demonstrations that were not well organized (see Plates 2, 3 and 4) did not give the real crop agronomic practices that were needed in the farming communities. It would be useful for the lecturer to demonstrate to the students the proper crop husbandry practices which they are required to disseminate to the farming communities. Demonstrations that had sign posts that were not showing the real technologies intended to be learnt indicated that the instructors had not paid attention to them. An example is the intercrop of bananas and coffee that was observed during the study. This did not portray the actual spacing that was recommended. In addition, plastic material which does not allow percolation of water was seen in the garden. All this indicated that students were not exposed to the real technologies that are required to be demonstrated to the farmers. Consequently, since demonstrations reduce the gap between theory and practice, (Galbraith, 1987, cited in Galbraith, 2004, p. 365).

Closely related to the demonstration method of content delivery is the mentorship approach. Like in demonstration, mentoring reduces an instructor from his or her mighty status of being the author to being a fellow learner with his or her learners. Mentorship aspects were totally missing in the instruction at the selected institutions. This revealed the gap that was left between the instructor and learner which stretched into the work relationship between the extension workers and their employers as well as between the extension workers and their clients.

It is important to note that holistic learning takes place when the learner is able to transform the acquired knowledge into practice Nilsson (2011)<sup>32</sup>. By working closely with their lecturers and instructors who are experts in demonstrating new innovations of crop production, students could acquire the required knowledge, skills and attitudes towards agricultural service delivery. However findings revealed that lecturers rarely attended to them. Therefore, the students could not acquire

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<sup>32</sup> This was a lecture presentation to the second cohort MVP students at Kyambogo University.

the required crop production skills without proper guidance. Consequently they would face challenges in the field as already indicated by the district officials and the farmers.

From my experience as an MVP student, we were mentored throughout our course activities including research processes. Many of us that had been earlier on discouraged and thought that were in a wrong field, got encouraged to believe in ourselves and continued with the course. Our self-esteem was also positively affected. If such approaches would be promoted in the agricultural training institutions, it would reduce drop-outs; failure in examinations and dependency, and it would encourage self-reliance and therefore job creation.

The learners get full meaning of the learning process through interacting with tools which are needed to accomplish the required task. Puyate (2004, p. 69) observed that, no effective vocational training can take place without the adequate provision of tools, equipment and materials. For skills training to be implemented effectively, enough training facilities have to be provided.

Students would acquire knowledge, skills and develop attitudes as they interact with the tools, equipment and materials through demonstrations. However this was lacking and resulted in challenges during service delivery which was evidenced by some of the extension workers who revealed that they lacked skills of demonstrating technologies to the farmers. Lack of tools, equipment and materials makes the teaching of practical related lessons not affordable. Therefore teaching is theoretically done. At the end of it all, the products of the practical education system which indeed did not practice the practical aspect of that education system may not be able to meet the requirements for the labour market. Lack of equipment and good infrastructure in the TVET institutions has contributed in influencing attitude towards TVET education system negatively Okello (2009, p. 29).

The demonstrations are representative of the real situations that are expected to be met in the field by the extension workers. Demonstrations done by the lecturers about new or innovative practices carried out on actual farms to the students have long been a key hallmark of program delivery and teaching in extension work (Richardson, 2003). Properly administrated demonstrations would enhance acquisition of the required knowledge, skills for demonstrating the crop production technologies needed for extension service delivery. Similarly, service delivery attitudes for the extension trainees would be developed as students watch, hear, practice and see the results of the technology that their lecturer demonstrates to them. Basing on the pre disposing statements, it is clear that the demonstration method if properly planned and implemented can enhance acquisition of the required knowledge, skills and attitudes for agricultural service delivery.

### **Project work**

During the interviews, project work was identified by students of Bukalasa Agricultural College. They appreciated this method because it gave them chance to practically exercise their knowledge. However, they expressed dissatisfaction about the way their projects are monitored by their lecturers.

*Rarely do our lecturers monitor what we are doing in our projects<sup>33</sup>*

The fact that students appreciated project work as one of the good methods of teaching and learning indicates that it could enhance acquisition of the required crop production competences. However, the above findings showed a gap between what would be done and the actual implementation of the projects. The project method is one where students are left to select, plan

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<sup>33</sup> A response by Joseph a student from Bukalasa Agricultural College

and implement some piece of work on their own during the course of training (Froyland, Bergli & Larsen, 1997, p.45).

Project work always necessitates integration of theory and practice and multi-disciplinary approaches. 'The guide' pays particular attention to the students own attention. Project work is one of the several different integrative forms of learning (Froyland, Bergli & Larsen, 1997, p.45). The work is supposed to be monitored by the lecturers at every stage so that the students get guidance. Without proper monitoring, the students may not acquire crop production knowledge, demonstration skills and service delivery attitudes required for agricultural service delivery. From my own experience, project work motivates the trainees as they select their own work and implement it. It encourages the trainees to be innovative and explorative in the way they do their work. The projects invite cooperation and creative use of all resources (ibid, 1997). . Therefore, this method of teaching and learning needed to be properly implemented so that students acquire the required crop production competences for service delivery.

### **Outreach program**

The study findings showed that outreach programs were carried out as a method of teaching extension workers. The students of the three institutions appreciated that the outreach program was a teaching and learning method that could expose them to the real situation of their future working environment. However, students revealed that most of the lecturers did not go to the field to supervise them. The students disclosed that Lecturers mostly go once at the end of the program for purposes of awarding marks. On the same note, most of the graduates in the field revealed that they never gained much from the outreach program. They attributed this situation to the poor

organization of the program where the lecturers were so reluctant to go to the field with their learners. When asked:

*The outreach program was just wastage of time because I don't remember learning much from it<sup>34</sup>.*

From what I observed during the study the role of the outreach program was not evident since the farms around the institutions were not cared for. No technologies or good crop husbandry practices could be seen. Even some of the gardens that were owned by some of the training institutions were not well attended to. Below are some of the examples of the farms that were just next to one of the selected agricultural institutions (Plate 5).



**Plate 5: Some of the farms near one of the selected Agricultural Institutions**

During the interviews, the farmers expressed dissatisfaction about the knowledge, skills and attitudes exhibited by the students who had participated in the program.

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<sup>34</sup> The response of Sarah, the extension worker to the question

*They don't know what they are doing and I never received any thing new from them, apart from cutting down all my coffee trees with a pang under disguise that they were teaching me how to prune.*<sup>35</sup>

Some farmers expressed concern about the some students that could not value the advice given to them by the farmers. One of the farmers shared her experience when she was trying to advise the students on some agronomic practices. She disclosed that some of these students showed her a negative attitude.

*Students who come from Kabaale listened to me and were willing to learn the proper pruning of bananas but the ones from the Northern region got annoyed and sat down.*<sup>36</sup>

Much as the outreach program was good method of instruction, the findings indicated some gaps in the implementation of the outreach program. This implied that the students could not achieve the required competences for extension service delivery. The students that are keen learn a lot from the farmers but others who have poor attitudes tend to undermine farmers' advice as already indicated by the findings. It is important to remember that the farmers possess 'indigenous knowledge' from which students would benefit. Indigenous farming traditions and knowledge represent an untapped resource in efforts to protect the world's natural asset base, mitigate climate change and improve livelihood opportunities for smallholder producers (IFAD, 2012). Indigenous women and men possess unique, in-depth and locally rooted knowledge of the natural world that could be integrated with new crop production technologies so as to boost farming (ibid, 2012)

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<sup>35</sup>The response from the farmer who had worked with the students during the outreach program.

<sup>36</sup>A farmer showing concern about the attitude of the students who did not want to learn from her about banana agronomy

With poor implementation of the outreach program, the required crop production knowledge, skills and attitudes could not be acquired. The students needed to be supervised at all stages of learning to ensure that they benefit from the program. Through interaction with farmers and close supervision of their lecturers, students would get exposed to real life examples of the field. It was not enough to send students to the field during the outreach program but also to practically follow them up for continued instruction. Lack of guidance manifested when students failed to demonstrate the right crop production practices to the farmers they worked with. One wonders how students fail to give the right technology of pruning coffee to the farmer and yet they were from a reputable training institution from which farmers expected quality services.

One would expect the impact of these institutions to be reflected by the neighboring farming communities. These would serve as training grounds for the students where they would demonstrate what they had so far learnt from their courses. On the other hand, the use of a pang to demonstrate pruning instead of a bow saw indicated a problem in the training given. This indicated that students go out of the vocational institutions with theories not the practice. This is supported by (Okello, 2009, p. 28) who revealed that students go out of the training institutions without knowing the machines. He further noted that they only see those in the industries for the first time in the field with a marvel in their faces because what we have in the workshops are of the 18<sup>th</sup> century and sometimes those of the 20<sup>th</sup> century. Practicals are done in theory which is a contradiction (ibid, 2009).

The lecturers could give the necessary training to their students during the out reach program which would enhance acquisition of knowledge, demonstration, interpersonal, and communication skills and service delivery attitudes required for service delivery. The teacher could demonstrate use of tools, materials and equipment as students work together on their technical tasks. Learning

occurs in processes where the learner carries out actions together with a more competent person. Students learn by cooperating with teachers and their fellow students through work activities. The hand and mind stand in a dialectical relationship to one another in the learning process Mjelde (2006, pp. 98 – 99). Therefore students would not be left alone as they go for the outreach program if they are to acquire the required crop production knowledge, skills and attitudes for service delivery.

### **Industrial Training (IT)**

The students appreciated IT as one of the best methods that would be emphasized in their course of training. However, they pointed out Limitations of its implementation which included the little time accorded to it, lack of placement and poor supervision. The students, graduates and lecturers indicated that the two month that were allocated to IT was not enough. Using guided interviews, most of the students revealed that they looked for their placement for IT. The lecturers whom were contacted also confirmed it. On the other hand, some students from one of the selected institutions revealed that lecturers tried to look for placements for IT. However, they disclosed that the placement criteria had loopholes where lecturers could select their friends' farms for the students to work. Some of the students disclosed that at times they were allocated placement of purely animal farms rather than those with crops.

*Madame I was sent to a very big animal farm where there were no crops. I ended up working like a herdsman<sup>37</sup>*

Further more, the students and extension workers revealed that the industrial training program was not well supervised by lecturers, district officials and the extension workers at the Sub-county.

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<sup>37</sup> Mukasa a student from one of the agricultural training institutions

Some of the students in these institutions indicated certain incidences when they spent a lot of time at the Sub-county headquarters instead of being taken to the field to interact with the farmers.

*I was given other assignments such as writing minutes for the production sector meeting and attending to visitors of the Sub-county Chief. This was because I used to be around and yet other workers rarely came to the office.<sup>38</sup>*

In relation to the above, most of the lecturers' contacted admitted that the IT program was not well organized. In addition, most of the extension workers indicated that NGOs were offering better IT supervision compared to Government Departments. They attributed this to the good facilitation such as transport that enhances frequent movements to the field compared to the government departments where transport facilities were few. The students revealed that some government facilities were managed by individuals who were not willing to share with others.

The students also revealed that their lecturers were keen on well written reports other than hands-on/practical experiences.

*Madam, so long as you can produce a very good report on IT, you get 80% and above as an examination mark.<sup>39</sup>*

They revealed that marks were awarded at the end of the session basing on the reports presented by the students at the end as indicated above. The findings showed that much as industrial training qualified to be among the good methods of teaching extension workers, there were some loop holes in its implementation. Time is one of the important aspects in vocational educational education and training. As one does a given task for a reasonable period of time, he/she is likely to acquire a lot of

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<sup>38</sup> One of the students from one of the selected institutions who was assigned other duties other than being supervised

<sup>39</sup> A student who revealed that the lecturers just marked reports which they had not monitored.

experience (Nilsson 2011)<sup>40</sup>. In this case, if the students got exposed to the places of work during IT for a long period of time, they would attain a lot of knowledge for crop production and skills for demonstrating crop production technologies. Furthermore, as the students interact with the people, tools, equipment and materials for a longer period, they are likely to develop interpersonal and communication skills and also develop attitudes for service delivery.

The issue of students identification for placement, led to question whether the students were aware of the best places from which they could acquire crop production knowledge, skills and service delivery attitudes required for agricultural extension service delivery. With such scenario, someone could select a particular placement for convenience but not because of the crop production competences that are likely to be acquired. Consequently such students face challenges in extending crop production practices that they are required of. The fact that students were placed in purely animal farms indicated that they provided cheap labor to these farms. Unfortunately, they were limited in acquiring crop production knowledge, demonstration skills and attitudes required for agricultural service delivery.

From my experience as a graduate of one of these training institutions and as an extension worker, students are sent to the district agricultural office for IT. They are then distributed to the different sub counties to be supervised by field agricultural extension workers, and the Sub County Chief. Interestingly, the supervisors also have their personal challenges which deter them from doing meaningful supervision. Some are not exposed to the different competences that are needed to address the farmer's needs and therefore little is done to guide or even teach the internees. Some are always absent from work and even if they are around, they lack organized work plans that can

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<sup>40</sup> A lecture presentation by Dr Prof Lennart Nilsson to cohort two MVP students at Kyambogo University

be followed for the field work. All these, coupled with poor transport facilities, lack of demonstration kits, and job insecurities, make these supervisors incapable of guiding the trainees

Without good supervision, the students are not able to acquire the required knowledge, demonstration skills and the service delivery attitudes required for crop production and management extension services. What remained unclear were the criteria of assessment. Emphasis seemed to be placed on reports rather than the real practical/hands-on experience or performance as already highlighted by the students. The hands-on approach to extension training builds upon the concept that experiences are the building blocks of learning Kolb, (1984, cited in Zinnah et al., 1998). If the students had got exposed to the knowledge from the supervisors, practical use of the tools, equipment and materials, they would be able to acquire the required competences of offering quality crop production knowledge, demonstrate technologies of crop production and develop service delivery attitudes.

Action learning, academic supervision and mentoring are important tools to and reflection. The importance of facilitators is to ensure that students engage in reflective dialogue Brock bank and McGill (1998). From the submissions of various stakeholders, it is clear that the program does not receive the attention it deserves right from the planning stage to implementation. It is therefore crucial that more time is accorded to IT, proper placement done and supervision intensified so that the learners can gain crop production knowledge, agronomic demonstration skills, interpersonal and communication skills and attitudes developed for service delivery. This is supported by Mjleide (2006, p.93) who asserted that the hallmark of workshop learning in the field of vocational pedagogy is the relationship between concrete activities, actions, words and meanings which are integrated and stand together in the learning process.

### **4.2.3 Attitudes for agricultural service delivery.**

Findings revealed that most of the students had lost interest in the program was due to lack of practical interventions during training. They expressed concern about teaching/learning methods used at the three agricultural training institutions that were not administered well. In addition, students expressed concern about poor supervision in some of the teaching and learning methods that were used. These included: research; project work; outreach programs; industrial training; and laboratory experiments. However, during the interviews, the students, lecturers and extension workers indicated that, there were some teaching and learning methods that fairly enhanced acquisition of the required service delivery attitudes. These included study tours and exhibitions.

As earlier mentioned in this report, this implied that the teaching and learning methods that were practically taught would support acquisition of the required service delivery attitudes to the students. For instance, if the lecture method was used with other methods that involved students; it could arouse students' attention. "Learning is concerned with acquiring the required competences for service delivery. Competencies are specific personal qualities that are "causally related to effective and/or superior performance" (Boyatzis, 1982, p. 23). Lectures therefore are incomplete techniques for providing the required knowledge and skills and need to be supplemented with demonstration of skills" Galbraith (2004). This would lead to acquisition of the required service delivery attitudes.

As already mentioned in subsection 4.1.3 of this report, the content of crop production curricula that could support skills development would support acquisition of the required attitudes for service delivery. Similarly if the other methods of teaching and learning were intensified with practice, the students would develop the required attitudes for agricultural service delivery. These

included: team teaching where students are left to ask questions for clarifications from the lecturers that participate in the lesson; guided discussions; well planned and implemented demonstrations.

The discussion of these teaching and learning methods in section 4.2 subsections 4.2.1 and 4.2.3 indicated that the students would not only acquire service delivery attitudes but also acquire knowledge, technical demonstration skills, interpersonal and communication skills that are required for agricultural extension service delivery. The fact that some of the students dodged morning practicals and did not do the assignments in time as the lectures pointed out during the interview, indicated that they had lost interest in the teaching that was not practically supervised. As a result, they could not fully acquire service delivery attitudes or the knowledge, and skills required for effective agricultural extension service delivery. Consequently they will face challenges when offering extension services to the farmers.

The students and the lecturers indicated that study tours served better as the knowledge learnt from class could be observed physically.

*I can't forget what I have seen<sup>41</sup>*

However, they expressed great concern about the few numbers of study tours organized each year. According to the head of crop production and management department of one of the selected institutions, very few study tours were organized due to lack of resources. When contacted during the interview, the principals confirmed that the institutions failed to take students for the study tours due little funds that were disbursed to them. They disclosed failure of the Government to avail the required resources to the agricultural sector which would enable the administration to organize for exposure visits for the students on the good agricultural innovations in different organizations. The students also revealed that whenever they go for study tours, they were not

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<sup>41</sup> Maria, a student from one of the selected agricultural training institutions stressing the importance of study tours

allowed to try out the tools, equipments and materials. They highlighted that hands-on experience would serve them better than just looking at them.

Through these tours, the students could get exposed to good crop husbandry practices and improved technologies. The more students get exposed to the crop production technologies, interact with the tools, equipment and material, the more experienced they become. "Learning by doing" is a basis for experiential learning where knowledge is developed in a process of action and reflection (Mjelde, 2006). Students go out of the vocational institutions with theories not the practice (Okello 2009, p. 28).

The fact that students are not allowed touching or even trying out the different tools, materials, and equipment that are used at the stations they visit, indicates that the overall goal of the study tours is undermined. It is important to remember that the learner needs to use all his senses in vocation education in order to develop the required competences. This is further affirmed by a statement made by (Benjamin Franklin, cited in Jasminka et al., 2006):

*"Tell me and I forget, teach me and I remember, involve me and I learn."*

Additionally, failure to take students for study tours as indicated by the head of department is a great disadvantage to the learners and their lecturers. Currently the world is global and dynamic in nature. There is need to get exposed to various environments or experiences so as to keep up with the technological advancements that currently characterize the field of agriculture. Exposure to and interaction with the farm tools, equipment and materials would enable the students to acquire knowledge about them, the skills of using them and as a result they will be able to demonstrate the same technology to the farmers in the field. As they learn how to demonstrate, their attitudes towards agricultural service delivery would be developed. Lack of equipment and good

infrastructure in the TVET institutions has negatively contributed to influencing attitudes towards TVET education system (Okello 2009, p. 29).

If properly planned and implemented, study tours can enhance acquisition of knowledge, skills to demonstrate crop production technologies, interpersonal and communication skills and development of service delivery attitudes through real life experiences. These are achieved as students come face to face with the world of work such as; research stations; crop processing plants; agro based industries; input dealers such as reputable farm supply shops among others. The method of exhibitions was earmarked by Makerere University Students who revealed that they had what they called “Kabanyoro Day”. They disclosed that this day was always staged at MUARIK<sup>42</sup> where students showed case the technologies they had acquired during their course of training. The students revealed that farmers and other stakeholders were always invited to see and learn from them. ).

A lot of competencies could be derived from exhibitions ranging from communication skills, interpersonal relationships, development of ideas through sharing, and improved innovativeness throughout the exhibition exercise. Furthermore, they master the crop production technologies through continued practice and acquire attitudes required for service delivery. Research suggests that contingencies operating in and around exhibitions can affect their potential educational impact as a part of the natural exploration. Exhibitions can work if planners do more than provide logically organized exhibition content Screven (1993). However, such an innovative method of teaching and learning was only evident in Makerere University. Other agricultural extension training institutions would also take on exhibitions so that students tap some knowledge, acquire more skills and develop delivery attitudes as they interact with other people.

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<sup>42</sup> Makerere University Agricultural Research Institute Kabanyoro

As regards the assessment of learners in the selected Agricultural Training Institutions, the students, extension workers and the lecturers revealed that sixty percent was based on the theoretical examinations done at the end of every semester. On the other hand, they disclosed that the forty percent included: course work such as project work, outreach program; tests and demonstration plots. This implied that the knowledge, skills and attitudes about crop production that were highlighted as having been supported by the content as indicated in section 4.1 sub sections; 4.1.1, 4.1.2 and 4.1.3 which were enhanced by the teaching and learning methods as indicated in section 4.2 subsections; 4.2.1, 4.2.2 and 4.2.3 of this report were assessed following the criteria mentioned above. Consequently, the learners were assessed more about how they could theoretically retrieve what they had achieved from the courses on paper other than assessing whether they could also utilize it practically. This supported by Cone and Foster (1991) who suggested that there is little doubt among education practitioners about the special value of assessment as a basic condition for affection. They earmarked the major problems of assessment of learners have been in the approaches or methods. The trend to use competency-based approaches in education and training, assessment, and development of workers has experienced a more recent emergence (Ennis 2008, p. 4).

Generally, it is vital to revise the teaching and learning methods so that they can enhance service delivery competence acquisition. This could be done by; integrating the teaching and learning methods so that they support each other to cater for the gaps in each of them. Furthermore, the necessary teaching and learning, tools, equipment and materials should be availed to enhance service delivery crop production service delivery competence acquisition. Similarly, the expertise of the lecturers and instructors need to be boosted with pedagogical aspects so that they carry out

meaningful teaching. Finally, assessment should be based on the crop production competences for service delivery achieved.

### **4.3 Relevance of the agricultural extension training to the service delivery competence requirements**

The study sought for the opinions of the respondents about the relevance of the agricultural extension training to the extension service delivery competence requirements.

#### **4.3.1 Knowledge acquisition**

The students and lecturers highlighted that the training of crop production did not fully provide relevant knowledge for extension service delivery. Through guided interviews, the extension workers disclosed that the agricultural extension training they had got from their respective training institutions was not very relevant to the crop production knowledge, requirements for service delivery. Using the open ended questions during the interviews, the district officials disclosed that the agricultural training was not relevant to the knowledge competences required for service delivery. During the in-depth interviews, farmers disclosed that the training given to the extension workers was not relevant to the competence requirements for service delivery

The opinions of different categories of respondents about the relevance of the agricultural extension training to the delivery competence requirements indicated a gap. This implied that the training needed to be improved upon to ensure its relevance. Knowledge concerns the presentation of facts, procedures, principals and theories in a certain domain. Also the information from observations, beliefs and experiences in everyday life is referred to as knowledge (Kirschner et al., cited in Westera, 2001). The students and the lecturers might have been exposed to what

knowledge was required for crop production extension delivery and yet it was not included in the curricula. Considering their views reflected in section 4.1 sub section 4.1.1 of this report, both the lecturers and students expressed concern about the content of crop production that was not fully supporting acquisition of the required knowledge for service delivery. To be an effective trainer, manager and developer, the (Extension agents) need learning experiences that will provide the critical skills and knowledge for these roles Irby, cited in Boyd (2004). Another reason for their submissions is attributed to the fact that at one point during industrial training programs and the outreach program they could have realized that farmers needed some knowledge which was not provided for in the program.

Furthermore, the opinions of both the lecturers and the students about the relevance of the training to the competences required for service delivery were confirmed by the findings reflected in subsection 4.2.1 of this report. These indicated that the required crop production knowledge for service delivery was not fully enhanced by the teaching and learning methods used by the three selected training institutions. From the analysis made during the research process which is indicated in the discussions in sections 4.1 and 4.2 of this report, as students acquire the required knowledge, they also acquire some skills and attitudes required for service delivery. Therefore, extension workers should be having knowledge, skills, attitudes and abilities at a level of expertise in an appropriate work setting within or outside academia (Harvey, 2004, p. 12).

The opinions are further confirmed by the literature review reflected in section 2.3 subsection 2.3.1 of this report. It indicated that the educational content of both agricultural and extension courses in most cases was grossly out of date if the agricultural extension systems are expected to become more decentralized, participatory (farmer led), and market driven in improving rural livelihoods.

To do so, however, the skills and knowledge of faculty and staff at schools of agriculture and agricultural universities would need to be updated in course content and teaching methods, as well as being provided with up-to-date, relevant teaching materials (Swanson, et al., 2010, p. 184).

The opinions of the extension workers in the field were confirmed by the findings indicated in subsection 4.1.1 of this report. They disclosed that they had failed to use some of the acquired knowledge content and even cited examples of such content that are reflected in Table 2 of this report. On the same note, the extension workers disclosed that they had failed to demonstrate crop production skills required to solve farmers' crop production problems. For that matter therefore, the opinions of the extension workers cannot be disregarded.

Basing on the crop production service delivery competences derived from the content of the courses as indicated in subsections 4.1.1, 4.1.2 and 4.1.3, and the methods of teaching and learning they went through during training as reflected in section 4.1 subsections; 4.2.1, 4.2.2 and 4.2.3, the training could not fully be relevant to the required competences. There is need to retrain the extension workers for acquisition of relevant knowledge, demonstration skills and attitudes for agricultural service delivery. As already highlighted in literature review subsection 2.3.1 of this report, the training departments of ministries of agriculture and non-governmental organizations (NGOs) generally run ad hoc in-service training programs. Unfortunately, these do not prepare extension staff adequately to deal with complex agricultural problems (Zinnah, et al., 1999).

The district official's opinions were confirmed by the findings reflected in subsection 4.1.1 where they disclosed that extension workers could not offer the relevant crop production knowledge, for agricultural service delivery. According to them, the extension workers who had been trained from

reputable agricultural training institutions would competently advise farmers on good crop husbandry practices so as to increase production of both food and cash crops as indicated in Figure 1.1 of the conceptual work in this report. This was in line with the pragmatic philosophical view of education indicated in section 1.10 of this report which emphasizes that education should aim at producing individuals who will make a positive contribution to society. As supervisors of the extension workers, the district officials expected extension workers to; deliver appropriate knowledge. In reference to literature review section 2.1 subsections 2.1.1; the extension workers would become competent by developing the necessary behaviors and attributes as well as knowledge and skills required to do their jobs well in a way in which they realize their potential and provide the highest quality service to their customers (Westera 2001, p. 5).

The farmers opinions were also confirmed by their complaints about failure of extension workers to offer the required crop production technical knowledge for increased production. The opinions might be attributed to the fact that as end users of agricultural extension services, farmers had not realized the impact of the services offered to them since they had not experienced increased crop production. Considering the gaps highlighted in the content of the curricula and methodology of teaching and learning which were reflected in sections 4.1 and 4.2 of this report, the opinions of the farmers could not be undermined. In line with this, in the literature review subsections 1.2.3, it was realized that farmers were not given relevant knowledge, and skills as regards their farming enterprises where as they would benefit more when they receive technological packages from qualified or well-trained Extension Workers (Azizah, 2011, p. 149).

### 4.3.2 Skills acquisition for agricultural service delivery

Some of the students and the lecturers disclosed that they were not satisfied with the training which had not provided practical interventions. On the other hand, some two lecturers revealed that they were not so much concerned with the issue of practicals. The extension workers disclosed that the training was not relevant to the skills delivery requirements. The district officials too revealed that the agricultural training was not fully relevant to crop production skills requirements. In the same way, the farmers who are the immediate beneficiaries of agricultural extension services disclosed that the extension workers had not practically demonstrated the desired technologies to them. This was reflected from the response of one of them to the question;

*They don't know what they are doing and I never received any thing new from them, apart from cutting down all my coffee trees under disguise that they were teaching me how to prune.<sup>43</sup>*

The fact that students came from agricultural backgrounds, and attended industrial training and outreach programs indicated that they had been aware of the crop production demonstration skills requirements for service delivery. The lecturers too had a clear vision of the objectives of agricultural extension training. Therefore, their opinion that the practical aspects were not being addressed well could not be undermined. The traditional emphasis on factual knowledge does no longer meet the requirements of a changing society. Even the training of well-defined skills to apply the knowledge in an appropriate and productive way seems to be insufficient to start as a professional worker (Kirschner et al., cited in Westera (2001).

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<sup>43</sup>The response from the farmer who had worked with the students during the outreach program.

On the other hand, the two lecturers that were not so much concerned with the issue of practicals might not be blamed. This could be attributed to the type of training they received from the training that had not exposed them to practical interventions. Furthermore, such opinions could be expected since the instructors rarely had a 'third eye' to give feedback about the quality of training they got. Examples of 'third eyes' would be the farmers who are the end users of agricultural extension services and district officials who are tasked with supervising the students during internship and the ones in the field. These expected the extension workers to demonstrate technical skills, interpersonal skills and communication skills. Formal extension education programs can play an integral role in developing students' job skills by providing a curriculum uniquely tailored to the competencies required of extension professionals (Harder et al.; 2009, p.23).

The opinions given by extension workers about the relevance of the training to the skills delivery requirements were confirmed by their submissions that they could not practically demonstrate the crop production technologies needed for increased production to the farmers. It could be attributed to the type of training they had got from the agricultural training institutions which had failed to equip them with the required crop production skills for service delivery. Furthermore, as earlier discussed in sections 4.1 and 4.2 of this report, there were gaps indicated in the content and the teaching and learning methods that could not fully support acquisition of knowledge, skills and attitudes required for service delivery. This confirms the opinions of the extension workers.

Furthermore, basing on the fact that most of the teaching was done theoretically, the required skills for service delivery were not fully addressed. Therefore, students were usually taught about the subject matter, but not given the skills required by an individual to work competently in the work

place Okello, (2009, pp 27-28). Relevant crop production knowledge can only be useful if appropriate skills are used to transform it to practice. However, well defined skills to apply the acquired knowledge in an appropriate and productive way were insufficient in the agricultural extension professional training (Kirschener et al.; 1997 cited in Westera, 2001, p. 2).

The opinions of district officials too revealed that the agricultural training was not fully relevant to crop production skills requirements. These opinions could be affirmed by responses got from most of them indicating that the extension workers had failed to practically advise the farmers on good crop husbandry practices. Failure to transform the knowledge acquired from the training into practice could be attributed to the type of training the extension workers had got which did not expose them to practicals.

The situation was observed in Plate 5 during data collection when the farmer showed me the actual trees that were cut down using a pang by the students who had come for the outreach program.



**Plate 6: One of the farmers showing me her coffee trees which were cut down by the students during the outreach program**

This confirms the opinions given by the farmers that the agricultural extension training was not relevant to competence requirements. The three components of vocational didactics which include vocational theory, vocational practice and general knowledge would be emphasized with an aim of equipping the trainees with knowledge, technical demonstration skills, interpersonal and communication skills and the attitudes that can be used to enrich their specified trade (Nilsson, 1998 cited in Mjelde, 2006, p. 53).

#### **4.3.3 Service delivery attitude acquisition for agricultural extension**

The students revealed that the training they had acquired from the training were not very relevant to the delivery attitude requirements. The extension workers highlighted that agricultural training was not fully relevant to the attitudes required for extension service delivery. The district officials disclosed that the training was not fully relevant to the extension service requirements of the extension workers. They highlighted that the extension workers that they often supervised did not exhibit the required service delivery attitudes. The farmers too expressed concern about the type of training given to extension workers which lacked in providing relevant attitudes towards agricultural extension service delivery.

The opinions submitted by the respondents indicated that the training given to extension workers was not fully relevant. The opinions could be attributed to the type of training that had not provided practical interventions as highlighted in sections 4.1 and 4.2 of this report. The analysis made in these sections, indicated that practicals were not favored by either the content or the teaching and learning methods yet according to them, the practicals could arouse development of positive attitudes towards work. The practical interventions play a big role in helping students to consolidate their attitudes and values, and spirit of collaborative work as well creativity in

performing their own investigations making the process of teaching and learning become more meaningful (Eugenia, 2007, p. 197).

Although the assertion is that the training offered provided relevant knowledge just to an extent could be justified, one cannot rule out the fact that the objectives of some course units are not adequately communicated. Consequently, there is a rift between students' expectations and the instructors' objectives. This therefore translates into students writing off some course units as irrelevant yet they are actually pertinent.

The extension workers opinions could be attributed to their failure to exhibit good agronomic practices to the farming communities. The district officials' opinions could not be under looked basing on the fact that the extension workers that they often supervised did not exhibit the required service delivery attitudes. Clearly, opinions are subject to change depending on the status of the respondents. District officials, in their supervisory role were quick to point out the negative attitudes exhibited by some extension workers. This could be because of the expectations that the extension workers were charged with exhibiting service delivery attitudes to the farmers during their course of service delivery. The agricultural training that the extension workers had acquired would help them to develop positive attitudes by working closely with experts, who could give them a sense of direction in achieving their learning objectives. Attitude is a complex mental process which is relatively stable and, once adopted, can provide a long-term positive effect (Meena, 2012).

The farmers expressed concern about the type of training given to extension workers which lacked in providing relevant attitudes towards service delivery. It is clear that the farmers do not hold the extension workers in high esteem since they feel that their needs are not adequately addressed.

Furthermore, it is important to remember that these farmers also have indigenous and tacit knowledge which, some of them would gladly share with the students. However due to the negative attitudes of some students, they do not recognize that they could benefit from such knowledge yet they also lack hands on experience to help the farmers.

The result is a clash between the two which explains the extreme opinions from the farmers about the relevance of the training. Indigenous women and men possess unique, in-depth and locally rooted knowledge of the natural world that could be integrated with new technologies so as to boost farming (IFAD, 2012).

Considering the above observations, it is clear that there are gaps in the agricultural extension training which makes it less relevant to the delivery competences required by the farmers.

Vocational pedagogy is a field of knowledge on teaching and learning oriented towards trades, occupations and professions. It consists of an education whose orientation is the relationship between teaching, training work and the labor market (Mjelde, 2008, p.2). An integrated curriculum that is developed in consultation of various stake holders such as the trainers, the farmers, agricultural research representatives and agro based industries would help to provide content and methodologies of teaching and learning that are relevant to the required competencies for agricultural service delivery.

If one is to accomplish his work satisfactorily, the extension worker must have great skill and judgment, a deep understanding of people and a high level of technological expertise. He must show scientific competence and social responsibility (De Muro et al., 1998, p.5). Despite our increasing demand for better quality food and the need to introduce new technology to farmers, the task is often entrusted to graduates who are not properly trained in agricultural extension service

delivery. As earlier indicated in the study background in subsection 1.2.3, shortages of qualified and experienced staff to deliver agricultural extension services and lack of training opportunities to develop professional and technical expertise in many Sub-Saharan African countries including Uganda have been highlighted (ibid, 1998,).

Although most of the respondents showed dissatisfaction about the relevance of the agricultural training to the competence requirements for service delivery, their opinions are likely to change. According to Crowder (1996), a definition of extension indicates the need for agents who have knowledge of the teaching/learning process and can effectively communicate information to clients. Extension has been defined as "an on-going process of getting useful information to people (the communication dimension) and then in assisting those people to acquire the necessary knowledge, skills, and attitudes to utilize effectively this information or technology (educational dimension)."

A positive change could be made possible by reviewing the content in that the most relevant course units that supported acquisition of knowledge, skills and attitudes required for service delivery are intensified and other relevant ones included. Similarly, their opinions could change if the teaching and learning methods discussed in subsections 4.2.1, 4.2.2 and 4.2.3 of this report could be modified and integrated. These could enhance acquisition of knowledge, skills and attitudes required for service delivery. As already reviewed in the literature in section 2.1 of this report, students must be immersed in authentic curriculum contents and tasks that are demanding and relevant to their lives and futures (Nicolaide, 2012, p. 621).

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS, RECOMMENDATIONS

#### 5.1 SUMMARY

Agricultural extension service training offered to extension workers by Agricultural Training Institutions in Uganda is meant to impart the necessary competencies needed for high quality agricultural service delivery. Generally, a challenge lies in the adequacy of knowledge, skills and attitudes for extension service delivery especially for crop production. It is also known that the training given to the extension workers at the Agricultural Institutions has a bearing on the quality of the competences needed for appropriate agricultural service delivery. This then means we have to examine the relationship between service delivery competence requirements and the agricultural extension training. Three categories of institutions where extension workers are trained were selected i.e. Makerere University (Public, Degree awarding), Bukalasa National Agricultural College (Public, Diploma awarding) and Mityana Agro-Vet Institute (Private, Diploma and Certificate awarding).

This study was set to provide information on; how Crop Production curricula at Makerere University, Bukalasa National Agricultural College and Mityana Agro-Vet Institute supports agricultural extension service delivery competence requirements; how the teaching and learning methods used in the Crop Production departments of the selected Agricultural Institutions enhance agricultural extension delivery competence acquisition; and the relevance of the training given to the work of Agricultural Extension Workers.

## 5.2 CONCLUSIONS

Regarding the content of the crop production curricula covered under various course units, it was evident that, it did not fully provide the required knowledge, skills and attitudes for extension service delivery

Similarly, most methods used in teaching and learning did not fully enhance acquisition of knowledge, skills and attitudes required for agricultural extension service delivery.

One can therefore conclude that in general, the agricultural extension training was characterized by a number of gaps that compromised its relevance to agricultural extension service delivery competence requirements.

## 5.3 RECOMMENDATIONS

On the basis of the above conclusions and findings of the study, the recommendations below are advanced by the researcher to help address the observed gaps.

- The most relevant subjects to crop production such as agricultural botany, introduction to soil science, extension methods, crop diseases, nematology, annual crop agronomy, farm power and machinery, soil physics and chemistry should be maintained and reviewed regularly to ensure that latest developments are captured while the general courses should be emphasized to a limited extent only to augment the core ones.
- More time should be accorded to the practical component of the course units than to the theoretical components of the course units.

- The teaching and learning methods should be integrated to fill the gaps that prevail in each. There should be a realistic balance and blending of teaching method with a special focus on practice oriented methods of learning.
- Institutions should intensify on procurement of the necessary tools, equipment and materials needed for training agricultural extension workers.
- The expertise of the lecturers and instructors should be improved upon through capacity building by organizing seminars, workshops so that they are updated on new development trends in agricultural production.
- Although lecturers and other instructors might be experts in their fields of study, they may lack teaching skills. It is therefore important that they get pedagogical skills of teaching.
- The agricultural extension training should be integrated with training students at agricultural research centers, farmers' farms and at other agricultural related avenues such as agro-based industries, agro-processors and market providers.
- The mode of assessment should be revised to place emphasis on practical since they remain crucial as regards competence delivery. A ratio of 60:40 is recommended for practicals rather than theory respectively.

### **5.3 AREAS FOR FUTURE RESEARCH**

The researchers believes that further investigation should be conducted in

- i) The training competencies of the lecturers and instructors as key players in the agricultural extension training and how they enhance delivery competence acquisition.

- ii) The impact and relevance of the Team Teaching/Instruction on enhancing learning abilities of Agricultural Extension Workers
- iii) The area of Crop Production and Disease Control Mechanisms is worth investigating.
- iv) Enhancing Innovation and Motivation of Learners at Agricultural Institutions

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## APPENDICES

### Interview guide A

#### Interview guide for the diploma and degree students

I am Nanono Kiwanuka Milly, a master's student of Vocational Pedagogy in the Department of Art and Design, Faculty of Vocational Studies Kyambogo University. I am carrying out a study on Agricultural Extension Service Training and delivery competence acquisition by the agricultural extension workers. I humbly request that you answer these few questions and I pledge to treat all the information that will transpire from our dialogue with confidentiality and it will only be used only for this study.

#### Demographic Information

##### Gender

- a. Male  
b. Female


#### **Section A: General Questions about the content**

1. What are the course units offered in the department?
2. What are your views about the content of the subject?
3. How is the time allocation for the different course units?
4. Do you feel you are getting the knowledge you require to use in the field at the end of the course? If no, what are your suggestions?

#### **Section B: Pedagogical approaches of teaching and learning**

5. What are the different modes of content delivery used by your instructors?
6. How much time is given to each mode of delivery?
7. How is the availability of tools, materials, and equipments?
8. How is the instructors' expertise in relation to your work?

#### **Section: D relevance of the training to the competence requirements**

- Do you feel that the content of the curriculum offered during training is relevant to what you are expected to do in the field? If not what is the gap?
- Do the methods used in teaching/learning process prepare you well with the necessary competences for work? If not, what are the gaps?
- What suggestions do you have for the improvement of the agricultural extension training and competence acquisition for the extension workers?

## INTERVIEW GUIDE B

### Interview Guide for the Teaching Staff (Lecturers)

I am NanonoKiwanukaMilly, a master's student of Vocational Pedagogy in the Department of Art and Design, Faculty of Vocational Studies Kyambogo University. I am carrying out a study on the agricultural extension service training offered in Agricultural Institutions and the delivery skills requirements. I humbly request you to answer a few questions that I have for the study. I pledge to handle all matters pertaining the dialogue with confidentiality and the information shall only be used for the study.

#### Demographic Information

1. Gender
  - a. Male
  - b. Female


#### Section A: Content of the curriculum

1. What course units are taught at the department?
2. When was this curriculum developed?
2. What is your view about this curriculum? If there is something missing, what could it be?
3. What suggestions have you about correcting the gap in the curriculum?

#### Section B: Pedagogical methods of teaching and learning.

4. What teaching and learning methods do you use?
5. Do you think that these methods used equip the learners with the required competence?  
If not, what could be the missing element in those methods?
6. How do you assess the learners?

#### Section C: Relevance of agricultural extension training in relation to the competence development.

7. Do you think that the type of training offered at the agricultural institutions can fully equip the graduates with all the competences that are needed by the farmers? If not, what suggestions do you have for improvement?

## Data Collecting Tools C

### Interview Guide for Graduate Agricultural Extension workers in the field

I am NanonoKiwanukaMilly, a master's student of Vocational Pedagogy in the department of Art and Industrial Design, Faculty of Vocational Studies Kyambogo University. I am carrying out a study on the Agricultural Extension Service Training in relation to delivery competence requirement in Training Institutions. I do request you to answer the questions below. I promise to keep all matters that transpire from our dialogue confidentially and this information will be used only for the purpose of the study.

#### Objectives of the study

1. To establish how the content of the Crop Production curriculum taught at Agricultural Institutions relate to delivery competence requirements.
2. To find out how the teaching-learning methods used in the Crop Production departments of the Agricultural Institutions enhance competence acquisition.
3. To examine the relevance of the training given to Agricultural Extension Workers to the competence development

#### Section A: Characteristics of respondents

1. Gender
  - a. Male
  - b. Female

#### Section B: Content of the curriculum at the institute.

What were the course units covered at the agricultural Institution you attended?

What was the content got from these course units?

Did the content you got from the institution help you to carry out extension work efficiently? If not what gaps have you noted from your course of work?

#### Section C: Pedagogical approaches of teaching and learning

What were the different modes of content delivery used by your instructors?

How much time was allocated for each method of instruction?

How was the availability of tools, materials, and equipments?

What was the instructors' expertise in relation to your work?

#### Section: D relevance of the training to the competence requirements

Was the content attained in training relevant your field work? If not what is the gap?

Did the methods used in teaching/learning process prepare you well with the necessary knowledge, skills and competence for work? If no, What gaps have you noted between the training you got at the institute and the competencies needed at your work place?

## Interview guide D

### Interview Guide for the Production, Marketing Manager and the District Agricultural

#### Officer and District NAADS Coordinators

I am NanonoKiwanukaMilly, a student of Masters in Vocational Pedagogy in the department of Art and Design, Faculty of Vocational Studies Kyambogo University. My study is on the Agricultural Extension Service Training and Delivery Competence acquisition by the Extension Workers. I request that you answer the few questions I have prepared. I promise to keep all matters that transpire from our dialogue confidentially and this information will be used only for the purpose of the study.

#### Section A: Characteristics of respondents

1. Gender
  - a. Male
  - b. Female
2. When were you appointed to this office?
3. What is your role in the production department?

#### Section B: General Information about Agricultural Extension

4. What is expected of these extension workers?
5. What comment do you have on their levels of knowledge, skills and attitudes in relation to the farmers' needs in the farming sector?
6. How do you judge their methodologies of delivering competences to the farmers
7. Do you think that these extension Workers got the required competences needed by the farmers from their training?
8. Are you satisfied with their services?  
If not, what might be the cause of the mismatch?
9. How best can the agricultural extension services be improved?

**INTERVIEW GUIDE E****Interview Guide for the farmers**

I am NanonoKiwanukaMilly, a master's student of Vocational Pedagogy in the department of Art and Design, Faculty of Vocational Studies Kyambogo University. I am carrying out a study on the training of agricultural extension workers and the competence requirement of their job of agricultural extension delivery to the farmers. I humbly request you to answer these questions and this information will be handled with utmost confidentiality.

**Section A: Demographic Information**

1. Gender

a. Male

Female

**Section B: General information about agricultural extension**

2. Do you interact with Agricultural Extension Workers?
3. What knowledge and skills do they teach you?
4. What methods do they use to disseminate the knowledge and skills to you?
5. What tools, materials, and equipments do the extension workers use when teaching you?
6. Are you satisfied with their services?  
If no, what is lacking with their services?
7. How best can we improve the agricultural extension services?

**OBSERVATION CHECKLIST**

1. Programme of the study.
2. Organization of learning in classes.
3. The mode of teaching used by the lecturers.
4. Duration of lectures and practical lessons plus the break offs.
5. Tasks performed.
6. The nature and operation of the available tools, materials, and equipments.
7. Evidence of field attachments.
8. Instructor's mastery of vocational pedagogical skills.
9. Provision for social skills, and mentoring abilities.

**DOCUMENTARY ANALYSIS GUIDE**

<b>Programme elements</b>	<b>Analysis</b>
Programme title	
Goals Aims and Objectives	
Structure (Course Units and their time allocation)	
Content	
Training methods	
Assessment	
Award	
<b>Time table</b>	
Time table for theory	
Time table for practicals	
Time table for other activities such as outreach programmes	