

**ENHANCING PRACTICAL TECHNICAL SKILLS  
ACQUISITION IN ORDINARY DIPLOMA IN  
SCIENCE TECHNOLOGY CHEMISTRY PROGRAM  
OF KYAMBOGO UNIVERSITY**


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**AN ACTION RESEARCH THESIS REPORT SUBMITTED TO  
KYAMBOGO UNIVERSITY GRADUATE SCHOOL IN PARTIAL  
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A  
DEGREE OF MASTER IN VOCATIONAL PEDAGOGY OF  
KYAMBOGO UNIVERSITY**

**· OCTOBER, 2016**

## DECLARATION

I, Cwinya-Ai Tom of registration number 14/U/12913/GMVP/PE, hereby declare that this action research thesis report is my original work and has not been presented for any award, in any institution.

Signature: .....  .....

Date: ..... 11/10/2016 .....

## APPROVAL

This is to certify that the undersigned have supervised and approved the action research study conducted in the Chemistry Department of Kyambogo University. The master thesis report is now ready for submission.

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**Title:** SECOND SUPERVISOR

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**Date:** 11/10/16

## **DEDICATION**

I dedicate this master thesis report to my father, Orwothwun Justino and my mother, Oyera Terezina. May God almighty bless and reward them for all they have done for me.

## ACKNOWLEDGEMENT

I wish to give special thanks and recognition to the Norwegian government under NORHED/NORAD MVP project for funding the MVP program in KYU; Prof. Dr. Ronny Sannerud the co-ordinator, NORHED MVP project; Mr. Chris Serwaniko the co-ordinator NORHED MVP project KYU and Ms Charity Byarugaba the project administrator, NORHED MVP program. Overwhelming thanks and appreciation go to KYU administration under the leadership of Prof. ~~Eli~~ <sup>Eli</sup> Katunguka, the Vice Chancellor, KYU; Prof. Wadembe the Dean, graduate school, KYU; Assoc. Prof. Bosco Bua the Dean, Faculty of Vocational Studies, KYU and Mr. Emmanuel Mutungi the Head, Department of Art and Industrial Design.

I am indebted to all the Professors, Doctors and Mentors in the MVP program, including Assoc. Prof. Kato Habib, Assoc. Prof. Matovu, Assoc. Prof. Mugimu, Dr. Mulebeke Robert, Dr. Opit Elisabeth, Dr. Nsibambi Connie, Dr. Okello Benson, Dr. Kyazike Elizabeth, Ms. Arinaitwe Dinavence, Mr. Kyakulumbye Alli, Mrs. Joan Kekimuri, Ms. Lucy Ajambo, Ms. Aidah Nganda, Mr. Wycliff Tusiime and Mr. Kikomeko Jesoph.

I whole heartedly thank the Dean of science, Dr. Justus Kwetegyeka and Assoc. Prof. Wanyama Aaron for their tireless efforts in supervising this master thesis report.

I cannot forget the contributions of Mr. Oriada Richard, the Head of Physics Department, Mr. Kawuki Joseph and Mr. Sam Bamukyaye the senior technicians in the Physics Department.

I also wish to remember the contributions of the lecturers, technicians and all the 2015/2016 ODST/C/I students in the Chemistry Department who tirelessly participated in this action research study.

Finally, I wish to thank all members of the 4<sup>th</sup> cohort MVP students, members of MVP Kyambogo team (Agole Peter, Akunda Timothy, Businge Bonnie, Cwinya-ai Tom and Guta Fred) including the class co-ordinator Mr. Bogere Paul who encouraged and kept us united up to the end of the study program.

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## ACRONYMS AND DEFINITIONS OF TERMS

<b>UCE</b>	Uganda Certificate of Education
<b>UACE</b>	Uganda Advanced Certificate of Education
<b>ODST/C</b>	Ordinary Diploma in Science Technology Chemistry
<b>ODST/C/I</b>	First Year Students of ODST/C program
<b>ODST/C/II</b>	Second Year Students or Final Year Students of ODST/C program
<b>CSLT</b>	Certificate in Science Laboratory Technology
<b>HOD</b>	Head of Department
<b>MVP</b>	Masters in Vocational Pedagogy
<b>VET</b>	Vocational Education and Training
<b>TVET</b>	Technical Vocational Education and Training
<b>KYU</b>	Kyambogo University
<b>KCS</b>	Kyambogo College School
<b>UIRI</b>	Uganda Industrial Research Institute
<b>LAB</b>	Laboratory
<b>CBT</b>	Competence Based Training
<b>TECHNICAL</b>	Special skills or knowledge in science or engineering
<b>TECHNICIAN</b>	A worker trained with special skills in science or engineering
<b>CURRICULUM</b>	All experience which a learner goes through in a given period of time
<b>VOCATIONAL</b>	Skills and education that prepare one for a job
<b>KNOWLEDGE</b>	Understanding or information about a subject obtained by experience or study
<b>DIDACTICS</b>	Methods of teaching/learning or Education science
<b>PEDAGOGY</b>	The science, art and craft of teaching/learning
<b>MOES</b>	Ministry of Education and Sports

## ABSTRACT

The action research study was conducted in the Chemistry Department of Kyambogo University (KYU) in order to enhance technical practical skills acquisition by the ODST/C/I learners.

The sample size consisted of all 35 ODST/C/I learners, 3 lecturers, 3 technicians and the Head of Department (HOD) for chemistry from a population of all ODST/C/I, ODST/C/II learners, their lecturers and technicians. The sample selection technique was purposive to ensure the ODST/C/I learners fully benefit from the study right from the beginning to the end of their study program and set a standard for others to emulate.

The work/production process and the future workshop were methods used to collect data. The work/production process analysis was used to determine the six stages (advertise, admit, orientation, delivery, assessment and graduation) in the production of the ODST/C graduates. The future workshop was then used to critically analyse the challenges in the mode of delivery and develop an action plan, implement and evaluate implementation, in order to enhance the technical practical skills of the ODST/C/I learners.

The findings of the study revealed that most of the implementation actions were fully implemented in order to enhance the practical technical skills of the ODST/C/I learners with a few exceptions not fully implemented due to a number of reasons which include the following: lack of commitment and determination by the stakeholders to perform their roles efficiently, the lack of sensitisation and low morale of stakeholders and the lack of infrastructure, equipment and materials needed for the practical lessons.

The following recommendations were also made in order to be able to register more success: the study needed more time to transform the attitudes and behaviour of the stakeholders, supervision and monitoring of the implementation actions should continue at the departmental level, conducting of workshops for sensitisation and provision of incentives to improve motivation to all stakeholders.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the study

This was an action research study which was democratically conducted in the Chemistry Department of Kyambogo University (KYU). The study aimed at enhancing technical practical skills acquisition of the learners of Ordinary Diploma in Science Technology (ODST/C) program in order to make them productive at work place.

The justification for the creation of the ODST/C program in the Chemistry Department, Faculty of Science of Kyambogo University, was to meet the demand of industrialization in Uganda for a variety of specialized skills at all levels, especially in the chemical and research industry. The Industry in Uganda has now reached a stage where practical technical skills are a crucial factor in its continued development and expansion, hence the need to train people to meet the challenges of modern scientific and technological demand in the country. The Science Technology Diploma program in Chemistry department is therefore geared towards the application of chemistry in the chemical and related fields and to impart the required technical skills to effectively work in these areas. The Diploma in Science Technology-Chemistry also seeks to provide an opportunity for career development in industry, research and lays down a foundation for professional growth.

According to Mjelde (1993), Vocational education and training (VET) is the type of education that prepares trainees for jobs. It involves a continuous process of integration of science, imparting of skills, intermediating technology, communication in which practical use of machinery and tools are applied.

The Ordinary Diploma in Science Technology program being offered in the Chemistry Department of Kyambogo, is one of the VET programs which trains and produces technicians who can work in the science laboratories of educational institutions, research institutions and industries.

The teaching and learning process in the ODST/C program attaches great importance to practical lessons because, one (1) credit unit for a theory lesson takes one (1) contact hour of teaching/learning, while one (1) credit unit in a practical lesson takes two (2) contact hours of teaching/learning. The vocational didactics of the ODST/C program also requires that the learners learn from both school and the place-of-work. Out of the 40 weeks of actual teaching and learning in one academic year, 10 weeks are allocated to learning from workplaces known as industrial training attachment. However, the 10 weeks for industrial training is still insufficient when compared to countries like Norway where VET students spend two years learning in school and two years at workplace.

In support of industrial training attachment or learning from workplace, Mjelde (2008) states that vocational education and training has developed in relation to an understanding of teaching and learning process to which workshop (school) learning and learning in working life are central.

According to Kyambogo University (2002), the ODST/C program targets holders of Certificate in science laboratory technology (CSLT), Diploma in physical science and Uganda Advanced Certificate of Education (UACE) or its equivalent in relevant subjects.

The general objectives of ODST/C include the following: producing graduates with relevant technical skills who may opt to work in the growing private sector, research centres or self-



employed; enabling graduates to continue in the academic area as teachers, lecturers, instructors and also acquire higher qualifications; developing students into a productive and useful members of the society.

The specific objectives include: producing students who can competently apply laboratory procedures and techniques; solve problems in industry and other workplaces using the acquired knowledge; assist carry out research.

The course content of the ODST/C include: Physical chemistry 1&2; Engineering drawing; Workshop practice; General laboratory techniques and organization 1&2; Communication skills and humanities; Basic measurements and vacuum techniques; Computing; Biochemistry 1&2; Mathematics; Analytical chemistry 1&2; Photography and AVA; Material science 1&2; Industrial chemistry 1&2; Entrepreneurship skills; Microscopic and microbiological techniques.

The ODST/C program has a duration of four (4) semesters, each academic year consists of two (2) semesters of eighteen (18) weeks of which fifteen (15) are teaching and three (3) weeks of examination. A recess term for industrial attachment is twelve (12) weeks.

## **1.2 Situational analysis**

From my experience with the ODST/C/I learners as a trainer, I have observed and noted a number of challenges in the mode of delivery which hinder practical technical skills acquisition by the learners. I personally teach the ODST/C/I learners, Engineering Drawing and Workshop Practice, intended to equip them with practical skills of designing, producing and maintaining equipment at their work place for a period of only one semester (15 weeks).

## QUALITATIVE REPORT

Candidate's Name:.....

Registration No:.....

Research Topic:.....

Criteria, (Please be very strict or a little liberal depending on the level – e.g. Masters, Doctorate but throughout, be OBJECTIVE)		Maximum number of marks	Marks obtained by the candidate
1	<b>Overall structure, presentation, English language:</b> i.e. logical flow of structural ideas, coherence, general creativity and originality; accuracy and clarity of expression in English.	15	
2	<b>Theoretical Framework OR Literature Review:</b> i.e. appropriate use of secondary sources in building up theoretical framework; awareness/ understanding of current debates; how well have been understood and exposed; the logical application of theory to the case ( <i>for the matter being investigated</i> ).	15	
3	<b>Research Methodology:</b> i.e. formulation of the research problem and subsequent objectives, questions/ hypotheses; appropriateness of the questionnaires; quality of data collected; appropriateness of the study population, sample selection and sampling methodology.	15	
4	<b>Presentation of Findings:</b> i.e. logical flow in presentation, clarity and appropriateness of presentation.	15	
5	<b>Data Analysis and Interpretation:</b> i.e. accuracy of interpretation of data analysis. Appropriateness and success of data analysis techniques.	15	
6	<b>Implication and significance of the data presented and analyzed;</b> i.e. whether the work is significant/ useful/interesting.	15	
7	Recommendations made; relevance, feasibility (how practical is it?) and originality of conclusions (based on results) and recommendations (based on conclusions).	15	
<b>TOTAL</b>		<b>100</b>	

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Name of Examiner:.....

Date:.....

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7	Recommendations made; relevance, feasibility (how practical is it?) and originality of conclusions (based on results) and recommendations (based on conclusions).	15	
	<b>TOTAL</b>	<b>100</b>	

Signature:.....

Name of Examiner:.....

Date:.....

Because of the heavy load covered within the short period, the students are overloaded and find difficulties in internalizing the new concepts taught to them. This has led to some students developing fear and hatred for the two course units, resulting into failure to acquire the required practical technical skills.

Materials required for conducting practical lessons are not always provided in time, while the tools/ equipment and the facilities which were originally designed for a few number of students are now not enough because of the current large number of students admitted. This has made students to do practical exercises in large groups and this mode of delivery has seriously hampered practical technical skills acquisition by individual students.

Giving examples of the relevance and benefits of the course units being taught to real life situation is sometimes not done. This has caused lack of interest or motivation in the subject, hindering acquisition of the required practical technical skills by the students.

On the state of the infrastructure in the TVET institutions, the commissioner in the MOES in charge of TVET, cited by Okello (2005), lamented that BTVET institutions lack instructional material and infrastructure like lecture rooms, teacher's 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 competencies directly required in the labour.

In order to achieve the desired-outcomes of teaching and learning in VET, vocational pedagogy looks at all aspects like teachers' skills, teachers' understanding, the relevance of

the curriculum. learning contexts like classrooms, resources like text books, training materials, teaching aids and socio-cultural influences (Lucas, Spencer and Claxton, 2012).

### **1.3 Motivation to undertake the study**

The researcher, Cwinya-ai, a final year student of Master in Vocational Pedagogy (MVP) of KYU conducted this action research in collaboration with stakeholders who include the ODST/C students, lecturers, technicians and the Head of Department (HOD) of Chemistry, Kyambogo University.

The researcher is also a technician attached to the Physics Department, Faculty of Science of KYU and his area of vocational specialisation is teaching of Workshop Practice and Engineering Drawing to students of Physics, Chemistry and Biology Departments.

The reason which led to the action research being conducted on the ODST/C program of Chemistry Department, KYU, came about when the researcher was assigned a task in Directed Vocational Study (VP 712) to develop appropriate vocational training demands and generate vocational researchable issues in his area of vocational specialisation.

According to constructivists' theory of learning by Billett, (1994), and the experiential learning theories of Dewey, (1916) and Kolb (1984). all emphasise active involvement of learners in constructing knowledge for themselves, building new ideas or concepts based on current knowledge and past experience. The constructivists' theory has many varieties: active learning, discovery learning and knowledge building are three, but all versions promote a student's free exploration within a given framework or structure. The teacher acts as a facilitator who encourages students to discover principals for themselves and construct knowledge by working to solve realistic problems.

According to Sudsomboon (2007), if specific competencies are not focused in the curriculum, the products may not be “work-ready” and therefore not readily accepted by the industry. Therefore, it is necessary to consider occupation-specific competencies in the curriculum design and implementation.

The researcher’s motivation to conduct the action research developed from the researchers’ desire to use the knowledge, skills and attitude acquired from the MVP program to find immediate and practical solutions to the challenges or gaps in the mode of delivery of the ODST/C program, which the researcher had identified (details in 1.2 situational analysis, p.4). This is to enhance production of ODST/C graduates who are practical, employable or self-employed.

#### **1.4 Statement of the problem**

Research expeditions conducted by Kyambogo team of 4<sup>th</sup> Cohort MVP students to assess the performance of the graduates of the ODST/C program at work place/industry revealed that the working graduates lacked some of the required practical skills. It is therefore necessary to enhance practical technical skills acquisition of the ODST/C learners.

#### **1.5 Purpose of the study**

To enhance practical technical skills acquisition by the ODST/C/I learners so as to produce “work-ready” graduates.

#### **1.6 Objectives of the study**

- To develop an action plan to enhance technical practical skills acquisition of the ODST/C/I learners.
- To implement the action plan.
- To evaluate implementation.

### **1.7 Justification of the study**

- To produce VET graduates with the practical skills needed in the world of work.

### **1.8 Significance of the study**

- Students acquire the laboratory practical skills needed for the “world of work”.
- The “world-of-work” is able to succeed because the work force is competent.
- Training institutions is able to achieve their institutional and national goals.
- The researcher acquired the competence of conducting action research to solve problems and develop new knowledge for development.

### **1.9 Scope of the study**

- The action research was conducted in Chemistry Department of KYU in Kampala, Uganda.
- The study involved the ODST/C/I learners, technicians, lecturers and the Head of Department (HOD) of Chemistry, KYU.
- The study was conducted, starting in November 2015 and ended in August 2016.
- It was limited to the sample size and set objectives.

### **1.10 Limitations to the study**

The research encountered the following constraints:

- The limited period (Nov 2015 – Sept 2016) was not enough to make a permanent positive change in stakeholders’ perception and attitude to work.
- Difficulties to collect valid and reliable data due to fear of victimization.
- Shortage of funds to organize, plan, evaluate and write the final report of the study.

### **1.11 Delimitations**

The researcher managed the constraints through the following ways:

- The researcher worked tirelessly including weekends and organized several meetings with the stakeholders.
- Researcher assured stakeholders of anonymity and confidentiality for the information provided.
- Researcher topped up the limited research funds through borrowing.

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.1 Introduction.**

The literature review looked at the work of other scholars on similar research problems in relation to the three objectives of the action research conducted.

#### **2.2 Developing an action plan to enhance practical technical skills acquisition by the ODST/C/I learners.**

The ministry of education and sports (MOES) sector strategic plan 2004/2015 is to help students acquire the competencies they need to join the world of work. (Uganda government, 2005). This is in agreement with the first objective of our study which was, the development of an action plan to address the challenges in the mode of delivery of the ODST/C/I program in order to enhance the acquisition of practical technical skills of the ODST/C/I learners.

Because there are significant numbers of teaching/learning methods, one must be able to select those which can produce the desired-outcomes. Effective vocational teaching requires a blend of hands-on or firsthand learning with critical reflection, collaboration and feedback in the context of strong relationship between teacher and the learner (Lucus, Claxton and Spencer, 2012). This is in agreement with the action plan development by all stakeholders in the study to produce the desired method-of-delivery which can enhance practical technical skills acquisition of the learners.

### **2.3 Implementing the action plan to enhance practical technical skills acquisition of the ODST/C/I learners.**

Implementation of the action plan is practically conducting the planned activities listed down in the action plan by individual stakeholders.

Applebaum (1992) stated that, learning through practical and experience, by trying and failing and trying again, through engaging in action: this is the basis of acquiring through knowledge, even in the realm of pure ideas,” whether it be through the activity of writing, one learners best when one is involved in an activity.

Inglar et al (2002) also strongly agrees that this way of teaching and learning transcends any contradiction between theory and practical in a natural environment.

### **2.4 Evaluation of implementation actions.**

Hyton and Wagner, (1997) identified six attributes of performance assessment in VET which are: assessment is an activity which reflects the criteria of the activity or the realistic work place activity; it is multi-dimensional, encompassing and more than knowledge; it is a continuum from simple to complex activities; it can be assessment of the product, process or both; it is open ended and scoring requires human judgment.

In our study, the assessment or evaluation of the implementation actions was an assessment of performance for competence. Success or failure was judged by individual stakeholders.



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

The research conducted was an action oriented research aimed at enhancing practical technical skills acquisition of the ODST/C learners. This chapter discussed the research methodology used under the headings of research design, population, sample size, sampling techniques, methods of data collection, instruments of data collection, procedure for data collection, data analysis, validity of the data, reliability of the instruments and ethical considerations.

#### **3.2 The research design**

Action research, according to Brydon-Miller (2003), is known by many labels, among others are: participatory research; collaborative inquiry; emancipatory research; action learning, but all are variations on the same theme. The research is characterized by the following: democratically developed knowledge; contributes actively to socially innovative and collective actions; the researcher and practitioners joining in promoting democratic and social changes.

Action researchers are co-producers of knowledge with social actors, based on free agreement to participate together with participants, action research should define the problem statement and the outline for collective actions based on the participants needs within action research, knowledge is generated through shared learning cycles of problem definition, design and implementation of strategies for social change (Svensson and Nielsen 2006).

The action research conducted used democratic approach, involving all stakeholders who included the learners, technicians, lecturers and the HOD of chemistry. Data was democratically collected from all the stakeholders using the work/production process analysis, future workshop analysis methods. The instruments used included questionnaires, interview guide, focus group discussion guide, documentary analysis, participatory observation, and audio-visual recorder and log/record books. The data collected was narrative/word, empirical or factual in format. Descriptive methods were used to analysis the data for meaning, frequency, means and percentages.

In the study, the work/production process analysis was used to determine the problems in the six stages of producing the ODST/C graduate. The future workshop analysis was then used to critically and thoroughly analyse the problem in the mode of delivery, hindering the acquisition of practical technical skills acquisition of the learners and generate realistic solutions to enable production of graduates of ODST/C/I who are “work-ready”.

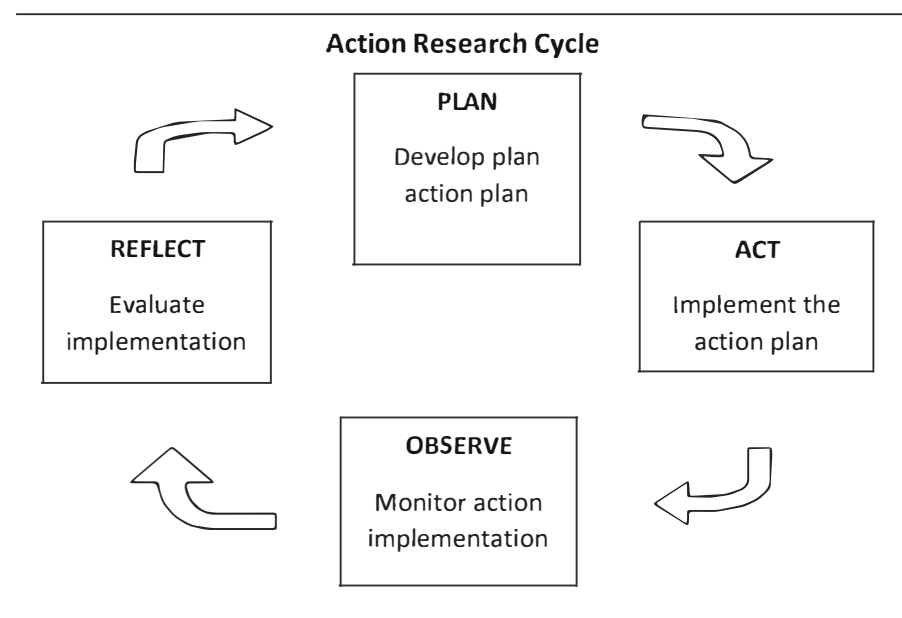
The action research study was also an academic requirement to enable the researcher, an MVP student of KYU, to learn, acquire and practice the skills to conduct action research study which can enable the researcher, together with the stakeholders, democratically identify the problem and generate new knowledge to solve the problem.

### **3.3 Implementation of the action plan**

The action research study conducted used the future workshop to critically analyse the challenges in the mode of delivery of the ODST/C/I program and developed an action plan to address challenges hindering acquisition of practical technical skills by the learners.

Conducting an action research forms a complete circle of activities from democratically identifying the problem together with stakeholders to solving the problems of the affected community. The complete circle of action research activities include the following: plan, act, observe, reflect, and plan again and the circle continuous until the problem is solved as presented in figure 1 below:

**Figure 1: Presents the action research cycle.**



Source: Sannerud (2015)

### **Plan**

The stakeholders in the action research conducted met, identified the problem and developed an *action plan*. where members were assigned tasks to solve the challenges in the mode of delivery of the ODST/C/I program, hindering practical technical skills acquisition by the learners.

## **Act**

The action plan was *implemented* by each stakeholder who included the ODST/C/I students, the lecturers, technicians and the HOD of chemistry.

## **Observe**

The researcher regularly met the stakeholders to *monitor* the action implementation, and enable stakeholders to share their experiences and learn from each other.

## **Reflect**

In the action research conducted, the researcher and stakeholders met to *evaluate* the successes and the challenges encountered in order to achieve the desired goal.

## **Planning**

In the situation where success was not fully registered in the initial round of action research conducted, stakeholders brainstormed and developed an alternative *action* to solve the problem or subsequent problems.

### **3.4 Population**

The research study was conducted in order to produce ODST/C graduates who are work-ready. The ODST/C program is made up of the ODST/C/I and ODST/C/II students. The population of the research study therefore consisted of the ODST/C/I and ODST/C/II students, their lecturers, technicians and the HOD of chemistry.

#### **3.4.1 Sample size**

For the purpose of our study, the sample population chosen consisted of all 35 ODST/C/I students, 3 lecturers, 3 technicians and the HOD of chemistry.

### **3.4.2 Sampling techniques**

The sample selection technique was purposive to enable the ODST/C/I learners learn from the study conducted and acquire the practical technical skills right from the beginning to the end of their study program, thereby setting a standard for others to emulate.

### **3.5 Methods of data collection**

The methods used to collect data were a combination of methods, providing diverse information and different perspectives. They included the work/production process analysis and the future workshop process analysis methods.

#### **3.5.1 The Work/production process analysis**

The method was used in this study to analyse the duties/tasks and competencies of all staff working at each of the six stages of advertising, orientation, admission, delivery, assessment and graduation stage.

### **WHAT IS ACTION RESEARCH ?**

Researcher meets and briefs stakeholders about :

- Action research.
- Work/production process analysis.
- Future workshop analysis.



**Plate1: Stakeholders analyze the duties/tusks and competences needed at each stage of the work/production process.**

Table 1 below presents the required duties/tasks and competences of staff in the production of the ODST/C graduates.

**Table1: Shows the duties/tasks and competencies required in producing the ODST/C graduates.**

<b>WORK</b>	<b>DUTIES/TASKS</b>	<b>COMPETENCIES</b>
<b>1. ADVERTISE</b>	Prepare and advertise study programs; Prepare admission requirements.	ICT skills; Administration; Records; Management; Communication; Interpersonal skills.
<b>2. ADMISSION</b>	<b>Select successful applicants;</b> Issue admission letters; Register students.	<b>Administration; communication skills;</b> ICT skills; Secretarial and management skills.
<b>3. ORIENTATION</b>	Introduce new students to the university structure.	Communication skills; Administration; Public relations; ICT skills.
<b>4. DELIVERY</b>	Prepare lessons; Use teaching aids; Teach; Assess performance; Give feedback.	Knowledge of subject matter; Use of teaching aids; ICT skills; Management skills.
<b>5. ASSESSMENT</b>	Give course work; Give exams.	Knowledge of subject matter; Professional ethics.
<b>6. GRADUATION</b>	Prepare and publish lists of graduates; Graduate successful graduates	Records management; ICT skills; Administration; Public relations; Financial skills.

Source: field data

The work/production process analysis was also used to generate the challenges/gaps at each of the six stages of producing the ODST/C graduates: advertising, orientation, admission, delivery, assessment and graduation. The challenges/gaps generated are presented in table 2 below.

# WORK/PRODUCTION PROCESS ANALYSIS MEETING

Learners present challenges



Researcher listing challenges



**Plate 2: Stakeholders present challenges.**

**Plate 3: Researcher listing challenges.**

**Table 2: Presents the challenges encountered at each of the six stages of producing the ODST/C graduates.**

<b>STAGE</b>	<b>CHALLENGES</b>	<b>STAGE</b>	<b>CHALLENGES</b>
<b>1. ADVERTISE</b>	Limited period given for application Difficulty in accessing information High cost of application forms	<b>4. DELIVERY</b>	Teacher centred teaching Limited access to free internet Lack of moral to teach Lack of moral to learn
	Un refundable application fees Limited number of study programs High cut-off points for admissions		Lecturers don't assist students Librarians charge students money. Explanations are not clear
<b>2. ADMISSION</b>	Cumbersome registration process Slow registration process Expensive process of registration Delay to issue admission letters No residence for government students		Lack of industrial tours. Teaching theory without practical Absenteeism by lecturers Careless use of equipment Careless use of furniture Dodging classes by students
<b>3. ORIENTATION</b>	Many students ignore orientation Aim of not clear Short period for orientation Many staff orientation are not introduced Many staff member ignore it Limited space for meeting students. Students' gowns not issued in time	<b>5. ASSESSMENT</b>	Lecturers delay to give course work. Failure to mark/return work. Students don't submit course work Assessment demoralise students Lecturers don't give remedial Students cheat in course work.
<b>4. DELIVERY</b>	Lecturers encroaching on the time for other lessons. Short period for internship Students focus on passing exams Giving handouts without explanations Students report late for semester.	<b>6. GRADUATION</b>	Clearance process is time wasting Graduates names not on the list Clearance process is tedious Graduation process tedious Transcript not issued in time

Source: field data



The challenges in the mode of delivery (methods of content delivery and assessment) was democratically chosen as the most urgent problem prevailing in the process of producing the ODST/C graduates because it affects or hinders the acquisition of practical technical skills of the learners. The challenges in the mode of delivery was taken to the future workshop analysis in order to democratically find realistic solutions, so as to produce ODST/C graduates who are “work-ready”.

### **3.5.2 The Future workshop analysis method**

According to Sannerud and Kjeller (2013), the Future workshop can be defined as a method to solve problems perspective of the future. It is a method that enables a group of people to develop new ideas or solutions when working for instance with social problems. The future workshop is particularly suitable for participants who have little experience with the process of creative decision making, but work with children or youth for example. This technique or method has also been used in Norway for developing a work-based learning at the construction site. It has also been used in school improvement projects in Norway and in other countries. The future workshop is also a working method suitable for self-controlled learning. Some basic values that are emphasised in the future workshop are: dialogue, transparency, equity, and democracy.

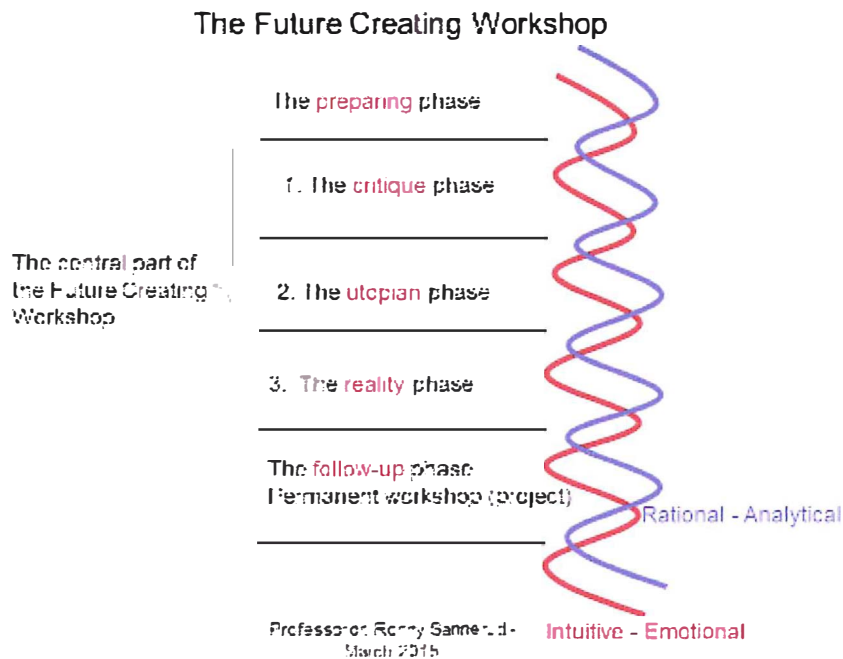
The future workshop analysis is a tool that involves the participants of a project to work out solutions to problems according to the existing situation. The method is an intuitive and analytic way to highlight problems and look for suggestions to solve them. The future workshop can be transferred to situations of education and learning. It is aimed at the future and it was developed by Robert Jungk and Norbert R. Muellert during the citizens' movements against governmental bureaucracy and technocratic large scale projects in the

1970s. The method was inspired by the German critical theory (Adorno, Hegel) and creative techniques (Apel, 2004).

The classic future workshop consists of five phases: The planning phase involves meeting stakeholders and explaining the rules and procedures to be used. The critique phase is the start of the workshop where the problem is investigated critically and thoroughly. The fantasy/utopian phase is imaginative where critique points or challenges are turned to good and forms the “idea store”. The realistic/implementation phase evaluates the “idea store” for the best practical and realistic solutions. The best solution is then chosen and an action plan for implementation is developed. The follow-up phase is the evaluation of the performance of the study and a new circle may start again (Sannerud, 2015).

Presented in figure 3 below is the diagrammatic description of the process followed when conducting a future workshop process analysis:

**Figure 2: Presents the five phases of the future workshop.**



**Source: Sannerud (2015)**

The future workshop analysis conducted was to find realistic solutions to the challenges/gaps in the mode of delivery which affects or hinders the acquisition of practical technical skills of the learners of ODST/C. The following activities were conducted at each of the five phases of the future workshop analysis and are presented below:

### **The planning phase**

The researcher organized a meeting of all stakeholders in the research study and introduced the concept, rules and procedures of conducting the future workshop analysis. All preparations and dates for subsequent meetings were also being fixed.

### **The critique phase**

This marked the start of the workshop where the challenges/gaps in the mode of delivery process was critically and thoroughly analysed. Following democratic principles, all criticisms, ideas and contributions from all participants was equally respected and listed

down. The categorized and ranked list of challenges/gaps in the mode of delivery in the ODST/C program was generated and is presented in table 3, below:

## FUTURE WORKSHOP ANALYSIS MEETING

Researcher listing criticisms



HOD gives realistic solutions



**Plate 4: Researcher listing criticism.**

**Plate 5: HOD presents solutions.**

**Table 3: Presents the challenges of all the stakeholders in the mode of delivery.**

LECTURER'S CHALLENGES	STUDENT'S CHALLENGES	DEPT'S CHALLENGES
Teacher centred teaching	Come late for lessons	Limited training equipment
Give handouts without teaching	Dodge lessons	Lack of training materials
Do not conduct industrial tours	Report late for semester	Not fully equipped library
Don't give relevance of skills taught	Submit course work late	Limited learning space
Come late to teach	Cheat during course work	Limited furniture
Do not give remedial		Limited access to free internet
Give feedback late		Lack of industrial tours
Dodge classes		Limited period for internship
Do not attend to students		Librarians charge students
Give course works late		Late issue of admission letters
		Late payment of lecturers

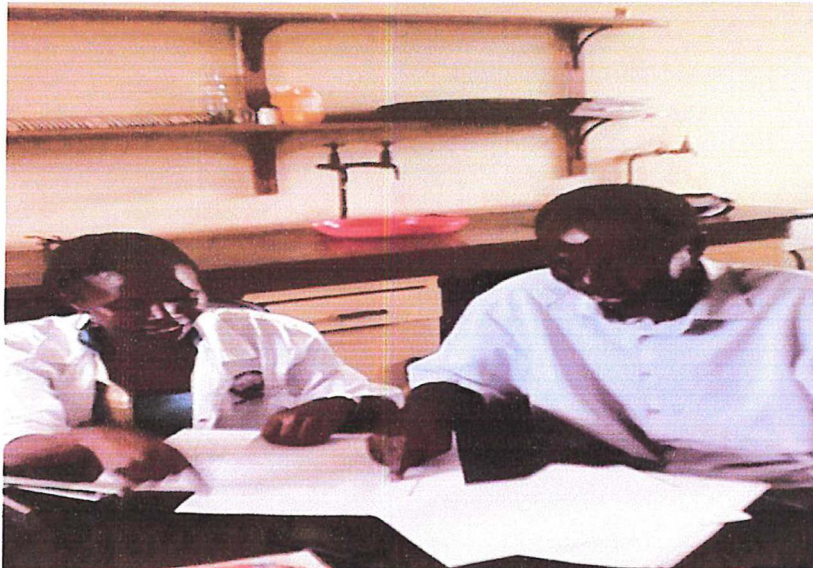
**Source:** field data

### **Fantasy/utopian phase**

At this phase, all the criticisms/negatives listed down in the critique phase were turned into utopian solutions/positives, assuming that there are no barriers, limitations or restrictions. The utopian solutions presented are exaggerated pictures of future possibilities which may not be practically achievable at the moment, hence the name future workshop.

### **Implementation/reality phase**

All the utopian solutions were critically analysed at this phase, and transformed into realistic and practically implementable solutions. The best suited solutions for each of the problems were chosen and an action plan for implementation was drawn. The action plan described who does what, where, when and how in order to solve each of the challenges/gaps in the mode of delivery.



**Plate 6: Researcher discusses action implementation strategies with technicians.**



**Plate 7: Researcher monitors action implementation process.**

Presented below in table 4, is the action plan for solving the challenges/gaps in the mode of delivery in the ODST/C/I program.

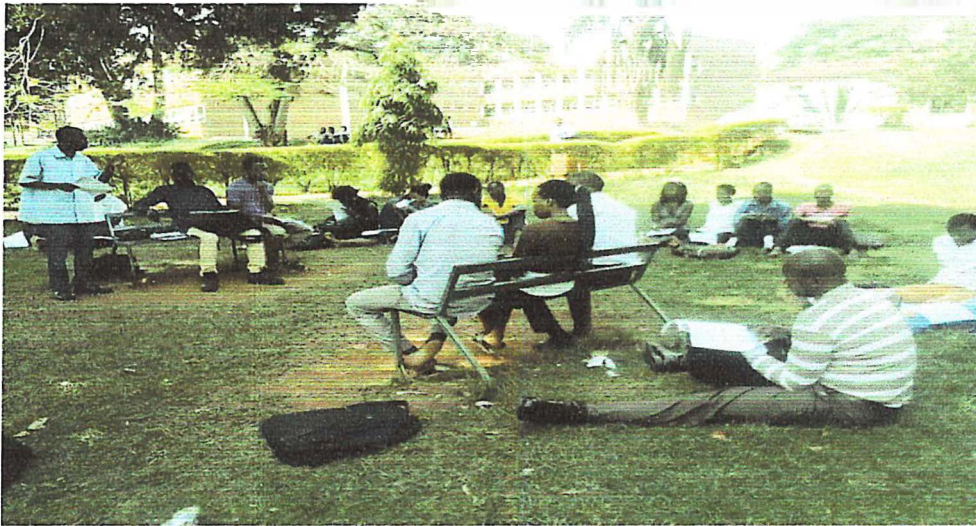
**Table 4: The table presents the action plan to address the challenges in the mode of delivery.**

Challenges	Action	Responsible people	Action and monitoring time frame	Evaluation time frame
Dodge teaching theory or practical lessons	Teach all lessons as time tabled	Lecturers & Technicians	March-May	May
Come late for lessons	Come in time for lessons	do	do	do
Employ teacher centred teaching method	Employ student centred teaching method	do	do	do
Give handouts without teaching	Teach and also give notes or handouts	do	do	do
Give no of applications of the skills learnt	Identify applications of the skills learnt with students	do	do	do
Give course works late	Give course work in time	do	do	do
Give late feedback	Give prompt feedback	do	do	do
Don't give remedial tests	Give remedial tests	do	do	Do
Don't assist students with problems	Assist students with problems	do	do	Do
Do not conduct industrial tours	Organise industrial tours every semester	do	do	Do
Report late for semester	Report at the beginning of the semester	Students	do	Do
Dodge lessons	Attend all lessons	do	do	Do
Come late for lessons	Come in time for lessons	do	do	Do
Don't submit course works	Submit all course works	do	do	Do
Cheat in test or exam	Don't cheat in test or exam	do	do	Do
No training materials	Provide materials	HOD	do	Do
Library under equipped	Provide the books	do	do	Do
Limited classrooms	Provide classrooms	do	do	Do
Limited free internet	Provide free internet	do	do	Do
Limited equipment	Provide equipment	do	do	Do
Outdated equipment	Provide equipment	do	do	Do
Short internship period	Extend the period	do	do	Do
Librarians charge students money	Librarians stop charging students	do	do	Do
Late issue of admissions letters	Issue admission letters in time	do	do	do
Pay lecturers late	Pay promptly provide	do	do	do
Limited furniture	furniture	do	do	do

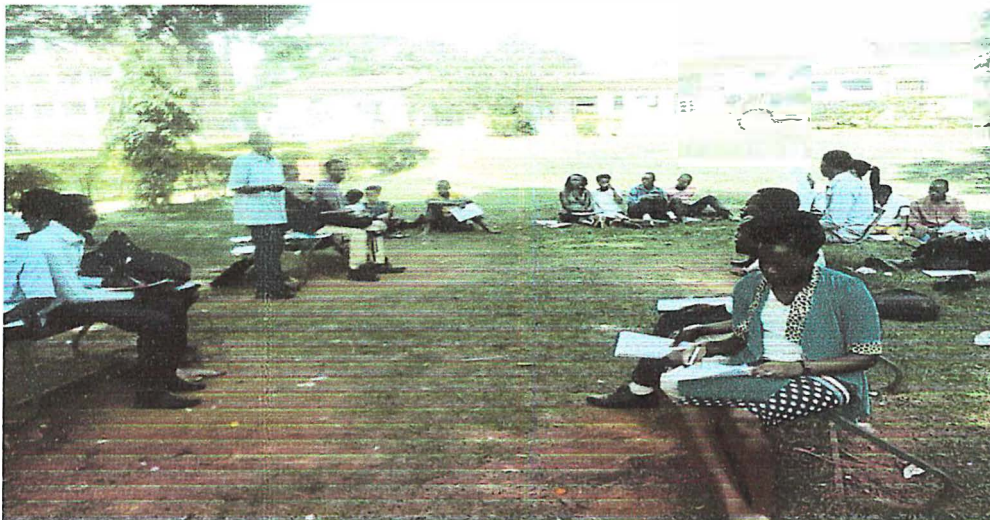
**Source:** field data

### **Follow-up phase**

It is also known as permanent workshop. The researcher together with the stakeholders evaluated the performance (successes or failures) of the action implementation to come up with a new action where necessary.



**Plate 8: Researcher conducting evaluation meeting with stakeholders.**



**Plate 9: Evaluation meeting with stakeholders continues.**



### **3.5.3 Instruments of data collection**

A number instruments/tools were used to collect data for the action research study. They included questionnaires (action implementation and evaluation templates) interview guides, focus group discussion guides, documentary analysis, participatory observation, audio-visual records and log/record books. The instruments were combined to obtain diverse information at different perspectives.

- **Questionnaires**

Action implementation templates were developed to monitor the action implementation process. Evaluation templates were also developed to determine the success or failure of the implementation action.

- **Interview guide**

Open-ended questions were used by the researcher to collect relevant information, challenges and possible solutions vital to the research study, direct from the stakeholders without any restrictions or limitations. A copy is attached in Appendix A.

- **Focus group discussion guide**

The researcher held interviews with the stakeholders in the research study where they critically discussed and analysed the challenges in the research study so as to find realistic and practical solutions to the problems of the research study using the work/production process analysis, the future workshop analysis and other instruments of data collection.

#### **Documentary analysis**

Information on similar studies undertaken by other scholars were searched on the internet and books to provide a broader understanding of the research problem and provide the research

with the relevant literature review for the research study in relation to the objectives of the research study.

- **Participatory observation**

In order to assess the challenges in the mode of delivery, issues like text books, training materials, training equipment, teaching aids, teaching methods and others require the researcher and stakeholders to practically and critically observe and experience the magnitude of the problem in order to provide the best realistic solutions to the problem.

- **Audio-visual recorders**

Data in form of photographs and video recordings were captured and used in the action research study.

- **Log/record books**

The researcher recorded the minutes of the action research meetings conducted including research activities and suggestions made by stakeholders.

### **3.6 Procedure of data collection**

The researcher received an introduction letter from the Dean of Faculty of Vocational Studies through, the HOD of Art and Industrial Design and coordinator of MVP program. The introduction letter was addressed to the Dean of Faculty of Science who authorised the research study to be conducted in the Chemistry Department through the HOD of Chemistry. Data was collected directly from the ODST/C/I learners who were assured of anonymity so as to ensure the validity of the data.

### **3.7 Data analysis**

The data collected was qualitative. Indicators with numbers/scores were assigned to the categories of qualitative data obtained to give discrete data which was analysed using descriptive method for meaning, frequency and percentages.

### **3.8 Validity of the data**

Validity is a measure used for data quality control. It is used to refer to the truth, correctness and strength of a statement or knowledge claim. Research is stronger if information is collected in many ways and that triangulation helps in providing more meaningful data (Miller, 2008). In our action research study many types of instruments were used to ensure the validity of the data. The instruments included questionnaires, interviews, focus group discussions, document analysis, participatory observations and audio-visual recordings.

### **3.9 Reliability of the instrument**

Reliability refers to the extent to which the research instrument will yield consistent findings (Haiwell, 2012). 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 respondent even if by other researchers. In our study, the researcher employed different types of instruments, making the data collected more meaningful.

### **3.10 Ethical considerations**

Introduction letter was obtained from the Dean faculty of Vocational studies to the Dean faculty of Science for permission to conduct the study in the Department of Chemistry, KYU. All the stakeholders and participants were assured of anonymity and confidentiality for all the information they provided for the study.

## CHAPTER FOUR

### ACTION IMPLEMENTATION RESULTS AND EVALUATION

#### 4.1 Introduction

This chapter presents the implementation of the action plan, evaluation of the implementation action and the findings of the study.

#### 4.2 Implementation of the action plan

The action plan indicate the actions or activities, unanimously developed by all the stakeholders for implementation in this action research to address the challenges in the mode of delivery of the ODST/C/I program so as to enable the learners acquire the practical technical skills needed in the world-of-work.

To facilitate the implementation of the action plan, attendance register, action implementation templates and log books have been designed and used to record all implementation activities conducted by stake holders in the action research study.

The implementation actions were recorded in the following ways;

- Each student, technician and lecturer registered their time of arrival for each lesson in the attendance registers to monitor time keeping.
- Each student, technician and lecturer recorded, whether each action to address the corresponding challenges in the mode of delivery of the ODST/C/I program have either been fully implemented or not–implemented.
- The HOD recorded, weather each action to address the correspondent challenges in the mode of delivery of the ODST/C/I program have been fully implemented, partly implemented or not implemented in the action implementation template for the HOD.

- The researcher also recorded all the relevant research action conducted in the action research logbook.

#### **4.3 Evaluation of the implementation actions.**

Evaluation was conducted by each participant to ensure whether or not, the implementation actions to address each of the challenges in the mode of delivery of the ODST/C/I program were conducted.

To evaluate the implementation actions, they were categorized in the implementation templates as fully-implemented, with a score of 1.0 mark and not-implemented with a score of 0.0 mark.

The evaluation exercise by each participant produced three categories/levels of implementation actions as presented in table 5 below.

**Table 5: presents the score range for each category/ level of implementation action.**

<b>Action implementation</b>	<b>Score range</b>
Fully-implemented	0.80-1.00
Partly-implemented	0.50-0.79
Not-implemented	0.00-0.49

**Source:** own data

The evaluation exercise was conducted as presented below:

- Each student filled in the evaluation template, the level of each action implementation obtained, after calculating the average for each action implemented for each lesson attended.

- Each lecturer filled in the evaluation template, the level of action implementation obtained after calculating the average for each action implemented for each lesson taught.
- Each technician filled in the evaluation template, the level of action implementation obtained after calculating the average for each action implemented for each practical conducted.
- The HOD also filled in the evaluation template, whether each action to address the corresponding challenge was fully-implemented, partly-implemented or not-implemented.
- Using the evaluation templates from the students, technicians and lecturers, the percentage of respondents for all the levels of action implementation was calculated for each of the actions implemented.

#### **4.4 Findings of the study**

Evaluation of the implementation actions was conducted to give the findings of the study whether the implementation actions were fully-implemented, partly-implemented or not -- implemented and why.

##### **4.4.1 Response rate**

Data was collected from respondents in the study. Table 6 below presents the number of respondents in the study.

**Table 6: Shows the number of respondents**

Respondents	Expected no of respondents	Actual no.	Percentages
(HOD)	1	1	100%
Lecturers	3	3	100%
Technicians	3	3	100%
Students	35	35	100%
TOTAL	42	42	100%

**Source:** field data

All 42 respondents participated in the study giving 100% response rate.

#### **4.4.2 Teach according to the timetable**

The action plan requires that lecturers and technicians conduct lessons/ practical as timetabled. Table 7 gives the findings as shown below.

**Table 7: Teach according to the timetable**

Action implementation	No. of respondents	Percentages
Fully-implemented	20	50%
Partly-implemented	19	45%
Not-implemented	2	5%

**Source:** field data

#### **Interpretation of the data in the table**

50% of respondents agree that lessons are conducted as timetabled, while only 5% disagree.

#### **4.4.3 Involve students in the teaching/ learning process.**

Whether lecturers/ technicians involve students in the teaching/ learning process.

**Table 8: involve students in the teaching/learning process.**

Action implementation	No. of respondents	Percentages
Fully-implemented	18	44%
Partly-implemented	12	29%
Not-implemented	11	27%

Source: field data

#### **Interpretation of the data in the table**

44% of respondents agree that students are involved in the teaching/learning process. 27% disagree.

#### **4.4.4 Lecturers/technicians teach and give notes/handouts**

The action plan requires lecturers/technicians to teach and give notes/handouts.

**Table 9: Lecturers/technicians teach and give notes/handouts.**

Action implementation	No. of respondents	Percentages
Fully-implemented	22	54%
Partly-implemented	13	32%
Not-implemented	6	14%

Source: field data

#### **Interpretation of the data in the table**

54% agree that teaching is done and notes are given, while 14% disagree.

#### **4.4.5 Take students for industrial/study tours every semester**

The research study requires students to be taken out for industrial yours every semester. The findings are presented in the table 10 below



**Table 10: Take students for industrial/study tours every semester**

Action implementation	No of respondents	Percentages
Fully-implemented	1	2%
Partly-implemented	0	0%
Not-implemented	40	98%

**Source:** field data

**Interpretation of the data in the table**

Nearly all respondents agree that industrial tour was not organised.

**4.4.6 Identify applications of the skills learnt together with students**

The action research study requires that lecturers/technicians should identify applications of skills learnt together with students. Table 11 presents the findings.

**Table 11: Identify applications of the skills learnt together with students**

Action implementation	No of respondents	Percentages
Fully-implemented	20	49%
Partly-implemented	12	29%
Not-implemented	9	2%

**Source:** field data

**Interpretation of the data in the table**

Nearly half of the respondents agree that lecturers/technicians identify practical applications of the skills they teach together with the students. 22% don't agree 29% agree that some do while other don't.

**4.4.7 Lecturers/technicians keep time for lessons**

The study requires lecturers/technicians to come in time for lessons. Table 12 below shows the findings.

**Table 12: Lecturers/technicians keep time for lessons**

Action implementation	No of respondents	Percentages
Fully-implemented	21	51%
Partly-implemented	16	39%
Not-implemented	4	10%

Source: field data

**Interpretation of the data in the table**

51% of respondents agree that lecturers/technicians keep time while 10% disagree. 39% agree that sometimes lecturers come in time.

**4.4.8 Give remedial tests to students**

The study conducted requires that lecturers/technicians give remedial tests to students to give chance to students to learn. The findings are shown in the table 13 below.

**Table 13: Give remedial tests to students**

Action implementation	No of respondents	Percentages
Fully-implemented	12	29%
Partly-implemented	5	12%
Not-implemented	24	59%

Source: field data

**Interpretation of the data in the table**

60% of respondents agree that remedial tests are not given by lecturers/technicians while 29% agree that remedial tests are given.

**4.4.9 Give prompt feedback to students**

The action research study requires that lecturers/technicians give prompt feedback to students to improve the learning process. The findings on table 14 are shown below.

**Table 14: Give prompt feedback to students**

Action implementation	No of respondents	Percentages
Fully-implemented	10	24%
Partly-implemented	14	34%
Not-implemented	17	42%

Source: field data

**Interpretation of the data in the table**

24% of the respondents agree that feedback is prompt while 42% disagree.

**4.4.10 Lecturers/technicians assist students who need help**

The research study requires lectures/technicians assist students who request for help. The findings are shown in the table 15 below.

**Table 15: Lecturers/technicians assist students who need help**

Action implementation	No of respondents	Percentages
Fully-implemented	17	42%
Partly-implemented	12	29%
Not-implemented	12	29%

Source: field data

**Interpretation of the data in table**

42% of respondents agree that lecturers respond to students with problem while 29% disagree.

**4.4.11 Lectures/technicians give course work in time to students**

The action plan requires lectures/technicians to give coursework to students early to enable timely feedback. The findings are given in the table 16 below.

**Table 16: Lectures/technicians give course work in time to students**

Action implementation	No of respondents	Percentages
Fully-implemented	28	68%
Partly-implemented	6	15%
Not-implemented	7	17%

Source: field data

**Interpretation of the data in the table**

68% of respondents agree that course work is given in time while 17% disagree. 15% agree that some give course work in time.

**4.4.12 Students keep time for lessons**

The study demands that students come in the time for lessons. Table 17 below gives the findings.

**Table 17: Students keep time for lessons**

Action implementation	No of respondents	Percentages
Fully-implemented	22	54%
Partly-implemented	17	41%
Not-implemented	2	5%

Source: field data

**Interpretation of the data in table**

54% of respondents agree that students are time conscious while 5% disagree. 41% agree that sometimes student keep time.

**4.4.13 Students attend lessons as timetabled**

The research study demands that students attend lessons as the timetable without dodging. The findings are presented in table 18 below.

**Table 18: Students attend lessons as timetabled**

Action implementation	No of respondents	Percentage
Fully-implemented	21	51%
Partly-implemented	17	42%
Not-implemented	3	7%

Source: field data

**Interpretation of the data in table**

51% of respondents agree that students attend all lessons while 7% disagree. 41% agree that students are not strict with the timetable.

**4.4.14 Students report promptly for the semester**

The action plan requires students to report for lessons at the start of the semester as timetabled. The findings are presented in table 19 below.

**Table 19: Students report promptly for the semester**

Action implementation	No of respondents	Percentages
Fully-implemented	12	29%
Partly-implemented	25	61%
Not-implemented	4	10%

Source: field data

**Interpretation of the data in table**

29% of respondents agree that students report promptly for semester. 61% agree that some report promptly while others don't.

**4.4.15 Students submit course work promptly**

The research study demands the students to submit course work promptly. Table 20 presents the findings.

**Table 20: Students submit course work promptly**

Action implementation	No of respondents	Percentages
Fully-implemented	37	90%
Partly-implemented	1	3%
Not-implemented	3	7%

Source: field data

**Interpretation of the data in table**

90% of respondents agree that students submit course work promptly while 7% disagree.

**4.4.16 Students don't cheat in tests and exams.**

The study requires students not to cheat in tests or exams. The research findings are presented in table 21 below.

**Table 21: Students don't cheat in tests and exams.**

Action implementation	No of respondents	Percentages
Fully-implemented	23	56%
Partly-implemented	9	22%
Not-implemented	9	22%

Source: field data

**Interpretation of the data in the table**

56% of respondents agree that students don't cheat in tests and exams while 22% don't agree.

22% agree that students sometimes cheat.

#### 4.4.17 The challenge to be addressed by the HOD

The action plan requires the HOD of chemistry to address the challenges for the HOD. The findings are presented in table 22 below.

**Table 22: shows the findings from the HOD of Chemistry**

Action implementation	Evaluation	Interpretation
Provide training materials	Fully-implemented	Students gained practical skills
Provide sufficient library books	Fully-implemented	Students accessed relevant knowledge
Provide enough lecture rooms	Fully-implemented	Students were able to learn
Provide free access to internet	Fully-implemented	Students accessed relevant knowledge
Provide equipment for practical	Fully-implemented	Students gained practical skills
Libraries stop charging students money	Fully-implemented	Students accessed relevant knowledge freely provided
Extend internship period	Not-implemented because it required changes in university programs	Students acquired sufficient practical skills Competence is a life-long experience
Provide enough furniture for students	Fully-implemented but seats to be permanently fixed to stop movements	Students were able to learn
Admission letters issued before semester begin	Partly-implemented Factors like strikes affect flow of activities	Late reporting affected learning
Lecturers paid in time/monthly	Partly-implemented because tuition fees are paid late	Student's learning affected because of low morale of lecturers/ technicians

**Source:** field data

## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATIONS.

#### 5.1 Discussion

The discussions on the findings of the study were conducted objective by objective in order to make meaning of the study.

##### 5.1.1 Developing an action plan to enhance practical technical skills acquisition of the learners.

The first objective of the research study conducted in the chemistry department of Kyambogo was to develop an action plan to enable the production of graduates of ODST/C program who have the practical technical skills needed for the world-of-work.

The action plan developed was a set of well organized activities to be executed by specific target groups to achieve specific goals of the study. This was in agreement with Dittrich (2013) who believed that, the need for curriculum developed usually emerged from a concern about a major issue or problem of one or more target audience.

The action plan in the study was developed after identifying the problem, it was then implemented and evaluated for success or failure. This was in agreement with Print (1993) and Olive (2012) who argues that the essential phases of the curriculum development process include identification of the problem, planning the course of action, implementation, evaluation, back to identification of the problem and the process repeats itself until the objectives have been achieved.

##### 5.1.2 Implementing the action plan

The second objective of the research study was to implement the action plan. Each participant in the study was required to implement the actions intended to address the corresponding



challenge in the action plan. Lave and Wenger (1991) agree that individual learners acquire the skills by engaging in the process. Vocational education is based on learning from practical to theory and has closeness to the work (Mjelde 1995).

Implementation of the action plan involved all stakeholders to actively participate in all actions intended to enhance the laboratory practical skills of the ODST/C/I learners. According to Billertt (1994), the constructivism theory of learning lays emphasis on active involvement of learners in constructing knowledge for themselves through active learning or learning by doing. Students and apprentices in the vocational trades prospered and learnt when they were in activity in the workshops and in vocational schools or in the work-places, while at the same time they found no meaning or relevance to the classroom hours of general education (Mjelde 2006).

### **5.1.3 Evaluation of implementation actions**

The third objective of the action research study was to evaluate the implementation action conducted by all the participants in the study.

Evaluation is a form of assessment to determine the success of the intervention undertaken to address the problem. Vocational education is a competence-based training and requires competence-based assessment. According to Norton and Moser (2008), competency and program assessment is essential for the assessment of program outcomes and program improvement.

The outcomes of the evaluation exercise of the action research study conducted showed areas where success was achieved, while some areas didn't register the expected success, and calls for the repeat of the action cycle with the new strategies formed to address the problem.

## **5.2 Conclusion**

The study was able to develop strategies to enhance the laboratory skills acquisition of ODST/C/I learners, implement, and evaluate the implementation actions.

The evaluation of the implementation actions conducted registered success in some areas while some needed improvements. With time as the university grows, many of the problems posed due to lack of physical infrastructure, equipment, materials and others will be solved but the problems which may require continuous attention is the change of attitude to work/study and the enhancement of morale of stakeholders to enable them perform to the set goals so that everybody is a winner.

## **5.3 Recommendations**

Basing on the outcomes of the evaluation of the implementation actions, the following recommendations were made:

- The study involved change of attitude to work/study on the part of the participants which requires time and persistence.
- The success registered must be consolidated through continuous monitoring and supervision by the department.
- The areas in which significant success was not registered requires development of new strategies which include conducting workshops for sensitization and the provision of incentives to improve motivation.

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## **APPENDIX A: INTERVIEW GUIDE TO THE ODST/C STUDENTS**

The following open-ended questions were used to collect information on the competencies required and the challenges encountered in the implementation of the ODST/C program:

- Did any of you find difficulties during the admission process?
- What do you think the university should do to improve on the admission process?
- Do you face any problem with the delivery methods of the subject matter?
- Are you satisfied with the contents?
- What comments do you have on the resources used in teaching /learning process?  
Textbooks, internet, workshop and laboratory facilities.
- What do you think the university should do to improve on the delivery of content in each course unit?
- What are your comments on the method of evaluation used by the university? (Tests, assignments, exams)
- What do you think should be done to improve on the methods used in evaluation?
- What skills so far have you acquired since you joined the course?
- From experiences shared with your colleagues who have been graduating, what problems have they been facing.

**APPENDIX B: SCHEDULE OF ACTIVITIES**

**November 2015 to May 2016**

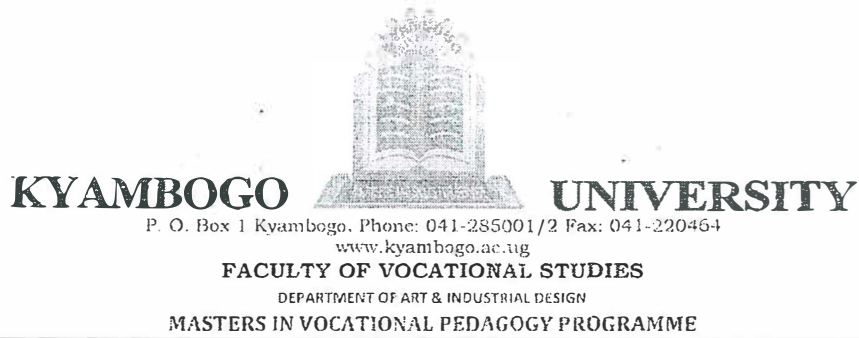
<b>Activity</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>March</b>	<b>April</b>	<b>May</b>
Seeking permission; Conducting Work/production process analysis; Conducting Future workshop analysis; Proposal writing and approval.							
Implementation and monitoring of practical solutions							
Follow-up and planning phase							
Evaluation, data analysis and drafting report writing							
Final review process and handing in final report							
Dissemination of action research report							

### APPENDIX C: BUDGET

Budget category	Unit cost UGX	Multiplying factor	Total cost UGX	Source of funding
Facilitation to cater for requirements to organize meetings for 50 stakeholders.	100,000 =	6 meetings	600,000 =	Principal investigator
Lunch for stakeholders at the work process, future workshop and evaluation meetings.	8,000 =	50 people, for 6 meetings	2,400,000 =	do
Refreshments for stakeholders at the work process, future workshop and evaluation meetings.	soda@ 1,500 = & snacks @ 1,000 =	50 people, for 6 meetings	750,000 =	do
Facilitation to cater for 3 research assistants at each meeting.	30,000 =	3 people, for 6 meetings	540,000 =	do
Data analysis and thesis report writing			100,000 =	do
Internet search & Air-time.	500,000 =	Nov 2015 to May 2016	500,000 =	do
Binding thesis report.	60,000 =	3 copies	180,000 =	do
Contingencies.	200,000 =		200,000 =	do
<b>Total</b>			<b>5,870,000 =</b>	do



## APPENDIX D: LETTER OF INTRODUCTION



15<sup>th</sup> October 2015

The Dean,  
Faculty of Science

Dear Dr.

### REQUEST FOR AN INTERACTION WITH WORK -RELATED ACTIVITIES IN CHEMISTRY DEPARTMENT

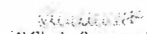
The Masters in Vocational Pedagogy is an action research oriented programme geared towards building capacity in form of competent/human resource that is urgent Need for the development of Vocational Education and Training in both Uganda and the region at large.

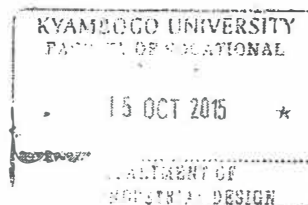
As part of their studies, the students of this programme are required to understand what "work" is, and to develop competence in work-related research activities.

The purpose of this communication is in three folds;

1. Introduce to you **Cwinya Ai Tom** who is currently pursuing a Masters in Vocational Pedagogy. He will be undertaking his action research project in Chemistry Department for a duration of 3 weeks:-
2. Request you allow the student and his mentor/supervisor an interaction with work-related activities carried out at your workplace.
3. Request you to allocate some staff who can guide him while undertaking the action research activities.

Yours faithfully,

  
Chris Serwaniko  
Coordinator, Master in Vocational Pedagogy  
NORHED MVP Project



**APPENDIX E: RESEARCH SUPERVISION TEMPLATE**



**KYAMBOGO UNIVERSITY**  
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 www.kyambogo.ac.ug  
**FACULTY OF VOCATIONAL STUDIES**  
*Masters in Vocational Pedagogy Programme*

RESEARCH SUPERVISION TEMPLATE

Date: 15/09/2016

**Cardholder information**

Student Name:	CWINYA-AI Tom
Reg. No.	14/U/129/3/GMVF/PE
Phone No.(s)	0772-628568
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**Workplace/Institutional Supervisor's contact details**

Name:	Dr. Kwete Jaka Justus	Phone no.	0772-434-082
Email address:	justkwefe@gmail.com		

**Mentor's contact details**

Name:	Arinaitwe Dinavence	Phone no.	0777-367-968
Email Address:	arinaitwedinavence@gmail.com		

Venue for meeting: Faculty of Science Compound Scheduled time of meeting: 3.00-5.00pm

Research Agenda/discussion (Topic of focus): Evaluation of implementation actions

**Progress from previous discussion**

Implementation monitoring

**Way forward**

Assessing the overall/ final evaluation of implementation actions by all stakeholders and produce the report of the study

Date for next meeting: Write the final research report.

Name of Supervisor a) ..... Signature: .....

b) ..... Signature: .....

Name of Mentor/s a) ..... Signature: .....

b) ..... Signature: .....

Student's Signatures: .....

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**FACULTY OF VOCATIONAL STUDIES**

**Masters in Vocational Pedagogy Programme**

RESEARCH SUPERVISION TEMPLATE

Date: 13/07/2016

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Name	Dr. Kweteyeka Joshua	Phone no.	0772-434-082
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**Mentor's contact details**

Name:	Arinaitwe Dinavence	Phone no.	0777-367-768
Email Address:	arinaitwedinavence@gmail.com		

Venue for meeting: Chemistry Lab, West-end, Kyu. Scheduled time of meeting: 10:00 - 12:00pm

Research Area under discussion (Topic of focus)

Monitoring of action implementation by students and lecturers/technicians during Industrial Training

**Progress from previous discussion**

Implementation actions in progress:

**Way forward**

Implementation actions continue

Date for next meeting: 13/07/2016 : monitoring of implementation

Name of Supervisor a) ..... Signature: .....

b) ..... Signature: .....

Name of Mentor/s a) ..... Signature: .....

b) ..... Signature: .....

Student's Signatures: .....



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**FACULTY OF VOCATIONAL STUDIES**

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RESEARCH SUPERVISION TEMPLATE

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Name:	Dr. Kwete-yeka Justus	Phone no.	0772-434-082
Email Address:	justkwete@gmail.com		

Mentor's contact details

Name:	Arinaitwe Dinavence	Phone no.	0777-367-968
Email Address:	arinaitwedinvence@gmail.com		

Venue for meeting: NQMA I Scheduled time of meeting: 11:00-12:00 pm

Research Area under discussion (Topic of focus)

Adoption of data collection templates which included  
adoption of evaluation templates for students and lecturers/teaching  
and HOD attendance registers and record/log books.

Progress from previous discussion

Development of the Data Collection tools.

Way forward

Recording of implementation actions by all  
involved staff.

Date for next meeting: 20/04/2016 Monitoring implementation actions.

Name of Supervisor a) Signature

b) Signature

Name of Mentor/s a) Signature

b) Signature

Student's Signatures:

**KYAMBOGO UNIVERSITY**

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**FACULTY OF VOCATIONAL STUDIES**

*Masters in Vocational Pedagogy Programme*

RESEARCH SUPERVISION TEMPLATE

Date: 12/04/2016

**Candidate Information**

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Name:	Dr. Kweteyeka Justus	Phone no	0772-434-082
Email Address:	JustKwete@gmail.com		

**Mentor's contact details**

Name:	Arinaitwe Dinavene	Phone no.	0777-367-968
Email Address:	arinaitwedinavene@gmail.com		

Venue for meeting: Pattern Shop.....scheduled time of meeting.....4.00-6.00pm:  
Mechanical workshop, KYD.

**Research Area / Under discussion (Topic of focus)**

..... Discussing action implementation strategies with the  
..... Stakeholders

**Progress from previous discussion**

..... Action Plan developed for each category of  
..... Stakeholders who included Students, Lecturers,  
..... Technicians and the A.O.O. of the workshop.

**Way forward**

..... Implementation template must be used by each  
..... Stakeholder to follow performance actions by recording  
..... down activities being conducted

Date for next meeting: 13/04/2016 : provide data collection template

Name of candidate: (P/F)..... Signature:.....

b)..... Signature:.....

Name of Mentor/s: a)..... Signature:.....

b)..... Signature:.....

Student's Signatures:..... J.T.

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**FACULTY OF VOCATIONAL STUDIES**

*Masters in Vocational Pedagogy Programme*

RESEARCH SUPERVISION TEMPLATE

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Reg. No.	14 U 129 3 GMVA PE
Phone No.(s)	0772-628-568
Email:	Cwinyaiatom@gmail.com

**Workplace/Institutional Supervisor's contact details**

Name:	Dr. Kwetegyeka Justus	Phone no.	0772-434-082
Email Address:	justkwete@gmail.com		

**Mentor's contact details**

Name:	Arinaitwe Dinavence	Phone no.	0777-367-968
Email:	arinaitwedinvence@gmail.com		

Venue for meeting: NDA I Scheduled time of meeting: 11:00 - 12:00 hrs

**Research Area under discussion (Topic of focus)**

Implementation Strategy and Plan

**Progress from previous discussion**

to be avoided by how implementation of Action points is done  
- follow up from proposal

**Way forward**

- Develop templates for lectures to capture implementation action
- Keep a log of activities as they are happening
- Students also keep log. Generate minutes at each meeting

Date for next meeting: Friday 15/04/2016. Sample tools provided

Name of Supervisor a)	Arinaitwe Dinavence	Signature:	[Signature]
b)		Signature:	
Name of Mentor/s a)		Signature:	
b)		Signature:	
Student's Signatures:	[Signature]		

**KYAMBOGO UNIVERSITY**  
**FACULTY OF VOCATIONAL STUDIES**  
 Masters in Vocational Pedagogy

RESEARCH EXPEDITION SUPERVISION TEMPLATE

Date: 18/11/2015

Candidate/s name: CWINYA-AI TOM

Registration No.: 141012913/GMVP/PE

**Student's Contact details**

Phone: 0772-628568 Email: Cwinyacitom@gmail.com

**Workplace/Institutional Supervisor's contact details**

Phone: 0772-434082 Email: justkwete@gmail.com

**Mentor's contact details**

Phone: 0777-367968 Email: arunatwedinavence@gmail.com

Scheduled time of meeting: 8:00-11:00am

Venue for meeting: Pattern Shop, Mechanical workshop

Research Expedition Task: Conducting the Future Workshop analysis to find solutions to the problem identified in the work/production process analysis.

Progress on the Task: The Future Workshop analysis Covered Critique utopian & reality phases, where the problem was thoroughly analysed and solutions agreed democratically.

Way forward: The next meeting was scheduled for conducting follow-up phase on the implementation of the agreed solutions.

Date for next meeting: At least twice a month, April to May

Name of Workplace Supervisor: Signature: \_\_\_\_\_

Name of Mentor/s : 1 Signature: 1. \_\_\_\_\_

2 Signature: 2. \_\_\_\_\_

Student/s Signatures: 1. JL 2. \_\_\_\_\_

3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

KYAMBOGO UNIVERSITY  
FACULTY OF VOCATIONAL STUDIES  
Masters in Vocational Pedagogy

RESEARCH EXPEDITION SUPERVISION TEMPLATE

Date	11/11/2015
Candidate/s name	Cwinya-Ar Tom
Registration No.	14/U/12913/GMVPIPE

<b>Student's Contact details</b>	
Phone: 0772-628568	Email: cwinyaritom@gmail.com

<b>Workplace/Institutional Supervisor's contact details</b>	
Phone: 0772-434-082	Email: justkwete@gmail.com

<b>Mentor's contact details</b>	
Phone: 0777-367-968	Email: arinaitwedinavence@gmail.com

<b>Scheduled time of meeting</b>	8:00 - 11:00 am
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<b>Venue for meeting</b>	Patternshop, Mechanical Workshop
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<b>Research Expedition Task</b>	Conducting the work/production process analysis to produce a graduate of C.D.S.T.C. program.
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<b>Progress on the Task</b>	The six stages of: advertise, admission, orientation, delivery, assessment & graduation are analysed.
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<b>Way forward</b>	The next meeting was scheduled for conducting the future workshop to find solutions to the problems identified.
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<b>Date for next meeting</b>	18/11/2015
Name of Workplace Supervisor: .....	Signature: .....
Name of Mentor/s : 1 .....	Signature: 1 .....
2 .....	2 .....
Student/s Signature: 1 .....	2 .....
3 .....	4 .....
	5 .....



**KYAMBOGO UNIVERSITY**  
**FACULTY OF VOCATIONAL STUDIES**  
 Masters in Vocational Pedagogy

RESEARCH EXPEDITION SUPERVISION TEMPLATE

Date 10/11/2015

Candidate/s name CWINYA-AI TOM

Registration No. 14/11/12913/GMVPI/PE

**Student's Contact details**

Phone: 0772-628568 Email: Cwinyaitom@gmail.com

**Workplace/Institutional Supervisor's contact details**

Phone: 0772-434-082 Email: Justkwete@gmail.com

**Mentor's contact details**

Phone: 0777-367-968 Email: arinaitwedinavence@gmail.com

Scheduled time of meeting 8:00am - 11:00am

Venue for meeting Pattern shop, Mechanical workshop

Research Expedition Task Introduction meeting to explain to stakeholders rules and procedures of action research using the work/production process and future workshop analysis

Progress on the Task All stakeholders attended and agreed to participate in the action research to be conducted.

Way forward The next meeting was scheduled to carry out work/production process analysis.

Date for next meeting 11/11/2015

Name of Workplace Supervisor: \_\_\_\_\_ Signature: \_\_\_\_\_

Name of Mentor/s : 1 \_\_\_\_\_ Signature: 1 \_\_\_\_\_

2 \_\_\_\_\_ Signature: 2 \_\_\_\_\_

Student/s Signature: 1 JK 2 \_\_\_\_\_ 3 \_\_\_\_\_

3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_

APPENDIX F: ATTENDANCE LISTS FOR MEETINGS

Serial No.	Name	Address	Signature
10/11/2016 INTRODUCTION MEETING			
		RES NO	SIGN
1	MUSOBI CECILIA	15/1/15805/STC/GV	<i>[Signature]</i>
2	KASAJJA BENARD	15/1/15805/STC/GV	<i>[Signature]</i>
3	NAMBU EMMANUEL	15/1/15805/STC/GV	<i>[Signature]</i>
4	LAWOKE GEREY	15/1/12228/STC/PD	<i>[Signature]</i>
5	MBOACHONGU JESHOA	15/1/12229/STC/PD	<i>[Signature]</i>
6	MUSOKE DENIO	15/1/15805/STC/GV	<i>[Signature]</i>
7	MUYOGBO HOSUNA	15/1/14970/STC/PD	<i>[Signature]</i>
8	EKKO TADMAS	15/1/12990/STC/GV	<i>[Signature]</i>
9	NAMPABA JOHNSON	15/1/15810/STC/GV	<i>[Signature]</i>
10	MULUSHA VICENT	15/1/15806/STC/GV	<i>[Signature]</i>
11	NAKANTAKO IRENE	15/1/15807/STC/GV	<i>[Signature]</i>
12	MWESIGA RONALD	15/1/14242/STC/PD	<i>[Signature]</i>
13	SSALI CHRISTOPHER	15/1/15815/STC/GV	<i>[Signature]</i>
14	NAMULI JOYCE	15/1/15811/STC/GV	<i>[Signature]</i>
15	NANYONTO-ESTHER CELINAH	15/1/15813/STC/GV	<i>[Signature]</i>
16	MWIMUNZA DESIMONIS	15/1/12986/STC/GV	<i>[Signature]</i>
17	SEKUSAMBA JULIUS	15/1/15816/STC/SV	<i>[Signature]</i>
18	WALISWA JOSEPH	15/1/15810/STC/GV	<i>[Signature]</i>
19	OLUPOT NDOER	15/1/12992/STC/GV	<i>[Signature]</i>
20	BANJI FIONA	15/1/12226/STC/PD	<i>[Signature]</i>
21	EMUGU LAURO	15/1/15804/STC/GV	<i>[Signature]</i>
22	BALRE ANTHONY	15/1/14232/STC/PD	<i>[Signature]</i>
23	Namubwaga Anna	15/1/15804/STC/PD	<i>[Signature]</i>
24	Nalyamba Pauline	15/1/15822/STC/PD	<i>[Signature]</i>
25	SSHAMWA CHRISTOPHER	15/1/12249/STC/PD	<i>[Signature]</i>
26	Muluga Paul	15/1/14241/STC/PD	<i>[Signature]</i>
27	CWINYA-BI Tom	RESEARCHER	<i>[Signature]</i>

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Registration Number WORK/PRODUCTION

17th/11/15

Meeting

NAME	REG. NO	SIGN
01 KASAJJA BERNARD	15/U/15805/STC/GV	<del>Kasajja</del>
02 NAZIWA CELIA	15/U/15811/STC/PA	<del>Naziwa</del>
03 NSAMBA EMMANUEL	15/U/15814/STC/GV	<del>Nsamba</del>
04 LAWOKO GEOPREY	15/U/15828/STC/PA	<del>Lawoko</del>
05 ... LAZARO	15/U/15807/STC/ST	<del>...</del>
06 SSAW CHRISTOPHER	15/U/15815/STC/GV	<del>Ssav</del>
07 NAKANJAKO IRENE	15/U/15809/STC/GV	<del>Nakanjako</del>
08 MUHINDO RONALD	15/U/15885/STC/GV	<del>Muhindo</del>
09 RANZI FIONA	15/U/15826/STC/PA	<del>Ranzi</del>
10 BAREKIE RONAH	15/U/15827/STC/PA	<del>Barekie</del>
11 MBOUYICHUNGU JOSHUA	15/U/15829/STC/PA	<del>Mbuyichungu</del>
12 BUKIWE ANTHONY	15/U/14237/STC/PA	<del>Bukiwe</del>
13 NANYONTO ESTHER CELIAH	15/U/15813/STC/GV	<del>Nanyonto</del>
14 LAULA JOSEPH	15/U/15818/STC/GV	<del>Laula</del>
15 NAYEALI JOHANN	15/U/15805/STC/GV	<del>Nayeali</del>
16 Bogere Paul Researcher MVD		<del>Bogere</del>
17 Busingye Bonne		<del>Busingye</del>
18 ELKE THOMAS	15/U/15890/GV	<del>Elke</del>
19 Ssanyu Mary Grace	Sign language Interpreter	<del>Ssanyu</del>
20 NAMULI JOYCE	15/U/15811/STC/GV	<del>Namuli</del>
21 MUSIKE DONIO	15/U/15808/STC/GV	<del>Musike</del>
22 S. SEKAMBA JULIUS	15/U/15816/GV	<del>S. Sekamba</del>
23 MUKHUMBA DESMOND	15/U/15806/STC/GV	<del>Mukumba</del>
24 SSIKAMBA CHRISTOPHER	15/U/15814/STC/PA	<del>Ssikamba</del>
25 Nanyimba Pauline	15/U/15822/STC/PA	<del>Nanyimba</del>
26 Muluga Paul	15/U/14241/STC/PA	<del>Muluga</del>
27 CWINYA-AI TOM	RESEARCHER	<del>Cwinya-Ai</del>

THE FUTURE WORKSHOP MEETING - 18/11/2015

ATTENDANCE - ACTION RESEARCH

	NAME	REG. NO.	SIGNT.
1	Aninaitwe Dinavence	Mentor	Dinavence
2	Dr Kwesiyere Julius	HRD	Dr Kwesiyere
3	Busigye Bonnie	MVP	BB Bonnie
4	BOGERT PAUL	MVP	B Paul
5	WATSKA JOSEPH	15/01/15818/STC/GV	<del>Joseph Watska</del>
6	BALRE ANTHONY	15/01/15237/STC/PD	<del>Anthony Balre</del>
7	MULISHA VICENT	15/01/15506/STC/GV	Mulisha
8	OKKO THOMAS	15/01/12990/STC/GV	Okko
9	MUHUMUZI DESIMOND	15/01/12986/STC/GV	Mulid
10	NANYONDO ESTHER CELINAH	15/01/15813/STC/GV	<del>Esther</del>
11	YIZUL OCUDA	15/01/15221/STC/GV	<del>Yizul</del>
12	NSAMBU EMMANUEL	15/01/15814/STC/GV	<del>Emmanuel</del>
13	KASAZJA BENARD	15/01/15805/STC/GV	<del>Benard</del>
14	MUSOKE DONIO	15/01/15805/STC/GV	<del>Donio</del>
15	LANDKO GEOFFREY	15/01/12228/STC/PD	<del>Geoffrey</del>
16	EMUCE LAZARO	15/01/15804/STC/GR	<del>Lazaro</del>
17	NAKANJAKI IRENE	15/01/15809/STC/GV	<del>Irene</del>
18	BABEKI AWAY	15/01/12227/STC/PD	<del>Awah</del>
19	SSALI CHRISTOPHER	15/01/15815/STC/GV	<del>Christopher</del>
20	M'BONYICHUNGU JOSHUA	15/01/12229/STC/PD	<del>Joshua</del>
21	NAMULI SONCE	15/01/15811/STC/GV	<del>Sonce</del>
22	Naligamba Pauline	15/01/15722/STC/PD	<del>Pauline</del>
23	RAMJI FIONA	15/01/15826/STC/PD	<del>Fiona</del>
24	NANSUBUGA AGNES	15/01/14885/STC/PD	<del>Agnes</del>
25	MUMUNDO RONALD	15/01/12985/STC/GV	<del>Ronald</del>
26	CWINYA-AI Tom	RESEARCHER	Tom

## EVALUATION MEETING

15/09/2016

## ATTENDANCE LIST

NO	NAME	REG. NO.	SIGNATURE
1	MUSA WIZRO	15/01/15801/STC/GV	
2	MUHAMMAD RONALD	15/01/12951/STC/GV	
3	LALIBO GEOFREY	15/01/2228/STC/PD	
4	NOMUBOYO ANNE	15/01/14224/STC/PD	
5	BARERIE RUDAN	15/01/11221/STC/PD	
6	KASAZA BENARD	15/01/15501/STC/GV	
7	BURUNDI ANTHONY	15/01/14237/STC/PD	
8	HATZULI CECILIA	15/01/12213/STC/PD	
9	NAMULI JOYCE	15/01/1584/STC/GV	
10	NALUKA JOSEPH	15/01/15518/STC/GV	
11	MULUSHA VINCENT	15/01/15806/STC/GV	
12	MUHAMMAD DEJIMONDI	15/01/12986/STC/GV	
13	OKIRO THOMAS	15/01/12990/STC/GV	
14	KIZZA KENNETH	15/01/14239/STC/PD	
15	MUSOKE DONIO	15/01/15808/STC/GV	
16	NAKANJAKO IRENE	15/01/15209/STC/GV	
17	OLUPOT MOLEI	15/01/2292/STC/GV	
18	MWANYIMUNGO SESHIA	15/01/2227/STC/PD	
19	NSTIMBU EMMANUEL	15/01/15841/STC/GV	
20	BANSIBANG FIONA	15/01/2226/STC/PD	
21	NAMPALA JOHNSON	15/01/15806/STC/GV	
22	NANYUNTO ESTHER CELINAH	15/01/15813/STC/GV	
23	CWINYA-AI TOM	RESEARCHER	

**APPENDIX G: DATA COLLECTION INSTRUMENTS**  
**ACTION IMPLEMENTATION TEMPLATE FOR LECTURERS/TECHNICIANS**  
**AND STUDENTS**

**Course unit** ..... **Topic of the lesson** ..... **Time** .....

**Instruction:** State whether each action to address the corresponding challenge in the table below has been *fully-implemented*, or *not-implemented*, in this lesson.

**a) Table showing the implementation of the action plan by lecturers or technicians**

<b>Challenges</b>	<b>Action</b>	<b>Action implementation</b>
Dodge teaching theory or practical lessons	Teach theory or practical lessons as time tabled	
Come late for lessons	Come in time for lessons	
Employ teacher centred teaching method	Employ student centred teaching method	
Give handouts without teaching	Teach and also give notes or handouts	
Give no applications of the skills learnt	Identify applications of the skills learnt with students	
Give course works late	Give course work in time	
Give late feedback	Give prompt feedback	
Don't give remedial test to affected students	Give remedial test to affected students	
Don't assist students with problems	Assist students with problems	
Do not conduct industrial tours	Organise industrial tours every semester	

**b) Table showing the implementation of the action plan by students**

<b>Challenges</b>	<b>Action</b>	<b>Action implementation</b>
Report late for semester	Report at the beginning of semester	
Dodge lessons	Attend all lessons	
Come late for lessons	Come in time for lessons	
Don't submit course works	Submit all course works	
Cheat in test or exam	Don't cheat in test or exam	

**Signature:** lecturer/technician/student (tick) ..... **Date:** .....

## ACTION IMPLEMENTATION TEMPLATE FOR THE HOD

**Instruction:** State whether each action to address the corresponding challenge in the table below has been *fully-implemented*, *partly-implemented* or *not-implemented*.

**Table showing the implementation of the action plan by the HOD**

Challenges	Actions	Action implementation
Lack of practical/ training materials	Provide enough practical/ training materials	
Library under equipped	Provide enough reference books	
Limited lecturer rooms	Provide enough lecturer rooms	
Limited access to free internet	Provide free access to internet	
Limited equipment for practical lessons	Provide enough equipment for practical lessons	
Short internship period	Increase internship period	
Librarians charge students money	Librarians stop demanding money from students	
Admission letters issued after beginning of semester	Admission letters issued before semester begin	
Limited furniture for students	Provide enough furniture for students	
Lecturers paid late	Lecturers paid in time/monthly	

Signature .....

Date .....

## EVALUATION TEMPLATE FOR LECTURERS/ TECHNICIANS AND STUDENTS

The course unit: .....

**Instruction:** Calculate the average score for each action implemented and indicate whether each of the action was *fully-implemented*, *partly-implemented* or *not-implemented* and briefly explain, in the table below.

**a) Table showing the evaluation of implementation of the action plan by lecturers or technicians**

Challenges	Action	Evaluation of implementation action
Dodge teaching theory or practical lessons	Teach theory or practical lessons as time tabled	
Come late for lessons	Come in time for lessons	
Employ teacher centred teaching method	Employ student centred teaching method	
Give handouts without teaching	Teach and also give notes or handouts	
Give no applications of the skills learnt	Identify applications of the skills learnt with students	
Give course works late	Give course work in time	
Give late feedback	Give prompt feedback	
Don't give remedial test to affected students	Give remedial test to affected students	
Don't assist students with problems	Assist students with problems	
Do not conduct industrial tours	Organise industrial tours every semester	

**b) Table showing evaluation of implementation of the action plan by students**

Challenges	Action	Evaluation of implementation action
Report late for semester	Report at the beginning of semester	
Dodge lessons	Attend all lessons	
Come late for lessons	Come in time for lessons	
Don't submit course works	Do and submit course works	
Cheat in tests or exams	Don't cheat in tests or exams	

**Signature:** lecturer/technician/student (tick) ..... **Date:**.....



## EVALUATION TEMPLATE FOR HOD

**Instruction:** State whether each action to address the corresponding challenge in the table below has been *fully-implemented*, *partly-implemented* or *not-implemented* and briefly explain.

**Table showing evaluation of implementation of the action plan by the HOD**

<b>Challenges</b>	<b>Actions</b>	<b>Evaluation of implementation action</b>
Lack materials for practical/training	Provide materials for practical/ training	
Library under equipped	Provide enough reference books	
Limited lecture rooms	Provide enough lecture rooms	
Limited access to free internet	Provide free access to internet	
Limited equipment for practical	Provide enough equipment for practical	
Short internship period	Increase internship period	
Librarians charge students money	Librarians stop demanding money from students	
Admission letters issued after the start of the semester	Admission letters issued before the semester begins	
Limited furniture for students	Provide enough furniture for students	
Lecturers are paid late	Lecturers are paid in time/monthly	

**Signature** .....

**Date** .....

APPENDIX H: LECTURE ATTENDENCE REGISTER

Purpose of meeting.....Venue.....Date.....

No.	Name	Registration number or Title	Arrival time	Signature