IMPROVING ASSESSMENT IN PRACTICAL AGRICULTURAL INSTRUCTION TO ENHANCE SKILLS ACQUISITION IN DITTE PROGRAMME AT NATIONAL INSTRUCTORS' COLLEGE, ABILONINO, UGANDA

BY

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DECEMBER, 2016
DECLARATION

I hereby declare that this is my original piece of work and has never been presented to any institution of higher learning as an action research report for the award of any degree.

Signature .......................... Date 02/12/2016

WASILWA JIM
APPROVAL

This is to certify that this work has been done under supervision and is now ready for submission to be examined.

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DEDICATION
This dissertation is dedicated to my grandparents, Mafabi Yahaya, Mwolobi Anna Mary, late, Wanyena Loy, late, Mungau Ignatius and daughter, Masawi Loy Faith.
ACKNOWLEDGEMENT

I would like to express my sincere appreciation to my dissertation supervisors: Assoc. Professor Habib Kato and Assoc. Professor John Baptist Matovu and Mentor Ms Aurelia Atukwase. I am grateful to each for their advice and support throughout this study. I particularly want to thank both Assoc. Professor Habib Kato and Assoc. Professor John Baptist Matovu for their honest words of wisdom throughout this process.

I would also like to express my genuine appreciation to my friends and family for their unending support and words of encouragement. I would especially like to thank my mum, Malemo Aidah Apophia, my dad, Wandwasi Mungau Israel, daughter, Masawi Loy Faith, wife, Nekesa Jenifer, siblings, Mutonyi Doris, Nabafu Dorcas Anna and Mungau Edgar Ignatius for instilling in me the belief that I could accomplish anything that I set out to do in life.
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LIST OF CRONYMS

ACIPIC  Abilono Community Polytechnic Instructors’ College
BTC     Belgium Technical Corporation
BTVET   Business, Technical and Vocational Education and Training
CPIC's  Community Polytechnic Instructors’ Colleges
DITTE   Diploma in Instructor and Technical Teacher Education
DTTE    Diploma in Technical Teacher Education
ESSSP   Education Sector Strategic Plan
FDG     Focus Group Discussion
MOES    Ministry of Education and Sports
NCA     National Certificate in Agriculture
NICA    National Instructors’ College, Abilono
NIC-Abilono  National Instructors’ College, Abilono
PAR     Participatory Action Research
TIET    Teacher Instructor Education Training
TVET    Technical and Vocational Education and Training
UPE     Universal Primary Education
UPPET   Universal Post-Primary Education and Training
VET     Vocational Education and Training
VIP     Visual in Participati
ABSTRACT

This study was an action research which investigated on improving assessment in practical Agricultural instruction to enhance skills acquisition in the Diploma in Instructor and Technical Teacher Education (DITTE) programme at National Instructors’ College, Abilonino (NICA). The specific objectives of the study were: To identify the challenges in assessment of practical Agriculture in DITTE; To identify the possible strategies to address the challenges in assessment of practical Agriculture in DITTE; To implement the possible strategies addressing the challenges of assessment in practical Agriculture; and to evaluate the efficacy of the implemented possible strategies. The study was carried out in the year 2015/16 in the department of Agriculture. Seven (07) students, three Lecturers and two Administrators participated. The study was a qualitative participatory action research using the future workshop and descriptive design. The researcher used observation, focus group discussion, brainstorming, cameras, Visual in Participation (VIP) cards and a logbook to collect the data. The data revealed that: the most serious challenge encountered during assessment of practical Agriculture was lack of training or professional development on how to use assessment rubrics successfully; the strategies to solve the challenge were, internal training on how to use assessment rubric and practicing the use of an assessment rubric learnt from the short internal training which were implemented and evaluated. During the internal training on how to use an assessment rubric, a nursery bed assessment rubric was generated whereby each of the seven (07) students prepared two nursery beds, one with the use of an assessment rubric and the other without the rubric and the scores of performance were evaluated. The results showed that the assessment rubric made a valuable contribution to improving assessment in practical Agricultural instruction and enhancing skills acquisition to the students. This made participants to urge the department to continuously use assessment rubrics while conducting practical Agriculture.
CHAPTER ONE: INTRODUCTION

1.1 Motivation for the study
National Instructors' College, Abilonino trains instructors for technical schools, technical institutes, farm schools and vocational institutes. The curriculum integrates both theory and practical. The curriculum for DITTE Agriculture is competence based. It emphasizes more of skills although theory is also important to convey the principles being applied. For students to understand better what was taught there was need for good criteria of assessment such that students improve on their skills acquisition. In view of these factors I was motivated to undertake the study. The findings of the study would solve the problem of assessment of practical Agriculture and improve on the skills acquisition.

1.2 Background to the study
The background consists of the historical perspective of National Instructors College, Abilonino and instructional concerns at the College.

1.2.1 National instructors' College Abilonino
National Instructors' College Abilonino (NICA) started as one of the eleven Community Polytechnic Instructors' Colleges (CPIC's) in 2001/2002 and it was known as Abilonino Community Polytechnic Instructors' College (ACPIC). The College was started with an emphasis on note of solving unemployment problems through provision of employable skills and job creation to Ugandans especially, the Universal Primary Education (UPE) leavers'. However, in 2004 ten (10) CPIC's in Uganda were closed and only Abilonino CPIC remained with the purpose of training instructors for community polytechnics and Technical and Vocational Education and Training (TVET) institutions. Graduates from the then ACPIC were found to be on high demand in TVET training institutions at different levels both in private and Government aided institutions because of increased skill provision at the time. The students were deployed in farm institutes, technical institutions, technical schools and community Polytechnics.
Later ACPIC upgraded to NICA in 2014 as the only instructors training college in Uganda then. The aims of upgrading NICA included; improving the instructor training and pedagogical skills for BTVET technical teachers/instructors, strengthening the management capacity of the supported colleges, improving the quality of teaching and learning in the supported colleges as well as rehabilitating, expanding and equipping the college facilities.

The college has got a 51 acre piece of land with a lease title. Hydroelectricity has been extended by UMEME Distribution Company Limited. Currently the college is earmarked for reconstruction under the Belgium Technical Corporation (BTC) donor fund that was extended to instructors, Teachers and Health tutors training institutions, in conjunction with Ministry of Education and Sports. After completion, the college will have better facilities that will improve environment for skills acquisition.

Given the chance to improve the assessment in practical Agricultural instruction at National Instructors’ College, Abilonino, improved standards and trained instructors will be achieved. The lack of professionally well trained instructors for skills training in the BTVET sub-sector, and world of work linkages and technical providers will be addressed. This will contribute to the National strategy of skilling Uganda.

Currently NICA is under the Teacher Instructor Education Training (TIET) Department in the Ministry of Education and Sports (MOES). The obligations of TIET to NICA include; instructor education & training that is responsive to the needs of the education sector, improving and strengthening the quality of the staff for instructor education by ensuring that instructors are available in adequate numbers and are of the right caliber and quality; developing instructors in the attitude and qualities needed for participation in techno-cultural environment among others.
Currently, NICA offers a Diploma in Instructor and Technical Teacher Education (DITTE) awarded by Kyambogo University. The programme consists of several courses which include; Agriculture, Block laying and Concrete Practice, Electrical Installation, Carpentry and Joinery, Plumbing, Welding and Fabrication/Fitter mechanics, Motor Vehicle Mechanics, Shoe Making and Leather works and Tailoring and Cutting Garments. The college admits graduates from TVET institutions with a minimum qualification of Craft Part II (Advanced Level) or National Certificate in Agriculture (NCA) and Ordinary Diploma in relevant professional courses. The trainees are trained for two years on full time and semester system.

1.2.2 Work processes and Concerns at the College

According to Calhoun (1994), the first phase of action research is to select an area of focus. So in order for the researcher to get a topic he had to first identify the concerns or issues at NICA. The researcher together with the stakeholders (participants) held a focus group discussion (FGD) to identify concerns in the college. The FGD consisted of seven (07) students and three (03) lecturers from the Department of Agriculture and two (02) members of the College Administration. Before identifying the concerns, I presented a work process analysis showing activities a DITTE student of Agriculture goes through right from admission to graduation at the College. The work process analysis would bring out issues of concerns for the participants to discuss.

Table 1: Work process analysis of a DITTE Student of Agriculture

<table>
<thead>
<tr>
<th>S/N</th>
<th>ACTIVITY</th>
<th>LECTURER COMPETENCE</th>
<th>STUDENT COMPETENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Admission</td>
<td>- N/A</td>
<td>- Apply for DITTE program.</td>
</tr>
<tr>
<td>2</td>
<td>Training theory and practical in Agriculture</td>
<td>- Teach theory concepts of Agriculture - Teach practical lessons of Agriculture</td>
<td>- Learn theory concepts of Agriculture. - Apply the theoretical concepts of Agriculture.</td>
</tr>
<tr>
<td>Step</td>
<td>Activity</td>
<td>Tasks</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Teaching skills’ training</td>
<td>- Train learners the teaching skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Teach other learners of a lower level.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Apply the teaching skills.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Perform micro-teaching sessions</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Assessment</td>
<td>- Assess theoretical concepts of Agriculture</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Assess practical skills of Agriculture.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Do the assessment for both theory and practical work.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>School practice</td>
<td>- Supervise students in school practice.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Teach other learners during school practice.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Industrial training</td>
<td>- Supervise students in industrial training.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Perform practical of Agriculture in the world of work.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Examinations</td>
<td>- Invigilate examinations</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Graduation</td>
<td>- Attend graduation</td>
<td></td>
</tr>
</tbody>
</table>
colours of markers enabled the researcher and the participants to identify concerns raised by each group distinctively. With paper carousel brainstorming the following concerns were identified:

**Group 1 Concerns**
- Improper teaching of practical work.
- Ineffective assessment of practical work.
- Poor time management by lecturers.
- Delay of results by Kyambogo University.
- Improper management of project work.

**Group 2 Concerns**
- Improper teaching of practical work.
- Ineffective assessment of practical work
- Poor time management by students.
- Failure to conduct study trips.
- Unclear curriculum.

**Group 3 Concerns**
- Improper teaching of practical work.
- Ineffective assessment of practical work.
- Inadequate teaching and learning resources.
- Low syllabus coverage in some course units.

The following total Concerns were identified:
- Improper teaching of practical work.
- Ineffective assessment of practical work.
- Poor time management by lecturers.
- Poor time management by students.
- Delay of results by Kyambogo University.
• Inadequate teaching and learning resources.
• Failure to conduct study trips.
• Low syllabus coverage in some course units.
• Unclear curriculum.
• Improper management of project work.

However, the concerns that each group mentioned were; improper teaching and ineffective assessment of practical work. Since each of the three groups mentioned both concerns, it was agreed by participants that improvement of assessment in practical Agricultural instruction to enhance skills acquisition in DITTE programme at National instructors’ College, Abilonino in the department of Agriculture was a major concern that needed investigation. Brainstorming was used because it is the preferred creative technique follow up of structuring and grouping of ideas in main sub-themes (Jungk & Müller, 1987).

1.3 Problem statement
The curriculum of DITTE requires the teaching of both vocational theory and practical. The Department of Agriculture at National Instructors’ College Abilonino endeavors to give vocational theory in Agriculture as well as practical skills. However, there were shortcomings in practical assessment as identified by the participants in the work process analysis. The shortcomings could have led to low acquisition of skills by students. There were continuous complaints by students as far as practical work was being conducted. This fact was acknowledged by the stakeholders in the focus group discussion held. Hence there was need to improve assessment in practical Agricultural instruction to enhance skills acquisition in DITTE programme at NICA.

1.4 Purpose of the study
The purpose of the study was to improve assessment in practical Agricultural instruction to enhance skills acquisition in DITTE programme at National Instructors’ College, Abilonino in the Department of Agriculture through a participatory action research approach.
1.5 Objectives of the study
The general objective of the study was to improve assessment in practical Agricultural instruction which would enhance students' skills acquisition in the DITTE programme at NICA through the following specific objectives:

i. To identify the challenges in assessment of practical Agriculture in DITTE.

ii. To identify the possible strategies to address the challenges in assessment of practical Agriculture in DITTE.

iii. To implement the possible strategies addressing the challenges of assessment in practical Agriculture.

iv. To evaluate the efficacy of the implemented possible strategies.

1.6 Scope of the Study
It consists the geographic scope, time scope and content scope.

1.6.1 Geographic scope
As far as the geographic scope is concerned the research was carried out at National Instructors' College Abilonino in Kole District, Lango sub region in Northern Uganda. The study was limited to the DITTE in the Department of Agriculture.

1.6.2 Time scope
The time scope covered major aspects of training in the programme. The time frame for the study was 2015/2016. However, the study was carried out from around November, 2015 to May, 2016. During this time the activities conducted in the programme included: identification of challenges in assessment of practical Agriculture, identification of possible strategies to address the challenges of assessment in practical Agriculture, implementation of possible strategies in addressing the challenges of assessment in practical Agriculture and evaluation of the efficacy of the implemented strategies.
1.6.3 Content scope

The study concentrated on challenges in assessment of practical Agriculture, possible strategies to address the challenges in assessment of practical Agriculture, implementation of the possible strategies addressing the challenges of assessment in practical Agriculture and evaluation of the efficacy of the implemented strategies.

1.7 Limitations of the study

The researcher anticipated limitations with regards to time and objectivity of participants. Time was not enough to conduct the action research exhaustively, because for the future workshop to be used, it required a series of meetings with participants from the preparation phase to implementation. The researcher strictly followed the work plan schedule in order to meet the timelines of each activity. Time is a significant disadvantage in conducting action research; it requires an increased amount of time (Burns, 1999).

1.8 Significance of the study

The study led to identification of challenges encountered in assessing practical Agriculture this triggered the generation of possible strategies to address the challenges. Strategies, when implemented showed that the challenges can be solved. Hence improved assessment in practical Agricultural instruction enhancing skills acquisition.

1.9 Definition of terms

Action Research: Action research is any research into practice undertaken by those involved in that practice, with an aim to change and improve it (Coats, 2005).

Administrator: Someone who manages a college or an organization.

Agriculture: The practice of growing crops and raising animals.

Assessment: Assessment is the systematic collection of information about student learning, using the time, knowledge, expertise, and resources available, in order to inform decision about how to improve learning (Barbara, 2004); Assessment is a way of determining where students
are in terms of what has been taught, first of all where they are now and then, also to see how much they grasped of what has been done. So it gives you as the teacher direction of where they are, what knowledge they have acquired, and that guides you as to what you still need to do (Mutendwahothe, 2013).

Assessment rubric: An assessment rubric is a multi-purpose scoring guide document for assessing student products and performances that describes varying levels of quality for a specific assignment and focuses the teacher by helping to clarify the criteria and expectations in specific terms (Andrade, 2000)

Challenge: A demanding situation that needs to be solved.

College: An institution of higher education created to educate and grant degrees or diplomas; often a part of a university.

Department: A specialized division of a large organization/college.

Efficacy: Capacity or power to produce a desired effect.

Evaluate: Estimate or determine the nature, value, quality, ability, extent, or significance of something.

Future workshop: Future workshop is a tool and an approach or method of research which enables a group of people to develop new ideas or solutions of social or educational problems.

Implement: Apply in a manner consistent with its purpose or design.

Lecturer: A university or college teacher.

Participant: Someone who takes part in an activity.
**Skill:** An ability that has been acquired by training.

**Strategy:** An elaborate and systematic plan of action (solution).

**Student:** A learner who is enrolled in an educational institution.
CHAPTER TWO: LITERATURE REVIEW

Overview
This chapter presented a review of literature related to assessment, challenges in assessment, strategies to address challenges in assessment, implementation of the strategies in assessment, action research and future workshop.

2.1 Meaning and role of assessment
Assessment is "the systematic collection of information about student learning, using the time, knowledge, expertise, and resources available, in order to inform decision about how to improve learning." "Assessment is a kind of 'action research' to inform local practice." It is a process of seeking "the best available indicators" to see if goals are being met. This includes field specific and professional judgments about learning outcomes which are used to "inform departmental and institutional decisions." "Assessment means basing decisions about curriculum, pedagogy, staffing, advising, and student support upon the best possible data about student learning and the factors that affect it." (Barbara, 2004).

"Assessment is the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development" Assessment commonly refers to student outcomes assessment, but with an emphasis on "actual outcomes" rather than "intended outcomes, as described in statements of expectations." (Catherine & Trudy, 1999).

Meaning of assessment is driven by questions it seeks to answer about what students should know, what the institution contributes to student growth, how learning can be improved. Assessments should include inputs and environment (i.e. where students start from), as well as students' experiences through the process of schooling and educational outputs, where they end up (Catherine & Trudy, 1999).
Assessment is a way of determining where children are in terms of what has been taught, first of all where they are now and then, also to see how much they grasped of what has been done. So it gives you as the teacher direction of where they are, what knowledge they have acquired, and that guides you as to what you still need to do. In other words you assess to see what they have gained and how far they have progressed along the way (Mutendwahothe, 2013).

Assessment is a bit tautological, but it is seen as part of an overall “planning-assessment cycle”: “defining institutional and unit-level goals; implementing strategies to achieve those goals; assessing achievement of those goals; and using the results of the assessments to improve programs and services and inform planning and resource allocation decisions.” (Middle States Commission on Higher Education, 2005).

Assessment is an integral part of learning. Good assessment takes into account learning styles, strength, and needs. It is flexible and reflects a student’s achievement against set criteria, not against another student. Effective assessment takes place over time and it is varied in its approach. Assessment is part of learning and that means it is an ongoing part of every day. For a teacher assessment is the process of gathering information about student learning that informs our teaching while for the student, assessment is the process that informs them about their learning (Goode, Kingstone, Grant, & Munson, 2010).

In Assessment, teachers use assessment as an investigable tool to find out as much as they can about what their students know and can do, and what confusions, preconceptions, or gaps they might have. The wide variety of information that teachers collect about students’ learning processes provides the basis for determining what they need to do next to move student learning forward. It provides the basis for providing descriptive feedback for students and deciding on groupings, instructional strategies, and resources (Goode, Kingstone, Grant, & Munson, 2010).

Assessment of student learning: the “process by which we ascertain through data collection if students have learned the skills, content, and habits of mind that will make them successful; if
students are not learning, we decide on changes in the curriculum or teaching strategy to improve learning.” (Patricia, 2008).

2.2 Challenges in assessment of practical
Assessment in practical has got challenges which include the following:

2.2.1 Misalignment in educational and assessment priorities
At times teachers call for assessment at the end instead of making it continuous. Assessment is not a neutral process or simply an educational measurement tool; rather, it reflects the purposes and priorities of schooling (Lingard, Mills, & Hayes, 2006).

2.2.2 Practical barriers to integration of assessment in teaching practical
Integration of the modern assessment techniques has practical constraints such as time, class size and resources on teachers’ adoption. The shortage of time is frequently mentioned in research on changing assessment practices (Torrance & Pryor, 2001). Specifically, teachers believe that traditional forms of assessment are more time efficient and have more value because they serve summative requirements and accountability demands (Hargreaves, Earl, & Schmidt, 2002). Even among those teachers who appreciate the potential of assessment for learning to positively influence student achievement, there are concerns that assessment for learning demands too much class time to integrate and that assessment for learning implementation limits the amount of curriculum teachers can cover within their programme (Morgan & Watson, 2002).

There is an importance of knowing how teachers’ assessment strategies are influenced by types of classroom learning conditions (i.e., class size and resources) (Duncan & Noonan, 2007).

2.2.3 Assessment conceptual confusions.
Most of the teachers can not differentiate between assessment and evaluation in schooling programmes, whereby they now only focus on tests and examinations instead of basing on the learners’ achievement while studying. Assessment focuses on learning, teaching and outcomes; it
provides information for improving learning and teaching while evaluation focuses on grades and may reflect classroom components other than class content and mastery level (Angelo & Cross, 1993).

2.3 Strategies to address the challenges in assessment

Provision of effective feedback, when students are given the feedback regarding their piece of work, they are most likely to accept it and quickly act upon it this is a way of reinforcing effective learning (William, 2013).

Students owning their own learning, the most important instructional decisions are not made by teachers, they are made by students. When students believe they cannot learn challenging tasks from the teacher, they students disengage. And this is perfectly understandable. So it is much better to let students try to control their own learning which creates room for a better achievement and also students would not mind making mistakes, because mistakes are evidence that the work they are doing is hard enough to make them smarter (Stiggins, Arter, Chappuis, & Chappuis, 2004).

Use students as learning resources for one another to enhance collaborative learning. However, it is worth noting that peers can be very effective assessors of one another’s work, especially when the focus is on improvement rather than grading (Brown & Campione, 1995).

Sharing learning intentions. The idea that teachers should share with their students what it is intended that they learn from a given instructional activity seems obvious, but it is only within the past 20 years or so that this has been routine in classrooms. While this is a welcome development, it is also important to note that in many schools, well-intentioned attempts to communicate learning intentions to students have made writing a mechanistic process of checklist management. It is true that rubrics can identify important elements of progression in writing, but they can too easily become a straitjacket. So sharing learning intentions is the best precondition for learning (Claxon, 1995).
Professional development. This emphasizes more of training teaching staff to perform their duties appropriately and improve on qualification such that there is improved performance. Since the 1990s, a great deal of research has cautioned against the use of some of the more popular, traditional forms of professional development, which include workshops, conferences and the use of guest speakers to guide the application of new concepts (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

Developing portfolios. Portfolios are increasingly becoming one means of demonstrating the skills, experiences, and accomplishments of the beginning teacher (Goethals, Howard, & Sanders, 2004). Unlike a professional portfolio that is designed to provide administrators or a school system with your qualifications for employment, an academic portfolio provides opportunities to organize and reflect on resources that include both theoretical and practical experiences in your teacher preparation program of study.

2.4 Implementation of the possible strategies in assessment
The Logical Framework is a tool to help strengthen implementation, follow-up and evaluation of any activity or project cycle being done (Örtengren, 2004). The researcher thinks that this tool is very effective in implementation and evaluation of the strategies addressing the challenges of assessment in practical Agriculture.

Andrade (2008) listed three basic steps of rubric-referenced assessment. His steps required students to practice continuously over time in conducting an assignment using the assessment rubric. The first step sets a clear expectation by showing students the rubric before issuing the assignment. The second step is to conduct the self-assessment by circling key phrases in the rubric and on the assignment. In the last step, students revise their work by identifying and correcting their mistakes. The assessment rubric reduces the element of surprise of what is expected to be learnt by students (Doyle, 2008).
2.5 Evaluation of implemented strategies in assessment

The purpose of an assessment rubric is to give students informative feedback about their work in progress and to give detailed evaluations of their final products or performances (Andrade, 2000). I agreed with the author that an assessment rubric can be used for evaluation and in this case it was used to evaluate the implemented strategies.

Assessment rubrics convey timely feedback to students and they improve students' ability to include required elements of an assignment (Stevens & Levi, 2005). Furthermore the assessment rubric judges complex performances involving several significant criteria and provides more specific information or feedback to students (Arter & McTighe, 2001).

2.6 Action research and improvement of practices

Action research is a process in which participants examine their own educational practice systematically and carefully, using the techniques of research (Watts, 1985). I concur with the author because the researcher conducted an action research in order to solve an educational practice which was not being done well at NICA.

Action research is a process of systematic inquiry that seeks to improve social issues affecting the lives of everyday people (Stringer, 2008). Yes! Action research is a systematic investigation of a matter of public interest through searching of knowledge by an instance of questioning. Kemmis and McTaggart (1988) view action research as a collaborative process carried out by those with a shared concern. Action research is cooperative since the researcher works hand in hand with the participants from problem identification to solving the problem and for this note the participants collaboratively shared views about their concerns in the focus group discussions.

Action research is a form of collective reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these practices are carried out (Kemmis & McTaggart, 1988). I agree with the authors because the action research was collaborative involving all stakeholders who had gone through the educational practice of assessment experience and the researcher asked questions about their experiences such that a mechanism of improvement would be devised. Broadly speaking, action
research enables researchers to develop a systematic, inquiring approach toward their own practices oriented towards effecting positive change in a practice (Holter & Frabutt, 2012). The Researcher concurs with the authors because the systematic inquiring approach was used to effect a positive change within the future workshop integrated within focus group discussions.

Action research can be described as: any research into practice undertaken by those involved in that practice, with an aim to change and improve it. It is therefore, a process of enquiry by you as a practitioner into the effectiveness of your own teaching and your students' learning (Coats, 2005).

Action research is about both ‘action’ and ‘research’ and the links between the two. It is quite possible to take action without research or to do research without taking action, but the unique combination of the two is what distinguishes action research from other forms of enquiry (Coats, 2005). With this study the researcher researched on the challenges in assessing practical Agriculture, possible strategies to address the challenges and finally took action by implementing the possible strategies and evaluating the efficacy of the possible strategies implemented collectively with the participants (stakeholders).

Action research has five phases which include: selecting the area of focus, collecting data, organizing data, analyzing and interpreting data, and taking action (Calhoun, 1994). I concur with the author because if there is a problem, it should be analyzed and an action taken as a solution. The collaborative action research process has five sequential steps: problem formulation, data collection, data analysis, reporting of results, and action planning (Sagor, 1992). I agree with the author especially in the first step because one cannot do a research without a problem.

According to Stringer (2008), a common process of action research inquiry cycle includes the following components: designing the study, collecting data, analyzing data, communicating outcomes and taking action. When designing the study, researchers carefully refine the issue to be investigated, plan systematic processes of inquiry, and check the ethics and validity of the work.
Therefore the researcher decided to have an action research because, it provides teachers with the technical skills and specialized knowledge required to effect positive change within classrooms, schools, and communities (Johnson, 2012).

2.7 Future workshop
According to Jungk and Müller (1987), the future workshop consists of five phases which include: The preparation phase: Here the themes, the invited participants, the methods, their rules and the time table of the preparation workshop are settled by the organizers of the workshop and the facilitators, also the problem is identified. The room and local facilities for the workshop are settled. The critique phase: Here the problem is critically and thoroughly discussed and investigated. Brainstorming is the preferred creative technique follow up by a structuring and grouping of ideas in some main sub-themes. The fantasy phase: Here the participants try to work a utopia, to draw an exaggerated picture of the future. Brainstorming and other creative technique might be used. The social fantasies of the participants are developed in this phase. The implementation phase: Here the ideas found are checked and evaluated in what concerns their practicability. An action plan is elaborated and done. The follow-up phase: Here the action plan is monitored; eventually changes are performed and if needed new future workshops are planned.

Therefore the future workshop has the following phases: preparation, critique, fantasy/utopia and reality/implementation phase (Heino, 2004). I agree with the author however, there is no follow-up phase yet once an action is done there is need to check and evaluate the implementation (Jungk & Müller, 1987).

In this study the future workshop as a tool and an approach of research was used because it enables a group of people to develop new ideas or solutions of social or educational problems or conflicts and it is a well-structured method, fosters self-organisation, awareness, fantasy and action competence (Jungk & Müller, 1987). The future workshop has the following phases: preparation, critique, fantasy/utopia and reality/implementation phase (Heino, 2004). The researcher used the future workshop because it has almost similar phases and intentions with how action research is conducted (Calhoun, 1994). The preparation phase which seeks for an
area of focus while critique & fantasy involves data collection, organizing the data and analyzing, and implementation/reality phase is similar to interpreting data and taking action.
CHAPTER THREE: METHODOLOGY

Overview
This chapter consisted of research design, population sample and size, instruments used in the research, ethical considerations, data collection procedure and analysis.

3.1 Research design and approach
The research was qualitative and descriptive in nature and it was a participatory action research (PAR) using the future workshop approach. This approach of research emphasized participation and involvement of stakeholders. It sought to understand the given world of work by trying to change it, collaboratively and following reflection. PAR emphasizes collective inquiry and experimentation grounded in experience (Burns, 1999). Within a PAR process, "communities of inquiry and action evolve and address questions and issues that are significant for those who participate as co-researchers". The effort in this study was to integrate three basic aspects, for example; participation which is democratic, action which is engagement with experience and researching which is soundness in thought and the growth of knowledge.

This study was qualitative research seeking to gather data only on the particular case study, focusing on a focused sample and gathered in-depth feelings from participants. The researcher employed a qualitative research because action research emphasizes more of language with critical reflection instead of numbers. Action research process is described as qualitative rather than quantitative with the emphasis on language rather than numbers, it is reflective involving critical reflection on both the process and the outcomes (Coats, 2005). Similarly, studying and interpreting human experiences in authentic settings cannot be best represented quantitatively (Anderson, 1998).

An action research in NICA was conducted because the researcher was interested in change through shared decision making with participants. Action research facilitates change through shared decision making involving; selecting the area of focus, collecting data, organizing data, analyzing and interpreting data, and taking action (Calhoun, 1994).
shared decision making involving: selecting the area of focus, collecting data, organizing data, analyzing and interpreting data, and taking action (Calhoun, 1994).

In this study the future workshop as a tool and an approach of research was used because it enables a group of people to develop new ideas or solutions of social or educational problems or conflicts and it is a well-structured method. It fosters self-organisation, awareness, fantasy and action competence (Jungk & Müller, 1987). The future workshop has the following phases: preparation, critique, fantasy/utopia and reality/implementation phase (Heino, 2004). The researcher used the future workshop because it has almost similar phases and intentions with how action research is conducted (Calhoun, 1994). The preparation phase which seeks for an area of focus while critique & fantasy involves data collection, organizing the data and analyzing, and implementation/reality phase is similar to interpreting data and taking action.

3.2 Study Population sample size and selection
The participants were first and second year students from the Department of Agriculture, lecturers in the Department, and members of top administration of the College. There were seven (07) out of forty six (46) students, three (03) out of three (03) lecturers and two (02) out of four (04) top administrators of the College. The department of has proportionate components of classroom organization as well as farm arrangement. This presents an enabling situation for vocational theory, general knowledge and vocational practice.

Members of administration were chosen purposively in order to get records of data in the College and policies in running the college functions and programmes. The lecturers from the Department were selected purposively because they are the ones teaching Agricultural concepts, practices and innovations. All lecturers in the Department were purposively involved since they are few in number too. The selection of participants in a case study does not have to be done through random selection only, but the researcher is to handle the selection within the condition that is available (Tellis, 1997). Students of first and second year were chosen at random to avoid bias, where random sampling is a technique whereby each member of the population has an equal chance of being selected as subject.
3.3 Methods of data collection and instruments

The researcher used observation, focus group discussion, and brainstorming as key methods of data collection.

3.3.1 Observation

The researcher as a participant and moderator / facilitator in the action research took keen observation, listened and took notes in all stages but most especially in noting how the strategies are being implemented. In this the researcher endeavored to be a genuine participant observer in the research (McMillan, 1996). Observation was undertaken with the purpose in mind to: observe the activities, participants and physical aspects of the situation and engage in activities that are appropriate to a given situation (Spradley, 1980). In this way the researcher observed the participants’ participation in the different activities, particularly during the implementation and follow-up phase using the observation tool that was designed.

3.3.2 Focus group discussions

Focus group discussion is a participative method that involves a homogenous group of respondents or participants in the discussion of issues of common concern through a moderator (Stewart & Shamdasani, 1990). For this case the common instructional concern is improvement of assessment in practical Agricultural instruction to enhance skills acquisition in DITTE programme at National instructors’ College, Abilono in the department of Agriculture. Focus group discussions were used because they have become a popular method of obtaining information regarding numerous topics as well as identifying areas of concern and can provide insight into issues which cannot be covered on a survey (Stewart & Shamdasani, 1990).

In this study, focus group discussions were held with participants who included: the researcher, first and second year students and lecturers from the Department of Agriculture and members of the College administration. Guiding questions were introduced by the researcher and the ideas and opinions of individuals and group respondents/participants were recorded as the discussions continue. The discussions were organized during the time that was convenient for the participants. The participants discussed the challenges in assessing practical Agriculture, possible
strategies to address the challenges in assessing practical Agriculture, implementation of the possible strategies addressing the challenges in assessing practical Agriculture and evaluating the efficacy of the implemented strategies.

3.3.3 Brainstorming
The researcher used brainstorming using paper carousel to obtain instructional concerns that led to the generation of the topic; he also used it to obtain the challenges in assessment of practical Agriculture. Brainstorming using falling leaves was used to obtain utopia strategies to address the challenges in assessment of practical Agriculture.

3.4 Research tools
The researcher used Visual in Participation cards, logbook, and camera to collect data.

3.4.1 Visual in Participation (VIP) cards/manila cards
For VIP cards, questions were posed to the participants in groups and feedback was obtained from participants writing their responses on the cards or flip charts distributed to them. They were used to collect the participants' views about the challenges in assessing practical Agriculture and possible strategies to address the challenges in assessing practical Agriculture.

3.4.2 Log book
The researcher recorded the views of each discussion held by the participants within the focus group discussion in the log book. This contained all activities, indicating experiences including dates the resolutions made by the participants and work plans. The researcher kept a journal/logbook of observation field notes and discussions. After each informal observation the researcher recorded his observations in his journal/log book. This data collection technique is highly corroborated (Maykut & Morehouse, 1994). They stated, “The keen observations and important conversations one has in the field cannot be fully utilized in a rigorous analysis of the data unless they are written down”
3.4.3 Cameras
These were used to collect the evidence of the research through taking photographs and videos. These were used during all focus group discussions especially when participants were stressing their views. For academics, smart phone cameras can be used to gather and document information during field research activities (Pelckmans, 2009).

3.5 Ethical considerations
The researcher sought for permission from the college Administration which allowed him carry out research in the College. Assurance was given that the information obtained from the participants would be kept confidential and used only for the research purpose. A democratic approach was adopted whereby there were free discussions and every one's idea was considered. No one would be victimized because of his/her view. All participants were requested to be honest when giving their views (Resnik, 2010).

3.6 Data collection
The data was collected basing on the research objectives using the future workshop which involves five phases: preparation, critique, utopia/fantasy reality/implementation and follow-up phase within the focus group discussions (Jungk & Müller, 1987).

In the preparation phase the researcher presented the introductory letter from Kyambogo University and verbally explained the purpose of the research to the principal of National Instructors’ College Abilonino (NICA). In the due course, the researcher was seeking for permission to carry out research at National Instructors College Abilonino (NICA). The researcher organized a meeting with the participants to draw a work plan for all the activities to be done during the research, and set the rooms and materials to be used. In the preparation phase the researcher also identified the concerns of the participants.

3.6.1 Challenges in assessment in practical Agriculture
Using the future workshop, at the critique phase the researcher posed critical questions to all the participants after arranging them in three (03) groups, as to “You have undertaken or gone
through assessment of practical Agriculture, what are the challenges encountered in assessing practical Agriculture?" Through brainstorming using paper carousel, the participants in their groups then recorded various challenges on VIP/ manila cards and presented them for a brief discussion as the researcher made a video recording and took photographs.

The researcher grouped challenges in assessing practical Agriculture accordingly to areas ("clustered"). The crosscutting challenges in the three (03) groups were selected with participants, and then the researcher together with the participants selected the most serious challenge(s) from the crosscutting challenges that could be solved first. Frequencies of the challenges were determined to arrive at the most serious challenge(s). The researcher recorded all the ideas in the logbook.

3.6.2 Strategies to address the challenges in assessment of practical Agriculture

Basing on the most serious challenge(s) encountered in assessing practical Agriculture identified by participants, in the fantasy phase of the future workshop the researcher sought for utopia strategies to address the challenge(s) as to "What could be the possible strategies to address this / these identified most serious challenge(s) in assessment of practical Agriculture?"

Through brainstorming using "falling leaves", the participants gave various strategies to address the challenge(s) in assessing practical Agriculture as the researcher recorded each of the strategies on the manila card without regarding their practicability, time and funds to be used. Brainstorming using “falling leaves” enabled each participant to note ideas on a flash/VIP card and dropped them on the floor. Each participant looked at the ideas on the floor and would not drop the same idea and after a set time, or when the ideas had stopped coming, the session would be stopped so there was no repetition of ideas.

Following the reality phase of the future workshop, the researcher together with participants identified and recommended the strategies that were most applicable and could be implemented in a short period of time which required fewer funds by ranking them. These were recorded on the manila card. The researcher then recorded all ideas in the logbook.
3.6.3 Implementing the possible strategies addressing the challenges of assessment in practical Agriculture

In the implementation phase the Researcher together with the participants organized another focus group discussion meeting and drew a work plan for implementation of the identified strategies to address the most serious challenge(s) in assessing practical Agriculture at NICA. The work plan indicated who does each activity, when each activity would be done and where each activity would be done. After a work plan/action plan was drawn, implementation started immediately according to the work plan. The work plan was recorded in the logbook.

3.6.4 Evaluating the efficacy of the implemented possible strategies

An observation tool was designed for the participants to critique implementation of the strategies implemented basing on the implementation work plan. The tool would show whether the implemented strategies caused change. This was carried out in the follow-up phase.

3.7 Data analysis

The data and results were presented in a descriptive format and interpretation done to obtain findings using the narrative method.

3.8 Validity

The researcher used the methodological triangulation of data, whereby he used focus group discussions, observations, brainstorming, VIP cards, camera and logbook to collect data. In most instances the researcher compared the data obtained from different tools and methods to check if it was reliable.
CHAPTER FOUR: PRESENTATION, INTERPRETATION AND ANALYSIS OF DATA

Overview
This chapter consists of presentation, interpretation and analysis of the challenges in assessment of practical Agriculture in DITTE programme at NICA, strategies to address the challenges identified, implementation of the possible strategies and the evaluation of the efficacy of the implemented strategies.

4.1 Challenges in assessment in practical Agriculture in DITTE at NICA
The challenges in assessment of practical Agriculture were obtained from participants divided in three groups. The challenges identified were as follows;

**Group 1: Challenges in assessment in practical Agriculture in DITTE**
- Participants complained that they may not even finish syllabi if they sacrifice time to assess during the lessons.
- Lack of training or professional development on how to use assessment rubrics successfully.
- Assessment is usually given low or no point value compared to evaluation (examination), and students may not take the assessments seriously.

**Group 2: Challenges in assessment in practical Agriculture in DITTE**
- Participants complained that they may not even finish syllabi if they sacrifice time to assess during the lessons.
- Lack of training or professional development on how to use assessment rubrics successfully.
- Assessment may demotivate learners.

**Group 3: Challenges in assessment in practical Agriculture in DITTE**
Participants complained that they may not even finish syllabi if they sacrifice time to assess during the lessons.

- Lack of training or professional development on how to use assessment rubrics successfully.
- Assessment can divert teacher from the objective (focus) of the lesson.
- Response of assessment is influenced by the classroom environment.

The crosscutting challenges in the three (03) groups were:
- Participants complain they may not even finish syllabi if they sacrifice time to assess during the lessons.
- Lack of training or professional development on how to use assessment rubrics successfully.

All the participants agreed that out of the two crosscutting challenges, lack of training or professional development on how to use assessment rubrics was a major challenge that needed to be solved and therefore, it was the most serious challenge.

4.2 Possible strategies to address the challenges
In the fantasy phase of the future workshop, through brainstorming using “falling leaves”, enabled each participant to note one possible strategy to address the challenge in assessment of practical Agriculture on a flash card and dropped it on the floor. Each participant looked at the ideas on the floor and would not drop the same idea and after a set time, or when the ideas had stopped coming, the session was stopped so there was no repetition of ideas. There were only two strategies which were dropped according to the procedure of “falling leaves” described. These were:
- Internal training on how to use assessment rubric.
- Practicing the assessment rubric learnt from the short internal training.
All the participants agreed and recommended that the two strategies, internal training on how to use an assessment rubric and practicing the assessment rubric learnt from the internal training should be implemented.

4.3 Implementation of the possible strategies

The strategies, internal training and practicing the use of an assessment rubric that were agreed upon by the participants and were put in place following the implementation work plan that was generated (Appendix 3)

4.3.1 Internal training on how to use assessment rubrics.

A training of three hours was conducted on how to use an assessment rubric by one of the college Mentor Teachers. A nursery bed assessment rubric (Table 2) was generated for preparation of a nursery bed. It was generated by the mentor teacher, lecturers of Agriculture, the administrators and the students of Agriculture.

Table 2: Nursery bed preparation assessment rubric

<table>
<thead>
<tr>
<th>Component</th>
<th>Descriptors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of tools (out of 9)</td>
<td>Having a slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Lacking any one tool among: slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Lacking any two tools among: slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Lacking any three tools among: slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Lacking any four tools among: slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Lacking any five tools among: slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Lacking any six tools among: slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Lacking any seven tools among: slasher, Hand hoe, spade, rake, tape measure, sisal string, pegs, wheelbarrow, and watering can</td>
<td>2</td>
</tr>
<tr>
<td>Selection of ingredients for growth to be added into the soil (out of 5)</td>
<td>Site gentle sloping, not under shade, near a water source, fertile and accessible</td>
<td>5</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>Site lacking any one characteristic among: gentle sloping, not under shade, near a water source, fertile and accessible</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Site lacking any two characteristics among: gentle sloping, not under shade, near a water source, fertile and accessible</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Site lacking any three characteristics among: gentle sloping, not under shade, near a water source, fertile and accessible</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Site lacking any four characteristics among: gentle sloping, not under shade, near a water source, fertile and accessible</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Procedure of nursery Bed preparation (out of 9)</td>
<td>Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed</td>
<td>9</td>
</tr>
<tr>
<td>Failing to perform any one step among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Failing to perform any two steps among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Failing to perform any three steps among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Failing to perform any four steps among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed.

Failing to perform any five steps among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed.

| 4 |

Failing to perform any six steps among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed.

| 3 |

Failing to perform any seven steps among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed.

| 2 |

Failing to perform any eight steps among: Slashing the area, digging the area to a depth of 30cm, loosening the soil, removing all the vegetation, measuring the area of 1.0m by 5m, raising the area into a raised bed, levelling the bed, mixing the soil with “compost manure, phosphate fertilizer, sand or clay, and lime if necessary” and watering the bed.

| 1 |

4.3.2 Practicing the assessment rubric

Nursery beds were prepared by the seven (07) participating students which were closely assessed by the lecturers and administrators. Each student prepared two nursery beds whereby one nursery bed was prepared without an assessment rubric and the other with an assessment rubric. According to Solan and Linardopoulos (2011) ideally, an assessment rubric is distributed to students before the associated assignment is due. This way, students have time to think about how they will be evaluated.

4.4 Evaluating the efficacy of the implemented strategies

After the internal training on how to use assessment rubric and practicing the use of assessment rubric in preparation of a nursery bed, the participants together with the researcher went on
further to observe and evaluate if the implemented strategies had the capacity or power to produce a desired effect of improving assessment in practical Agricultural instruction and enhancing skills acquisition.

Evaluation was purposively done on practicing the use of an assessment rubric only as a strategy while leaving out the training on how to use the assessment rubric. The nursery bed assessment rubric was generated within the training on how to use an assessment rubric, followed by practising the use of the assessment rubric.

The participants and the Researcher used the generated nursery bed assessment rubric as an observation tool to make observations on students’ achievement while preparing nursery beds. In preparing nursery beds, students did not refer to the rubric in one instance and in the other instance they referred to the rubric. Observations were obtained basing on scores in regards to performance of the tasks in preparation of nursery beds. The students’ scores in the instance where they did not refer to the rubric while preparing the nursery bed are given in Table 3.

Table 3: Students’ scores when the assessment rubric was not used in preparation of a nursery bed

<table>
<thead>
<tr>
<th>Student</th>
<th>Selection of tools (out of 9)</th>
<th>Selection of ingredients for growth to be added into the soil (out of 5)</th>
<th>Site selection (out of 5)</th>
<th>Procedure of Nursery Bed preparation (out of 9)</th>
<th>Total (out of 28)</th>
<th>Percentage score (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>19</td>
<td>67.86</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>18</td>
<td>64.29</td>
</tr>
</tbody>
</table>
Results (Table 3) showed that when a practical was conducted without a rubric some aspects of practical skills were not displayed by the learner because they could not have known all the expectations.

Students' scores in the instance where they referred to the assessment rubric in preparation of a nursery bed are given in Table 4.

**Table 4: Students' scores when using the assessment rubric in preparation of a nursery bed**

<table>
<thead>
<tr>
<th>Student</th>
<th>Selection of tools (out of 9)</th>
<th>Selection of ingredients for growth to be added into the soil (out of 5)</th>
<th>Site selection (out of 5)</th>
<th>Procedure of Nursery Bed preparation (out of 9)</th>
<th>Total (out of 28)</th>
<th>Percentage score (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>28</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>28</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>28</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>28</td>
<td>100</td>
</tr>
</tbody>
</table>
All the expectations of the practical were shown to the students and there was improved performance. The results in Table 4 indicated that students were able to perform the tasks indicated in the rubric. The rubric also allowed for consistency in grading for those who assessed the students' work.

The results of preparation of the nursery bed without an assessment rubric (Table 3) and those of preparation of the nursery bed with a rubric (Table 4) indicated that when students know what would be assessed through a rubric, improves their skills acquisition.
CHAPTER FIVE: DISCUSSION

Overview

This study was carried out to investigate on improving assessment in practical Agricultural instruction to enhance skills acquisition in DITTE programme at NICA. This chapter is guided by the objectives of the study.

5.1 Challenges in assessment in practical Agriculture

The participants in three groups were set to identify challenges in assessment in practical Agriculture and the crosscutting challenges across the three groups were: participants complained that they may not even finish syllabi if they sacrifice time to assess during the lessons and lack of training or professional development on how to use assessment rubrics successfully (Section 4.1). The participants particularly pointed at lack of training or professional development on how to use assessment rubrics in assessment of practical Agriculture. Lecturers, students and administrators did not know how to use rubrics successfully in assessing practical. Therefore, there was a need of training the participants on how to use assessment rubrics.

A rubric is a multi-purpose scoring guide for assessing student products and performances. This tool works in a number of different ways to advance student learning, and has great potential in particular for non-traditional, first generation, and minority students. In addition, rubrics improve teaching, contribute to sound assessment, and are an important source of information for program improvement (Kenneth & Ellen, 2007). The participants in this study did not have adequate skills in the use of the assessment rubric to make scoring guides for assessing students’ products and performances.

Also according to Andrade (2000) an assessment rubric is a document that describes varying levels of quality for a specific assignment. Therefore, assessment rubrics focus the teacher helping him or her to clarify the criteria and expectations in specific terms. The assessment rubric clearly indicates everything within all stages or steps in the process of coming up with a product. This was clearly explained by the participants that they needed a tool which would
product. This was clearly explained by the participants that they needed a tool which would enable them clarify the criteria and expectations while conducting any practical in Agriculture. Therefore, the participants’ realization for the need for training or professional development on how to use an assessment rubric was pertinent.

5.2 Strategies to address the challenges in assessment in practical Agriculture

The participants unanimously agreed on two strategies, namely; internal training on how to use an assessment rubric and practicing the use of an assessment rubric. Assessment rubrics provide students with more informative feedback about their strengths and areas in need of improvement than traditional forms of assessment do and allow their learning to become more focused and self-directed (Andrade, 2000). Assessment rubrics can reduce the amount of the teacher’s paperwork because students are a part of the process of assessment development (Andrade, 2000).

5.2.1 Internal training on how to use assessment rubric

In training of participants, an assessment rubric was developed (Section 4.3.1). According to Darling-Hammond, et al (2009) professional development emphasizes more of training teaching staff to perform their duties appropriately and improve on qualification such that there is improved performance through seminars, workshops and conferences. However, inadequate trainings on how to use assessment techniques like rubrics may affect the assessment and lead to low acquisition of skills by learners and thus a need to know how to apply assessment rubrics.

During the internal training in the course of this study, a rubric on how to prepare a nursery bed was developed (Table 2) and it constituted the following: Criteria or component parts which showed the various steps or stages of how to prepare a nursery bed; descriptors that described the various levels of achieving a component part or criterion basing on students’ performance of the task; and scores which graded the level of achieving a component. According to Stevens and Levi (2005) an assessment rubric is a scoring tool, usually in the form of a matrix or table, which delineates the specific expectations or criteria that will be used to assess a student’s performance. An assessment rubric breaks down an assignment into its component parts and provides a
thorough yet concise description of what constitutes acceptable and unacceptable levels of performance for each part.

The internal training on how to use an assessment rubric was attended by all the participants because the Lecturers of Agriculture were always directly involved in assessment when teaching concepts of Agriculture; students were to be given the rubric prior to conduction of the practical and since they were already student instructors, they needed to know how to assess practical Agriculture; and Administrators were directly involved in monitoring and appraising Lecturers so they could not appraise what they did not know well. It is good practice to teach students how to use the rubric and to distribute the rubric to students when you assign a project (Arter & McTighe, 2001).

So all the participants learnt how to generate an assessment rubric to assess practical Agriculture, which would improve skills acquisition. A nursery bed assessment rubric was developed during the training. Professional development emphasizes more of training teaching staff to perform their duties appropriately and improve on qualification such that there is improved performance. (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

5.2.2 Practicing the use of assessment rubric
In this study each of the seven (07) participating students prepared two nursery beds one prepared without the assessment rubric and the other with the assessment rubric. Similarly, according to Solan and Linardopoulos (2011) ideally, an assessment rubric is distributed to students before the associated assignment is due. This way, students have time to think about how they will be evaluated. The Lecturers and the administrators together with the students themselves assessed and evaluated the students’ performance to see whether an assessment rubric improves on assessment of practical Agriculture and whether it leads to skills acquisition by students.

5.3 Implementation of the strategies
In this study training on how to use the assessment rubric successfully, ideally, led to the generation of the nursery bed assessment rubric which was put into practice by the participants.
Whereby each student first prepared a nursery bed without an assessment rubric and then after prepared the nursery bed with an assessment rubric. Andrade (2008) listed three basic steps of rubric-referenced assessment. His steps required students to practice continuously over time in conducting an assignment using the assessment rubric. The first step sets a clear expectation by showing students the rubric before issuing the assignment. The second step is to conduct the self-assessment by circling key phrases in the rubric and on the assignment. In the last step, students revise their work by identifying and correcting their mistakes.

In this study there were a number of administrative and pedagogical advantages to using the assessment rubric. From the student’s perspective the rubric clearly showed them what was expected or required of them in the process of preparing a nursery bed and this reduced the element of surprise. The assessment rubric reduces the element of surprise of what is expected to be learnt by students (Doyle, 2008).

From the Lecturers’ perspective the assessment rubric mitigated the “I didn’t know what was expected” response from students. To ensure meaningful and fair assessment, Lecturers should make students thoroughly familiar with how their work will be judged (Bauer & Anderson, 2000). In this study each student prepared the first nursery bed with surprise without knowing all the expectations however, each student prepared the second nursery bed with the aid of an assessment rubric and the performance was maximum because the expectations were known.

5.4 Evaluation of the efficacy of the implemented strategies
The Researcher and participants checked whether practicing the use of the assessment rubric led to a positive change or had the capacity/power to produce a desired effect. Training on how to use the assessment rubric was not considered because it’s the strategy that led to the practicing of the use of the assessment rubric whereby the nursery bed assessment rubric was generated (Table 2). Participants and the Researcher used the very nursery bed assessment rubric (Table 2) as an observation tool to check whether it caused a change.

The change was more evident according to the scores obtained by students basing on their quality of performance in preparing the nursery beds at each criterion or component when using
the assessment rubric (Table 4) and without using the assessment rubric (Table 3). The purpose of an assessment rubric is to give students informative feedback about their work in progress and to give detailed evaluations of their final products or performances (Andrade, 2000). In this study, when feedback was given after evaluation, the assessment rubric provided feedback to the students accordingly. It was observed that students least achieved each criterion / component scores when they did not use the assessment rubric compared to when they used the assessment rubric in preparing the nursery bed.

Since the assessment rubric categorically graded students with scores at and or in all criteria / components during the progress of performing the practical of preparing the nursery bed, it enhanced the provision of giving feedback to students. There was an indication that the assessment rubric improved assessment in practical Agriculture. As a grading tool, the assessment rubrics address grading issues related to assessment. They reduce grading time. They increase objectivity and reduce subjectivity. They convey timely feedback to students and they improve students' ability to include required elements of an assignment (Stevens & Levi, 2005). Furthermore the assessment rubric judges complex performances involving several significant criteria and provides more specific information or feedback to students (Arter & McTighe, 2001).

In this study when the assessment rubric was used in preparing the nursery beds by students, it was observed that their performance at each criterion or component was at maximum scores (Table 4) compared to preparing nursery beds without using the assessment rubric (Table 3), implying that the assessment rubric improved practical skills acquisition by students. Assessment rubrics support the development of skills and understanding (Andrade 2000). Furthermore an assessment rubric gives a quick snapshot of overall quality or achievement and judges the impact of a product or performance” (Arter & McTighe, 2001).
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study was an action research which investigated improving assessment in practical Agricultural instruction to enhance skills acquisition in the Diploma in Instructor and Technical Teacher Education (DITTE) programme at National Instructors' College, Abilonino (NICA). The specific objectives of the study were: To identify the challenges in assessment of practical Agriculture in DITTE; To identify the possible strategies to address the challenges in assessment of practical Agriculture in DITTE; To implement the possible strategies addressing the challenges of assessment in practical Agriculture; and to evaluate the efficacy of the implemented possible strategies. The study was carried out in the year 2015/16 in the department of Agriculture. Seven (07) students, three Lecturers and two Administrators participated. The study was a qualitative participatory action research using the future workshop and descriptive design. The researcher used observation, focus group discussion, brainstorming, cameras, Visual in Participation (VIP) cards and a logbook to collect the data. The data revealed that: the most serious challenge encountered during assessment of practical Agriculture was lack of training or professional development on how to use assessment rubrics successfully; the strategies to solve the challenge were, internal training on how to use assessment rubric and practicing the use of an assessment rubric learnt from the short internal training which were implemented and evaluated. During the internal training on how to use an assessment rubric, a nursery bed assessment rubric was generated whereby each of the seven (07) students prepared two nursery beds, one with the use of an assessment rubric and the other without the rubric and the scores of performance were evaluated. The results showed that the assessment rubric made a valuable contribution to improving assessment in practical Agricultural instruction and enhancing skills acquisition to the students. As a result the Researcher and participants urged the Department of Agriculture at the College to continuously use assessment rubrics while conducting practical Agriculture.

Conclusions

Basing on the findings, the following conclusions were made: Lack of training on how to use assessment rubrics successfully was the main challenge in assessment of practical Agriculture; Assessment rubrics were effective and efficient tools which allowed for objective and consistent
assessment of performances in Agricultural practical activities; Rubrics helped to clarify expectations and showed students how to meet them, which made students accountable for their performance in an easy-to-follow format; The feedback that students received through an assessment rubric helped them to improve their performance; Rubrics also allowed for consistency in grading for those who assessed the students' work; Rubrics improved student performance, as well as monitored it, by making expectations clear and by showing students how to meet the expectations; The results showed marked improvement in quality of students' work when the rubric was used in carrying out the practical. It was also used for assessment of students' work Furthermore, the Researcher and participants believed that this assessment rubric, which had undergone several iterations, makes a valuable contribution to improving assessment in practical Agricultural instruction and enhancing skills acquisition by the students.

Recommendations
On the basis of the conclusions, the following recommendations were made; the researcher and the participants urged the Department of Agriculture at NICA, to continuously apply the use of assessment rubrics during practical lessons such that the rubrics may improve on assessment and furthermore enhance the acquisition of skills by the students, and the assessment rubric should also be adopted by the other departments in the college.
REFERENCES


https://accelerate.ucsf.edu/files/CTRFP_Ethical_Conconsiderations.pdf


APPENDICES

Appendix 1: Work plan for topic identification

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objective</th>
<th>Date</th>
<th>Personnel</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
<td>To seek for permission to conduct a research in the college.</td>
<td>16/11/2015</td>
<td>researcher</td>
<td>Completed well.</td>
</tr>
<tr>
<td></td>
<td>To establish a pool of potential participants.</td>
<td>17/11/2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set venue and materials needed for the research.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invitation</td>
<td>To invite participants for a meeting.</td>
<td>18/11/2015</td>
<td>Researcher</td>
<td>Completed well.</td>
</tr>
<tr>
<td>Focus group discussion</td>
<td>To identify a research topic.</td>
<td>20/11/2015</td>
<td>Researcher and all participants</td>
<td>Completed well.</td>
</tr>
</tbody>
</table>

Appendix 2: Work plan for data collection

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objective</th>
<th>Date</th>
<th>Personnel</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitation</td>
<td>To invite participants for a meeting.</td>
<td>24/02/2016</td>
<td>Researcher</td>
<td>completed</td>
</tr>
<tr>
<td>Meeting</td>
<td>To remind the participants about the topic, purpose and objectives of the research.</td>
<td>03/03/2016</td>
<td>Researcher all participants.</td>
<td>Completed well.</td>
</tr>
<tr>
<td>Invitation</td>
<td>To invite participants for a focus group discussion.</td>
<td>31/03/2016</td>
<td>Researcher</td>
<td>Completed well.</td>
</tr>
<tr>
<td>Focus group</td>
<td>To identify the challenges</td>
<td>14/04/2016</td>
<td>Researcher and all participants</td>
<td>Completed well.</td>
</tr>
<tr>
<td>Discussion</td>
<td>in assessment of practical Agriculture in DITTE.</td>
<td>To</td>
<td>all participants.</td>
<td>well.</td>
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<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
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<tr>
<td></td>
<td>To identify the possible strategies to address the challenges in assessment of practical Agriculture in DITTE.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Select and recommend the strategies that are truly applicable.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Invitation</th>
<th>To invite participants for the implementation meeting.</th>
<th>29/04/2016</th>
<th>researcher</th>
<th>Completed well.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Implementation meeting</th>
<th>Draw a work plan for implementation of the selected strategies to address the most serious challenge(s) in assessing practical Agriculture.</th>
<th>11/05/2016</th>
<th>Researcher and all participants.</th>
<th>Completed well.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allocate participants with tasks for implementation according to the drawn implementation work plan.</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Invitation</th>
<th>To invite participants for implementation.</th>
<th>13/05/2016</th>
<th>Researcher</th>
<th>Completed well.</th>
</tr>
</thead>
</table>

| Implementation | To implement the possible | 26/05/2016 | Researcher and | Completed |
Appendix 3: Implementation of strategies to address the challenges in assessment of practical Agriculture

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objective</th>
<th>Date</th>
<th>Personnel</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal training on how to use assessment rubrics</td>
<td>To train participants on how to use the assessment rubric to assess practical Agriculture.</td>
<td>26/05/2016</td>
<td>Mentor teachers</td>
<td>Completed well.</td>
</tr>
<tr>
<td>Practicing the use of assessment rubric</td>
<td>To use the assessment rubric during practical Agriculture.</td>
<td>27/05/2016</td>
<td>Participants</td>
<td>Completed well.</td>
</tr>
<tr>
<td>Follow-up</td>
<td>To evaluate the efficacy of the implemented possible strategies.</td>
<td>27/05/2016</td>
<td>Participants and the researcher</td>
<td>Done</td>
</tr>
</tbody>
</table>
Appendix 4: Establishing a Pool of Potential Participants

Would you be willing to participate in small group discussions regarding an action research and other related issues in the College? The discussions would take about 2-3 hours and you would be given breakfast, lunch and refreshments. Only a small number of individuals will be randomly chosen to participate while others will be purposively chosen to participate. The discussion will be videotaped for the purposes of review by the researcher and you the participants in this study.

____ Yes _____ No

If you answered YES, please provide your name and phone number

Name ___________________ Phone Number ___________________ 

Appendix 5: Research questions

“You have undergone some of the activities a DITTE student goes through right from admission to graduation, which activities are not doing well that need improvement?”

“You have undergone assessment of practical Agriculture, what are the challenges encountered in assessing practical Agriculture?”

“What could be the possible strategies to address this / these selected most serious challenge(s) in assessment of practical Agriculture?”
Appendix 6: students' scores without using the assessment rubric

<table>
<thead>
<tr>
<th>Student</th>
<th>Selection of tools (out of 9)</th>
<th>Selection of ingredients for growth to be added into the soil (out of 5)</th>
<th>Size selection (out of 5)</th>
<th>Procedure of Nursery Bed preparation (out of 9)</th>
<th>Total (out of 28)</th>
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<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>15</td>
</tr>
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</table>

Appendix 7: students' scores when using the assessment rubric

<table>
<thead>
<tr>
<th>Student</th>
<th>Selection of tools (out of 9)</th>
<th>Selection of ingredients for growth to be added into the soil (out of 5)</th>
<th>Size selection (out of 5)</th>
<th>Procedure of Nursery Bed preparation (out of 9)</th>
<th>Total (out of 28)</th>
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</table>
10th November, 2015
NATIONAL INSTRUCTORS' COLLEGE, 
ABILOMIDE

RE: INTRODUCTION OF WASILWA JIM
This comes to introduce to you WASILWA Jim a student of Masters in Vocational Pedagogy (MVP) Programme at Kyambogo University. This student bears registration no. 14/U/12921/GMVP/PE and in his final year. As a requirement for graduation, this student is expected to carry out Action Research through a collaborative process with World of Work.

Any support rendered to him is highly appreciated.

Looking forward to your usual support.

Yours Sincerely,

Chris Serwaniko
Project Coordinator, NORHED MVP Program
Masters in Vocational Pedagogy Program

KYAMBOGO UNIVERSITY
A/C No. __________
Date: 10/11/2015

FACULTY OF VOCATIONAL STUDIES
DEPARTMENT OF ART & INDUSTRIAL DESIGN
MASTERS IN VOCATIONAL PEDAGOGY PROGRAMME

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