

**EXAMINING THE EXISTING PEDAGOGICAL APPROACHES
TO ENHANCE STUDENTS' PRACTICAL COMPETENCE IN
THE WOOD WORKING DEPARTMENT AT NAKAWA
VOCATIONAL TRAINING INSTITUTE**

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**A DISSERTATION SUBMITTED TO GRADUATE SCHOOL
IN FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER
DEGREE IN VOCATIONAL PEDAGOGY OF
KYAMBOGO UNIVERSITY**

DECEMBER, 2017

DECLARATION

I, Doreen Barigye hereby declare that this report is my original work which has never been presented for the award of a Master's Degree in Vocational Pedagogy.

The views in this report are purely mine and do not represent the views of the Administration of NVTI where the research was conducted.

Sign

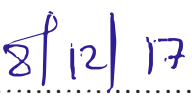
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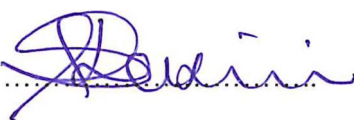
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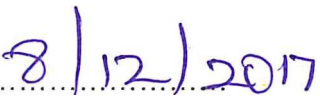
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DEDICATION

I dedicate this work to Nakawa Vocational Training Institute.

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I am indebted to the following people and institutions without which this work should have been impossible to accomplish;

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TABLE OF CONTENTS

DECLARATION.....	ii
APPROVAL	iii
DEDICATION.....	iv
ACKNOWLEDGEMENT.....	v
TABLE OF CONTENTS	vi
LISTS OF FIGURES	xii
LIST OF ACRONYMS	xiii
Abstract.....	xiv
CHAPTER 1: INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Background.....	3
1.2.1 Personal background.....	3
1.2.2 Study background	4
1.3 Situation Analysis	5
1.3.1 In the Department.....	5
1.3.2 Industries.....	8
1.3.3 Collaborations	9
1.3.4 The Alumni	10
1.3.5 The Principal	10

1.3.6	Future workshop	11
1.4	Statement of motivation	12
1.5	Statement of the problem	12
1.6	Purpose of the Study	13
1.7	Objectives of the study	13
1.8	Justification of the study	13
1.9	Significance of the study	14
1.10	Scope of the study	15
1.10.1	Content scope	15
1.10.2	Geographical scope	15
1.10.3	Time Scope	15
CHAPTER 2: LITERATURE REVIEW		16
2.1	Competence Based Education and Training	16
2.2	Learning by doing theory	19
2.3	Pedagogical approaches	20
2.4	Policy Frame work	24
CHAPTER 3: METHODOLOGY		27
3.0	Introduction	27
3.1	Action Research	27
3.2	Research Design	28
3.3	Population	29

3.3.1	Sample and size.....	29
3.3.2	Sampling technique.....	30
3.4	Methods of data collection.....	30
3.4.1	Instruments of data collection.	31
3.4.2	Diaries	32
3.4.3	Photos, videos and audios.	32
3.4.4	Observations	32
3.4.5	Checklists, questionnaires and Inventories	32
3.4.6	Interviews.....	33
3.5	Data Analysis.....	33
3.6	Quality Assurance.....	34
3.6.1	Responsibilities of the stakeholders.....	34
3.6.2	Transparent planning.....	34
3.6.3	Documentation	35
CHAPTER 4: ACTION IMPLEMENTATION RESULTS AND EVALUATION.....		36
4.0	Introduction.....	36
4.1	Presentation of data.....	37
4.2	Objective 1: To examine the current situation in the department concerning practical training	37
4.2.1	Curriculum	37
4.2.2	Partnerships.....	38
4.2.3	Current students	38

4.2.4	Instructors	39
4.2.5	Institute Management.....	40
4.2.6	Former students.....	41
4.2.7	Employers	42
4.3	Objective 2: Development of the learning strategies for practical sessions.....	43
4.4	Objective 3: To implement the strategies to improve students' practical competence	46
4.4.1	Career guidance.....	46
4.4.2	Machine 1 course and Industrial visit.	49
4.4.3	Industrial visit	51
4.5	Objective 4: To evaluate the effectiveness of the learning strategies	53
4.5.1	Career guidance.....	53
4.5.2	Machine course	54
4.5.3	Industrial Visit	55
CHAPTER 5: DISCUSSION OF FINDINGS		56
5.0	Overview	56
5.1	Situation analysis	56
5.2	Career guidance	58
5.3	Machine Course	60
5.3.1	Integrated method of teaching and learning.....	62
5.4	Industrial visit	63
5.5	Conclusion	64

5.5.1	Team Work	65
5.5.2	Democracy	66
5.5.3	Group work	68
5.5.4	Challenges	69
5.6	Recommendations	69
REFERENCES.....		71
LIST OF APPENDICES		76
Appendix A: Introductory letter.....		76
Appendix B: Invitation letter to the research meeting.....		78
Appendix C: Findings from Future Workshop		79
Appendix D: Time Frame		85
Appendix E: Stakeholders' Responsibilities.....		86
Appendix F: Responses about the reasons why wood work students joined the course.....		87
Appendix G: Situation analysis tool (interview guide) for Wood Work.....		88
Appendix H: Data from situation Analysis 12 June 2016		89

LISTS OF TABLES

Table 3. 1: Showing Sample Size for the Study	29
Table 4. 1: Showing Learning Strategies for Practical Sessions.....	43

LISTS OF FIGURES

Figure 2. 1: Unemployment of the young and work based learning in different European countries	19
Figure 2. 2 Five phases of the learning experience. Source: Cairns (2014).....	21
Figure 3.1: Basic Aspects in PAR	29
Figure 4. 1: Focused group discussion with Instructors.....	39
Figure 4. 2: Focused discussion with a former student in industry.....	41
Figure 4. 3: Focused discussion with an employer in the industry and former instructor	42
Figure 4. 5: Students working during a machine course.....	49
Figure 4. 6: Sample mallets done by students on the Lathe machine	50
Figure 4. 7: Students in industry	52

LIST OF ACRONYMS

NVTI -	Nakawa Vocational Training Institute
HWK -	Handwerkskammer
NCDC -	National Curriculum Development Council
DIT	Directorate of Industrial Training
NOMA	NORAD's Program Master's Studies
NORAD -	Norwegian Agency for Development Cooperation
TVET	Technical Vocational Education and Training
UNESCO-	United Nations Educational, Scientific and Cultural Organization
UNEVOC-	UNESCO's International Centre for Technical and Vocational Education Training
VET	Vocation Education and Training
BTVET -	Business Technical Vocational Education and Training
WoW -	World of Work
PAR -	Participatory Action Research
PPP -	Public Private Partnership
CEO	Chief Executive Officer

ABSTRACT

This study thus set out to enhance the current pedagogical approaches to improve the students' practical competence in the Wood Working Department at Nakawa Vocational Training Institute. A participatory Action Research Model was used to carry out this study collecting qualitative data from 32 participants referred to as stakeholders consisting of students, Instructors, representatives from the world of work, the institutes administration and development partners. The situation analysis, future workshop and focused group meetings provided descriptive data and meanwhile all stages of the research were recorded and interpreted. Content analysis was used to present findings. Respondents revealed that the machine course was done using the integrated method of teaching. This is a method that was adopted during the implementation of the machine course where the teacher gave theory within the execution time of the practical tasks in such a way that there was no designated time for theory and practical but both were done concurrently. It resulted into swift development of practical skills to operate and maintain machines using the available materials. The success of the machine course and industrial visits relied heavily on the team work that was developed into all the stakeholders.

CHAPTER 1: INTRODUCTION

1.1 Introduction

Vocational Education and Training (VET) involves craftsmanship, practical experience and practical problems solving (UNEVOC, 2009). Students and their instructors who get involved in VET essentially carry out their learning and teaching in form of practical projects (hands on tasks). Teaching vocational education requires use of the most appropriate methods especially those that actively involve learners in the teaching and learning and the effectiveness of all education systems depends critically on the quality of teaching and learning in classrooms, workshops, labs and other spaces in which education takes place (Akrawi, 2011). The real answers to improving outcomes from vocational education lie in the classroom in understanding the many decisions teachers take as they interact with students (Lucas, Spencer, & Claxton, 2012). Teachers therefore need to use the right instructional methods that enable students plan, actively learn and evaluate their own learning. Vocational Pedagogy is the science, art and craft of teaching and learning or is the sum total of the many decisions which vocational teachers take as they teach, adjusting their approaches to meet the needs of the learners and to match the context in which they find them (Lucas, 2014). In the context of this research Vocational Pedagogy refers to the different methods, approaches and strategies used by instructors to ensure that the students obtain the desired competences by the world of work at the end their training period. The essence of Vocational Pedagogy is to enhance Vocational Education basically to understand exactly how best to engage different kinds of learners so that finally we can achieve the requirements of a skilled workmanship of the 21st century (Lucas, 2014).

My desire and the purpose of this research was to improve learning strategies in order to ensure that students are equipped with practical skills required in the world of work. It was

aimed at exploring the competences (skills, knowledge and attitude) of my students, to establish the gaps and to develop learning strategies to ensure that their learning experiences shape them into relevant individuals in the world of work. Strategies to develop students' attitudes and knowledge were proven through the research that they were the basis to improve their practical skills. Vocational Education and Training plays a vital role in human resource development of the country by creating manpower, enhancing industrial productivity and improving the quality of life (Shoko Yamada, Noriko Matsuda, 2007). There is need therefore to be clear about VET's wider goals and importance and thus to improve its status and image in the society. The students, during the course of the research, were guided to understand the importance of enrolling in Vocational Education. In addition, it was also important to let students know that the kind of education they are pursuing is different from the general education and is the emphasis the current developing world.

Developing countries such as Uganda and India have woken up to the fact that Technical Vocational Education and Training (TVET) is crucial for skills development. For example, in India, a National Policy on Skill Development has been formulated by the Ministry of Labour and Employment and the objective is to create a workforce empowered with improved skills, knowledge and internationally recognized qualifications to gain access to decent employment and ensure India's competitiveness in the dynamic Global Labour market (Goel, 2016). Likewise, in Uganda, the Business, Technical and Vocational Education and Training (BTVET) Strategic Plan 2011/2020 denotes a paradigm shift for skills development. The aim of this strategic plan is for the TVET system to emerge from an educational sub-sector into a comprehensive system of skills development for employment, enhanced productivity and growth (UNESCO-UNEVOC, World TVET Data Base, 2014).

The skills and competencies of a country's work force are dependent upon the quality of the country's education and training systems and in turn progress and prosperity are closely identified with economic development (Jomo, 1993). Vocational education is perceived as one of the crucial elements in enhancing economic productivity (Min, 1995). Based on social efficiency theory, schools should prepare and supply future workers with appropriate knowledge and skills to enhance their productivity and, therefore, promote economic growth (Finch, 1993; Labaree, 1997). From my observation, developing countries had been reluctant to exploiting the potential in this type of education until the recent century when this vocational education has proved to be the more efficient way to foster development. It was a slow but sure process, therefore, this research focused on bringing the students slowly to understand the relevance of vocational education and to recognize how fortunate they are having made such a choice in the 21st century.

1.2 Background

This section presents the personal background, information about the place where the study was conducted, personal experiences that motivated my choice of research, situation analysis, findings from the future workshop, and statement of the problem, purpose of the study, objectives, and scope of the study, justification and significance of the study.

1.2.1 Personal background

Having graduated from Makerere University from the Faculty of Forestry and Nature Conservation with a Bachelors in Wood Science and Technology, I worked as an administrator of a carpentry workshop for two years and a half, however this denied me a hands-on based working experience. I was prompted to apply for another job as an Instructor at Nakawa Vocational Training Institute and my decision to apply for the position was based on the

reputation of this Institute in skills training as stated by the Uganda's Business Technical Vocational Education and training portal, that Nakawa Vocational Training Institute's primary objective of establishment is to provide school leavers and apprentices in enterprises, and to upgrade and assess competences of industrial workers (BTVET, 2017). It carries out instructor training programs for all institutions in the country and to this proven experience, it has grown into a center for skills development in the nation.

From a personal perspective, it was challenging to teach without a teaching background. I appreciated the opportunity and professional responsibility of sharing my practical competence. Putting into consideration that cultural practices and norms do not allow women to work in technical positions, this prompted me to explore the opportunity during my studies at master's level in Vocational Pedagogy. The core strategy was to be equipped with the ability to teach and create a platform on which to unveil the potential of women in vocational education oriented careers. My anticipation would also be able to make a scholarly contribution to the wood working trade through research and innovation.

1.2.2 Study background

The research was conducted in the Wood Working Department at Nakawa Vocational Training Institute (NVTI). NVTI is one of the four public Vocational Training Institutes directly operated by the Ministry of Education & Sports (MoES). There are eight departments directly involved in the execution of the training programs. These include; Electricity, Electronics, Machining and Fitting, Motor Vehicle Mechanics, Carpentry and Joinery (Commonly known as Wood Working in NVTI), Plumbing and Sheet Metal, Welding and Fabrication and Building and Concrete practice. The Wood Working department is further supported by Japanese Technology

to enhance skills development of both students and teaching staff. The department has a basic training program that runs for two years and a one-year advanced course. The training generally follows a National curriculum release of 2016. As a requirement of the curriculum, students are supposed to cover 25% of their time in theory and 75% in practical. However, from personal experience, this has been and continues to be impractical; thus only remaining on paper. The curriculum is theory intensive in that Mathematics, Life skills, Kiswahili and Entrepreneurship including the theory related to practical skills override the time spent in hands on projects for various reasons. These reasons include lack of materials to enhance these activities. The mode of assessment requires a project to be done to pass an exam once a term whereas the rest of practical is limited to small wood working items and preliminary skills such as joints, sanding and varnishing. This study looked at the current state of the department so as to enhance the students' practical competences for the world of work and to how to work within the available resources and time.

1.3 Situation Analysis

The situation analysis was thoroughly done in and outside the department involving all stakeholders who included students, instructors, management, department alumni, development partners (HWK) and employers in industries. This situation analysis became the underlying factor that directed the research into the direction it took.

1.3.1 In the Department

Within the department, the teaching and learning processes originate from a termly departmental work plan which is converted into an activity plan. Based on the National Curriculum, instructors prepare schemes of work, lesson plans, lesson notes, work sheets, assignment sheets and students' projects. This helps to have a well-planned teaching and learning

process. However, not all instructors comply with this process because to some teaching is a spontaneous activity that can be done without planning and due to this behavior, teaching ends into a casual activity in which the trainees rarely get their satisfaction in terms of the quality training they ought to get.

The National Curriculum followed in the department is provided by National Curriculum Development Council (NCDC) however, this is executed alongside the Institutional Curriculum designed to suit the institution's Vision and Mission. The Instructor's role in this case is to merge these two curricula in order to suit the broad learning objectives. The department receives trainees under different categories and these are: basic trainees obtained annually direct from senior four, DITTE (Diploma in Instructor Teacher Training Education), a program based at Kyambogo University and uses Kyambogo curriculum, Ndejje Students for Industrial skills training, and other special groups when need arises such as Kakira staff or trainees from South Sudan under JICA.

Putting into consideration the time scope for this study, basic trainees (these are direct entrants in the department whose course duration is two years for the award of a National Certificate) and their instructors were the major focus for this study. These basic trainees follow the National Curriculum in Wood Working Technology. The department emphasizes the different methods of teaching and learning which include; project /problem based learning where students come up with projects and are guided to execute them till they produce a finished product. This is an appropriate form of pedagogy in vocational education and training as supported by Thomas, (2000) when he states that project learning students learn central concepts of the discipline via the project. In addition, students also learn by doing whereby some concepts are created by them during execution of projects. The theoretical concepts are taught after when

the trainees are requested to apply them. There is only one way in which someone learns how to do anything and that is to let them do it (Roger, 1991). Although there is a general awareness of these methods and approaches in the department, concerted practice is lacking to make this into a reality. Through observation, the department faces voluminous challenges and this study focused on those concerning learning and teaching work processes. First and foremost, during my time as an instructor in NVTI, from personal experience the programme content has been limited to the general curriculum. The department recognizes that there is some important content that is not captured in the curriculum where by extra curricula content is not easy to give to students but through tactful ways a teacher can improvise. That was demonstrated in this research to show the teachers that with cooperation it is possible to prepare competent students for the world of work within the time available.

Previously, about 5years ago, before I was part of the department, it was reported by the instructors who were there that training in the department was client based. In this case, clients were allowed to make orders in the department and students gained from all-round multifaceted activities of receiving clients, listening to their job order descriptions, costing their job orders, producing and delivering them. These activities and experiences were relevant in the world of work hence making our students more marketable in terms of employable skills. However, due to management reasons, this system was discontinued and the recent students cannot benefit from such an experience and therefore the instructors notice the differences between the earlier students and the more recent ones. Therefore instructors continue to advocate for a model of training that embeds the positive strategies within the previous model.

The enrollment system remains another challenge for the department. Few students are willing to apply for the course directly. Those that apply are the least performers in the UCE and

have a negative attitude towards vocational training. Mature entrants and upgraders who have been in industry already are more interested in the training than the direct entrants who are considered to be those who come in from secondary schools and normally they have a negative attitude towards the course.

1.3.2 Industries

A visit to one of the industries that has consistently employed graduates from NVTI revealed that the training in the department does not align the graduates well to the required competence of the World of Work (WoW). These students are received into this industry because they are easy to teach. They observed that the training at the institute gives the students a better attitude to instruction and so can be prepared in a shorter time than those who didn't attend institutional training. These students when they enter the WoW are retrained in skills like machine operation, machine maintenance, blade setting, sharpening, drawing and drawing interpretation and Computerized Aided Drawing (CAD) which are the ones desired in the WoW. The students join the industry when they are not well prepared in these skills and must be retrained. The Chief Executive Officer (CEO) of this Company had an example of a lady trained at NVTI and was now under AutoCAD training. He was impressed about how she grasped the training fast and commented that our students because of the prior training about these aspects like sketching and machine operation they attain the skill quickly. However, he raised a burning issue of how institution trainees are given only small timber models to develop yet this has seized to be a requirement of the industries.

This CEO of this company was at the same time a former trainer at NVTI, and he termed the training as '*wood work style*'. Within this style, students are trained in wood as a material and ignore any other materials that are used alongside in the World of Work such as glass, gypsum,

marbles, plywood, veneers, and other engineered products. He says that this kind of training is not good and it is outdated because it breeds an ordinary wood worker who is almost useless. Therefore, the CEO suggested that instructors and trainees need to have a collaboration with the industries in order to be up to date with the job market requirements so that they can tailor their training to prepare students with employable and employability skills.

1.3.3 Collaborations

Schneeman, a German expert trainer, through the HWK partnership project at NVTI, occasionally comes to train instructors in the wood working department in Uganda and sometimes invites them to Germany, he always incorporates his trainings with visits to companies. This component of the training is what we have termed '*Germanway*'; however this is not the only component of '*German way slogan*'. It can also be interchangeably called '*Schneeman way*' the staff in the department understands exactly what it contains. In most cases it means quality assurance, use of the right tools, use of the right materials, and working as a team, maintenance and care for the tools.

In the same disposition, the Australian Training Accreditation Council considers vocational competency in a particular industry to consist of broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant and current experience in the industry. Vocational competencies must be considered on an industry-by-industry basis and with reference to the guidance provided in the assessment guidelines of the relevant training package. In most situations trainers and assessors hold the qualifications and/or units of competency that they deliver or assess, but where this is not the case, equivalence needs to be demonstrated. Evidence used to demonstrate equivalence of

vocational competency may include relevant past training (including superseded and pre-existing industry qualifications), experience and professional development. Equivalence is most commonly demonstrated by an individual through mapping this evidence against the specific requirements of the unit of competency. This process may or may not identify gaps that need to be addressed (Australia, 2015).

1.3.4 The Alumni

The alumni revealed that the training at NVTI acquaints trainees with much knowledge of hand tools rather than machines and therefore this prepares them for small wood working jobs as opposed to medium scale industries. They felt that with their brief experience in the field of carpentry and Joinery, theory is good but practical is better because it is more required in the WoW. This therefore calls for an amalgamation of the theory and practice in the training of carpenters and joiners.

1.3.5 The Principal

The NVTI Principal condemned the training that concentrates on small models and he compared it to that where students are motivated by real life products. This aligned with the industrial respondent who was also against the training that it is focused on small curriculum based wood models. He also re-echoed the issue of having instructors go to the field in order to have experience of what happens in industry so that the training at the department can be enhanced and adjusted following the demands of the World of Work. He was largely in tandem with the responses from industries.

Based on the above input of information that was given by different stake holders, a future workshop was organized under my coordination as a principal researcher and the main issue was to discuss the pedagogical aspects in the wood working department. The stakeholder's

participation was to share critical thoughts of pedagogy and establish a common intervention strategy.

1.3.6 Future workshop

The future workshop comprised of the following stakeholders; administration/management NVTI, students of wood working department, Instructors Wood working department, representative from the industry, representative of former students and development partners HWK project. The discussion for the future workshop was based on highlighting the expectations, experiences and gaps that all stake holders observed about the pedagogical aspects in the wood working department. The students' expectations included; to learn basic craft skills such as working with machines, portable tools and hand tools, to acquire skills in computer for example to sketch using software, to do only practical but found also theory, came with a perception that wood work is for failures, to learn creativity in production and to learn many designs in carpentry.

The gaps in training were mentioned as: more theory than practical, lack of exposure to costing, practical training lacks consideration of time factor, community attitude towards technical education, theory subject are hard and de-motivate learners, lack of career guidance before enrolment to programs, high fees structure, poor flow of information from administration to students, high rate of drop out from the course, training on small models other than big projects that motivate learners, lack of feedback mechanism, poor facilitation to department from management, historical background of technical education, instructors attitude towards student, lack of self-appraisal, lack of open communication channels and lack of industrial partnerships.

The gaps were further clustered into three categories of Teaching and learning processes, perception and management respectively. These categories were ranked and teaching and

learning processes carried more weight than others; *see appendix C*. From the different aspects under the teaching and learning category, the stake holders chose to handle the issue of ‘practical competence of wood working students’. Activities were suggested to be done in order to improve the practical competence. These activities were clustered in long-term, midterm and immediate. This research adopted the immediate strategies and structured the activities and built on them for tangible output that is chronically recorded and reported in this report.

1.4 Statement of motivation

During the situation analysis phase and processing by using the pairwise matrix, a general trend was discovered from all information provided. Contributions shared by the stake holders reflected that students lacked adequate hands on training during their course of study. This has contributed to the world of work receiving students who cannot perform effectively and necessitated them to acquire further work place training. It's from this basis that a study into the pedagogical approaches for training in the department of Wood Working be examined in order to establish an appropriate and applicable pedagogical strategies for training.

1.5 Statement of the problem

Carpentry and Joinery is a vocational programme leading to acquisition of a joiner and carpenter skill. The Wood Working Department at Nakawa VTI is equipped with Japanese technology tools and equipment necessary for acquisition of quality and relevant vocational skills. The department is also doubly supported by the German Project (HWK) geared towards providing the instructors with practical competences which should in turn be passed on to the students. Despite all above initiatives, the students' practical competence is still not yet to the required level as needed in the World of Work a dissatisfaction raised one of the industrialists during the

situation analysis. Graduates are taught more of theory than practical content and the practical content being taught to students is not appropriate enough to yield competences required in the world of work. There is need therefore to revise the pedagogical approaches and methods of instruction to ensure that more practical training is embedded within the students' teaching and learning processes in order to yield competent individuals for work .

1.6 Purpose of the Study

The purpose of this study therefore was to examine the current pedagogical approaches with a view of enhancing the students' practical competence in the Wood Working Department at Nakawa Vocational Training Institute.

1.7 Objectives of the study

- i. To examine the current situation in the Wood Working department at NVTI concerning practical training.
- ii. To develop learning strategies to improve practical sessions in the wood working programme.
- iii. To implement the learning strategies for the practical sessions.
- iv. To evaluate the effectiveness of the learning strategies implemented.

1.8 Justification of the study

Students are the cardinal stakeholders of learning institutions. When the output in terms of their competence does not measure up to that expected by their potential employers, it creates a question about the quality of their training. Carpentry and Joinery is a practical based course which should equip a student with practical competences needed in the relevant places of work. During the situation analysis, it was discovered that the employers of our students in the Wood

Working department don't appreciate the competence these students go with. In order to have them employed, they have to give them a retraining which is a waste of time and resources. This study examined the mode of the practical training at Wood working department and seek strategies of improvement so that the department can release competent graduates to the World of Work.

1.9 Significance of the study

This research looked into the activities that are done in the department that promote the practical competence of the students and suggested strategies of how these activities can be enhanced. Some learning and teaching strategies geared towards improving the practical competencies of students were suggested and implemented. The significance of this research may vary from one individual to another depending on individual perception and understanding of the learning and teaching processes.

- i. At an individual level as a researcher, this study provided an opportunity for professional development in the sense that my practice as an instructor improved and will keep improving. I improved my teaching skills for example I saw the relevance of allowing students to make a contribution in the teaching and learning processes to make it more interactive.
- ii. To students, this research provided a certain level of motivation to them to value their course and aim at being professionals in it. Also they were able to interact with their instructors and this improved their relationship between the instructors and students themselves that could help them to learn better.
- iii. The world of work benefited in such a way that when these students will complete their studies, they would start working and be able to apply the skills that they have acquired.

- iv. The research was useful to the institute because when these students graduate and join the world of work based on their level of competence the institute takes credit for offering relevant training to the students.
- v. In scholarly contribution, little or nothing has been written about issues in the wood working trade, except the study content, therefore this research will be a part of the scholarly work in the wood work field.

1.10 Scope of the study

This describes the content, geographical and time scope.

1.10.1 Content scope

The study covered issues concerned with Teaching and learning processes in the Wood Working department at Nakawa Vocational Training Institute. It examined the current pedagogical approaches and methods to training and the outcomes and how they could be modified. The study further focused on evaluating the practical competences of the students and how to make an improvement to better students' practical competence.

1.10.2 Geographical scope

The study was conducted at Nakawa Vocational Training Institute located along Jinja road Plot M96, Jinja Road Kampala, Uganda.

1.10.3 Time Scope

The research run from February 2017 with the commencement of data collection till October 2017. See appendix D.

CHAPTER 2: LITERATURE REVIEW

This chapter presents the theoretical underpinning of this research. The literature presented is the basis for understanding the importance of competence development in students as they are being prepared for the world of work. Although this research is action oriented, there is a theoretical underpinning behind every activity. The activities of this research were organized following the four objectives;

- i. To examine the current situation in the department concerning practical training.
- ii. To develop learning strategies for the practical sessions.
- iii. To implement the learning strategies for the practical sessions.
- iv. To evaluate the effectiveness of the learning strategies for the practical sessions.

These specific objectives were subdivided into smaller components that were supported through literature review. Most of the literature and theories were obtained from the online PDF resources, google scholar and some from e-books. These provided rich information about the research topic and have been referenced.

Since I teach in a vocational institute and that the research topic is about enhancing pedagogical strategies to improve students' practical competence, I consider it necessary to discuss about Competence Based Education and Training (CBET), Pedagogical approaches and learning theories which this research considers cardinal points for relevant vocational training.

2.1 Competence Based Education and Training

A skilled workforce is one of the basic requirements for achieving sustainable national development in any nation, and Technical, Vocational Education and Training (TVET) is perceived as the key to building this type of skilled technical and entrepreneurial workforce for sustainable national security and development (Okwelle, 2014). As cited by Kufaine and Chitera

(2013), CBET, is a human resource development approach which can be defined as education based on outcomes and pre-determined standards on what students can do (Biemans et al., 2004); but according to Brockmann et al. (2008), competence is multidimensional which means the capacity building targeted need to be specified. In the case of Brockmann et al. (2008), study competence can either be knowledge based or skill based.

On the other hand, Okwelle, (2014) defines CBET in close but elaborate way that it is a way of approaching (vocational) training that puts much emphasis on what a person can do as a result of the training (the outcome), and as such represents a shift away from an emphasis on the process involved in the training (the inputs). Furthermore, CBET itself may be described as training which is performance- and standards-based and related to realistic workplace practices. It is learner -focused and works naturally with independent study and with the instructor in the role of facilitator. Learners often find different individual skills more difficult than others. This CBET learning method allows a student to learn those individual skills they find challenging at their own pace, practicing and refining as much as they like. Then, they can move rapidly through other skills to which they are more adept. Consequently, this type of learning requires mastery of every individual learning outcome making it very well suited to learning credentials in which skills acquisition is very essential (Foyster, cited in (Okwelle, 2014).

Therefore, in order to improve Vocational Education and Training, there must be capacity for instructors to adopt CBET because it tries to offer meaningful content with relevant courses or course elements which are aligned with the learners' needs and society (World of Work) (Mulder, 2012).

‘International discussions are increasingly showing a marked interest in the German approach of dual VET’. This approach ensures a comprehensive level of occupational

competence, it is considered a guarantee for low unemployment of the young people compared to the rest of Europe and serves as the basis for securing the availability of skilled human resources: hence dual VET, from a macro-social point of view, is making a significant contribution to Germany's economic performance (Weber, H; Geldermann, B; Löffler, R; Bednarz, F, 2015). ‘‘Under the dual system, VET is administered directly at the workplace, with the apprentices attending vocational school in parallel to their apprenticeship at the workplace’. ‘The reason for the recognition of the duo system is precisely the straight and immediate blend of theory with practice, coupled with a regulated quality assurance system’. In the meantime, a number of studies CEDEFOP 2015 as cited by (Weber, Geldermann, Löffler and Bednarz, 2015) have shown that VET models with a high proportion of work-based learning are counteracting the high unemployment of the young; Countries using full-time school-based VET programmes with a low proportion of work-based learning are reporting a significantly higher level of unemployment of the young (cf. Figure 1). Developing countries in this case Uganda lately find Vocational Education a means of developing a meaningful workforce however in the context of their limited resources and policy frameworks duo system may be seen as vital but not for the time.

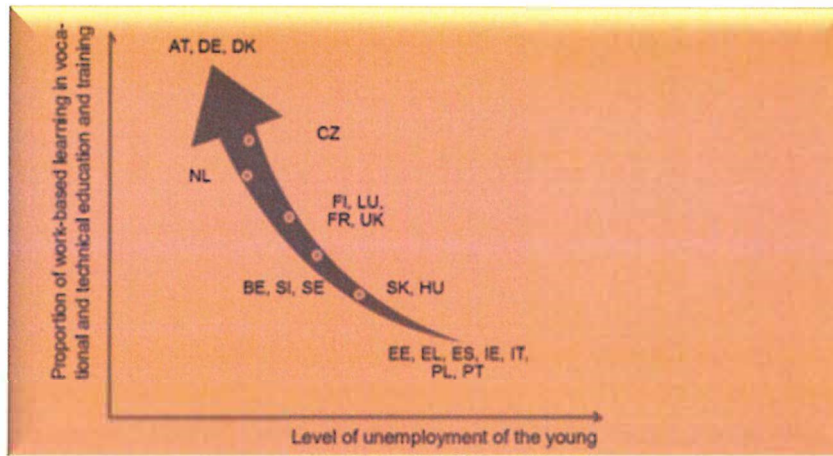


Figure 2. 1: Unemployment of the young and work based learning in different European countries (source Cedefop cited in (Weber, Geldermann, Löffler, Bednarz, 2015).

2.2 Learning by doing theory

This research is also informed by Dewey's theory of "learning by doing" where he believes students should be involved in real life tasks and challenges. He puts more emphasis on the physical action part because it gives more value to the education and connects the students' experiences and teaches them what they can do by using their body actively. This is the basis that led to organization of the research activities of the machine course and industrial visits. The obligation to work together around tasks gave instructors and students series of memorable experiences much more because they worked around practical tasks. However, Dewey abhors the dualism that appears between the actions a person takes and the way this person thinks about these actions (Dewey, 1916) cited by (Allazzam, 2015). According to Dewey, to learn by experience one must be aware of the step leading up to what one does and the step that comes after. For example using methods and techniques that are student centered facilitate student participation in the study process. These methods and techniques which include project based

method or problem based method among others: where students are involved in solving real life problems allow development of all round competency. Where this research considers competency as the ability to apply or utilize knowledge, skills and some attributes acquired through training to perfectly perform some functions or work task (Cairns, 2014).

In simple translation to Vocational Education, learning by doing method of teaching and learning is paramount in providing students with memorable experiences in solving various problems. And since the world of work is dominated by the question of how to solve emerging problems of society, this mode of teaching prepares the students for that time. In view of all this, Churchill, 2003 explains that this kind of collaboration is more meaning when the discoveries are shared.

2.3 Pedagogical approaches

To enhance practical competencies in Vocational Education, there must be employment of 21st century modes of instruction of Active Teaching and Learning (ATL). ATL is a mode of instruction where students are actively engaged in building understanding of facts, ideas and skills through the completion of instructor directed tasks and activities. It is any type of activity that gets students involved in the learning process (Cairns, 2014). Cairns in the same hand book of *Promoting Active Teaching and Learning* emphasizes that ATL is essential for the science curriculum and it seeks to promote inquiry and more student centered learning. He looks at the 5Es model derived from the concept that students learn and retain knowledge when they have had the opportunity for discovery thorough a variety of experiences that are designed by the person who is facilitating learning and that student's use their prior knowledge to make connections between new information/experiences and prior knowledge. To help students make these connections learning facilitators structure experiences that are organized into five phases:

Engage, Explore, Explain, Elaborate, and Evaluate as shown in the Model below;

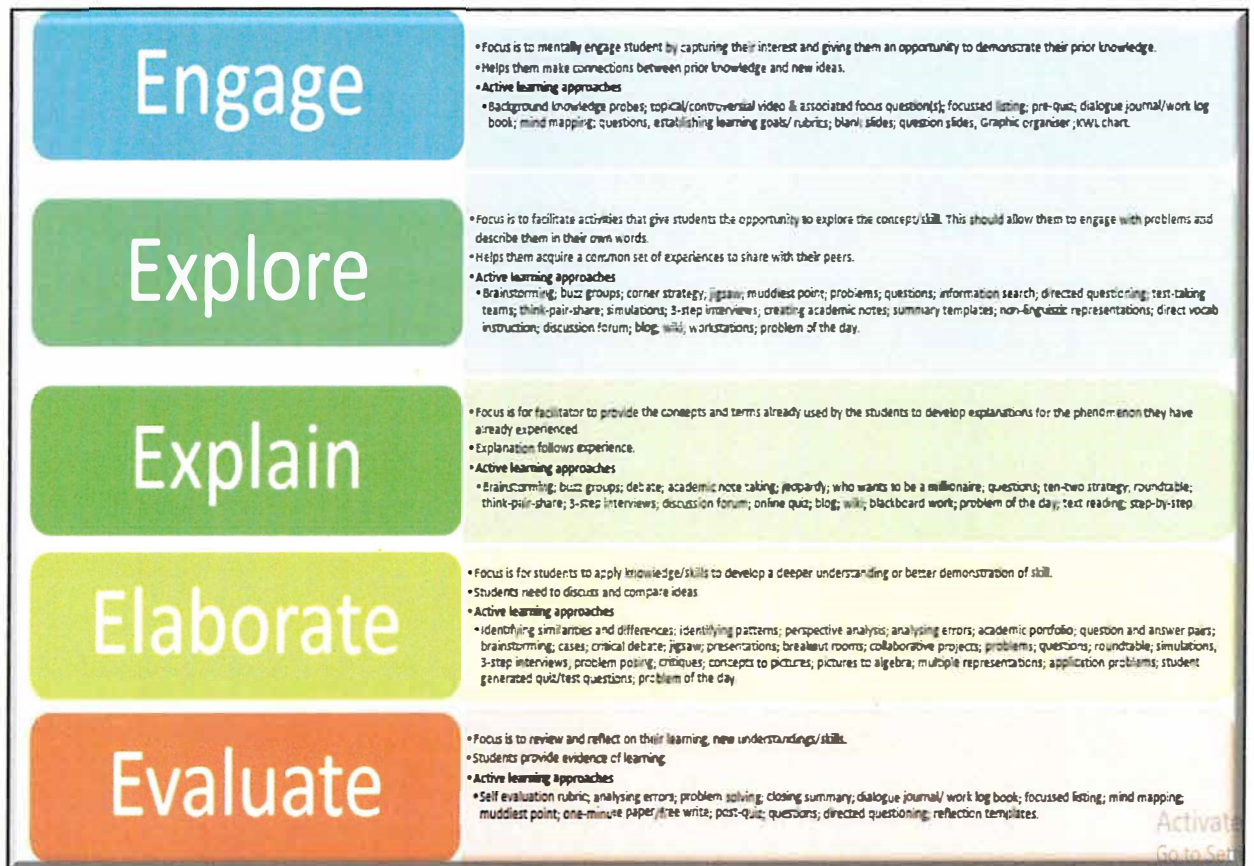


Figure 2.2 Five phases of the learning experience. Source: Cairns (2014)

The above approaches emphasize the five phases of engage, explore, explain, elaborate and evaluate. In essence this is at the core of Vocational Education because it allows proper impartation of attitude, knowledge and skills. In ‘engage’ stage, it involves demonstrating using real life situation, videos, audios, slides pictures and much more. This helps students to connect ideas and knowledge hence making them more innovative. In ‘explore’ stage, students ‘engage’ with problems and describe them in their own words. This is where students work in groups to solve a common problem using a method called problem based learning. In solving these

problems, students gain the capacity to create knowledge in addition to the existing one. In 'explain' stage, this is where the instructor becomes a facilitator of the learning process. He/she allows students to inquire build knowledge from what they have already discovered. The 'Elaborate' stage, is a concept where the instructor focuses on application of the skill to develop better understanding or better demonstration of the skill. Students will discuss and compare ideas and this is the core of vocational education. In the long run, the students will discover new skills and will be more competent. In evaluation stage, this is very relevant in the sense that students are given the opportunity to review their own learning, new understanding, and new skills as evidence of learning. In this case this is where students come up with a new product based on the old one or a new solution to a problem.

This research therefore looked at how to merge study theories with practice for example learning about tools in class and using the tools in the workshop. This provides an experience to students about the tools which is memorable and they become more familiar to the tools. In that case therefore, there must be recognition that theory without experience can be unwise because it may underestimate the effects of situational factors (Sally Faraday, 2011). When properly used, theory provides a framework to use in making educational decisions. Conversely, experience without theory may often be wasteful and potentially damaging. Experience without a guiding framework means that each situation is treated as unique, so decision making is based on trial and error until something works. Learning how to teach involves learning what to do in specific situations. Theory and practice affect one another. Many theoretical developments eventually become implemented in classrooms. Contemporary educational practices such as cooperative learning, reciprocal teaching, and differentiating instruction for individual learners (Schunk, 2012).

The guiding principle of designing educational opportunities for youth should reflect both the philosophy of “learning by doing” and focus on content that is based on proven facts where by “Learning by doing” is active, hands-on and engaging for students and its goal is for learners to construct mental models that allow for 'higher-order' performance such as applied problem solving and transfer of information and skills (Churchill, 2003). Essentially, according to Churchill, (2003), developing lessons plans should focus more on “making, producing, practicing, and observing” exercises rather than teacher directed lecture. In a classroom setting this can be achieved through the following,

1. **Group work:** This ensures collaborative learning as a method of teaching and where by students explore a substantial question or create a meaningful project together as a small group. Churchill, (2003), gives an example that a collaborative activity is challenging a small group of students tasked to generate a list of skills that are needed to be a successful leader or asking the small group to identify what they think is the best way to generate funds for class project.
2. **Project work:** When facilitating quality collaborative experiences, two things can occur. First, collaborative environments allow students to share their own experiences that result in accomplishing project work together. These in turn translate into teachable moments for others. Also students transition from learner to teacher within these small groups. Small group collaborations allow students to learn how to utilize and collectively benefit from the strengths of individual group members. Secondly, students begin to master the skills of group work (Hedrick, 2013). Team work, group communication, compromise, and listening are all enhanced by the experience. The setup of this research combined acquisition of practical skill with acquiring experience of working in teams. The

proximity of these students to their colleagues broke the past lonesome characters of some individual students and motivated them to give their views. In so doing, communication between the students, the teachers and other stakeholders were improved.

2.4 Policy Frame work

The Business, Technical and Vocational Education and Training (BTJET) Strategic Plan 2011- 2020 denotes a paradigm shift for skills development in Uganda. The aim is for the TVET system to emerge from an educational sub-sector into a comprehensive system of skills development for employment, enhanced productivity and growth (UNESCO-UNEVOC, World TVET data base Uganda, 2014). The youth unemployment problem has become nationally alarming and Vocational Education and Training stands to provide part of the solution. There is an increased number of graduates from universities across the country that cannot be absorbed in the mainstream employment system. Having a system that equips such people with skills is a remedy to bring about more job creation than job seeking.

Since beginning of 2016, there has been an increased reliance for trainees to acquire practical vocational skills in the workplace. Apprenticeship style training has been the traditional method of training over the years where trainees were provided with mainly practical skills and theory and knowledge was gained elsewhere usually through attendance at tertiary institutions (Akrawi, 2011). In particular, for apprenticeship style learning, workplace learning is conducted and assessed at the workplace and students carry out full time work and study at a tertiary provider on a part time basis. This form of “on job” and “off job” learning requires a significant different approach in terms of learning and assessment and the alternative methods of applying “practice based learning” across the different student cohorts (Newzealand, 2001). This is a model of training that will lead to more practicality leaving the theoretical background on the

side. In the Institutional training, the emphasis must be on both the hard skills and the soft skills in order to harness employability and not just having employable skills. Employability helps an individual to be attractive and to maintain the employment thereafter. The institutional based training comes in to provide a mode of training that can impart employable skills as well as soft skills to keep one in employment. In Uganda's situation, the Education takes two different paths in such a way that those who go to Vocational Education are better at skills but lack soft skills while those who take general Education are good with soft skills but lack practicability (hard skills). These two (soft skills and hard skills) have to be blended in order to produce a competent work force.

The Australian government in its Vocational Education and Training sector talks about 'Practice-Based Learning' as a model of training where there is engagement of students' learning activities through the collaboration with a tertiary institution, industry partner and workplace learning. This includes although is not limited to, industry based placements, work based learning programs integrated with the formal curriculum at a certificate level (Australia, 2015). This research suggested incorporating the use of available resources (machines, finance, trained Instructors, time and collaboration) to train practically competent students as reflected in chapter 4. As suggested by UNESCO-UNEVOC, World TVET data base Uganda, (2014) that it is the task of basic education to ensure to each individual the full development of the human personality and citizenship; and to lay the foundation for employability. Initial training develops further his or her employability by providing general core work skills, and the underpinning knowledge, and industry-based and professional competencies which are portable and facilitate the transition into the world of work. Lifelong learning ensures that the individual's skills and competencies are maintained and improved as work, technology and skill requirements change;

ensures the personal and career development of workers; results in increases in aggregate productivity and income; and improves social equity. This defines the responsibility institutes have to its effect. Therefore, combined effort from all stakeholders is paramount.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter presents a combination of methodological approaches used during data collection, documentation, transcription, discussion and reporting. Revisiting the purpose of the research which states to enhance the current pedagogical approaches to improve the students' practical competence in the Wood Working Department at Nakawa Vocational Training Institute, all the research activities were tailored to it in order to achieve this at the end. The methods that are discussed below were guided by an Action Research approach and therefore I find it necessary to first introduce action research as far as my research context is concerned.

3.1 Action Research

Basing on the above, there was need to employ action research so as to show its relevance in this research and how it helped me to achieve much during the implementation of the specific objectives. The research was designed in such a way that not only the researcher but also the stakeholders benefited from the outcomes of the research. In this case the students, staff, management, the industrialists and the researcher at large.

Action Research was defined by Kurt Lewin as cited in Kuany(2012) as comparative research on the conditions and effects of various forms of social actions and research leading to social change. Kuany, (2012) continued to expound how Lewin presents his idea in the cyclical form including identifying a general or initial idea, reconnaissance or fact finding, planning, taking first action step, evaluate, amended plan and taking second action step. The spiral continues till the desired outcome is reached. Social change as used in this definition could be interpreted as an imperative aspect of Action research in the sense that each individual is obliged

to change if the living or working situation is appalling or unacceptable. In this study, the goal was to enhance pedagogical approaches and methods to improve students' practical competence in view of the requirements of the world of work.

I stand with Lewis' view of social change and using Kuany's view that the implication of Lewis definition is that; to change professional practice requires reflective in-depth understanding and review of personal current and previous experiences, aspirations and interest in performing tasks. This reflective study required critical stakeholder's assessment in an organized group setting. The stakeholders in this study included the instructors and students who by virtue of common interest; agreed with me and came together to share ideas geared toward social change leading to improvement in teaching and learning of wood work. The stakeholders' role was to work together to suggest ideas and ways of improving instruction to create an environment that could lead to improved practical competence for the students.

3.2 Research Design

The research was a Participatory Action Research (PAR) Model. It involved the participation of all the stake holders. It was also descriptive because all stages of the research were recorded and expounded. As supported by Taylor, (2016), the research used a broad sense of capturing of people's own spoken and written words and/or observable behavior and activities to produce descriptive data of the way in which people see problems, seek answers or attach value to things. It was an action research because there were tangible results in the end that validated the research process. In further aspects, PAR practitioners make a concerted effort to integrate three basic aspects of their work; participation (life in society and democracy), action (engagement with experience and history), and research (soundness in thought and the growth of knowledge (Jacques M. Chevalier & Daniel J. Buckles, 2013).

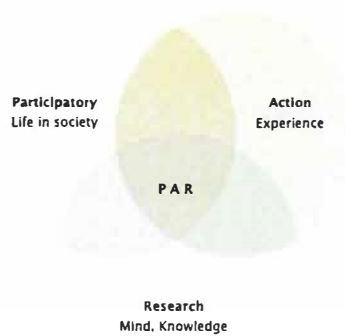


Figure 3.2: Basic Aspects in PAR source (Jacques M Chevalier & Daniel J. Buckles, 2013)

3.3 Population

The research involved the Nakawa Vocational Training Institute and action was specifically in the wood working department. The wood working department was selected amongst other departments in the institute because that is where I belong. The former students and employers of the departments' graduates were also involved.

3.3.1 Sample and size

This research involved the following stakeholders.

Table 3. 1: Showing Sample Size for the Study

Stakeholder	Number
Trainees	15
Former Trainees (graduates)	5
Instructors	5
Administration	2
Employers	3
Collaboration Partners	2
Total	32

Thirty two stakeholders were involved in this research and all of them were involved in the Wood Working Department in one way or another. These numbers have been determined

depending on the population of the department for the staff and students. The trainees were only fifteen because the research was open to only basic program students who are not many but are were very essential because they spend more time in the department compared to other groups such as DITTE Students who come for a short period of about two months. The alumni students were determined and inquisitive about the research because it was the first one of its kind and they offered their availability during the situation analysis. The industrialists also were chosen according to how informed they were about the department; one was a former student, another former instructor in the department and another part of the HWK project through USSIA which has activities in the wood working department. The collaboration partners are through the HWK project which is directly doing its activities in the Wood working department. The research engaged the Chief Advisor and the National expert of HWK-Project who gave both technical and financial support.

3.3.2 Sampling technique

Purposive sampling was employed because given the fact that this is action research, specific stakeholders were selected in order to provide relevant information. The source of data was selective because there was a targeted group of stake holders. The information shared from them was compared to see the underlying similarities.

3.4 Methods of data collection

The data was collected through the situation analysis process for the preliminary data. This process involved in respect of order, obtaining information from the industrialists, the former students who are now in the WoW, the Principal of the institution, the Instructors of the department and the current students. After the situation analysis, the information was gathered and mini analyzed to obtain a fuzzy idea emanating from all responses. The information from

the situation analysis therefore provided a basis for the future workshop which also was used to collect data from all stakeholders. From time to time the stakeholders were invited to evaluation meetings. These normally were smaller involving a few involved stakeholders for specific parts of the research. For example there were meetings with instructors and students to decide strategies of teaching and learning that can be employed to improve students' practical competences. However, after when these strategies were mentioned in the meetings, instructors had to spend more time to filter them and conclude which ones were workable and more urgent and those that can be implemented later or even after the research. Focused group discussions were used to collect data during the course of the research implementation. These focused group discussions are supported by (Williams, 2006) that focus groups provide insights into how people think and provide a deeper understanding of the phenomena being studied. These groups were used during the implementation process at specific instances where there was need for clarity from a specific group of stakeholders such as the collaboration partners alone, instructors alone or students alone.

Data was also collected by observation of the activity trends. There are some activities that produced tremendous difference in the department that were visible through the attitudes of the stakeholders for example seeing students unusually involved accomplishing their practical tasks.

3.4.1 Instruments of data collection.

The data was collected using diaries, photos, videos, observations, checklists, questionnaires and inventories.

3.4.2 Diaries

I used a note book to note down information that was a result of the research activities. For example those that need just to observe or during focused group meetings. Some information that was not talked about but was just insinuated and observed during the research as supported by Eldridge, (1990), that these diaries help to note down important information which could be easily be forgotten.

3.4.3 Photos, videos and audios.

These are visual methods of data collection and I used them to keep records of activities. These became receptacles from which individual viewers withdraw meaning (Schwartz, 1989). These did not just work as evidence but were tools for acquiring information about the research. These photos were taken and kept safe on a hard disk so that they will be used during the report writing and also to obtain information later on. The videos and audios were taken and they were used to retrieve information later from different stakeholders.

3.4.4 Observations

Observation was employed as a means of obtaining data by studying behavior, events, or noting physical characteristics as they appear naturally. Observations can be obvious (everyone knows they are being observed) or covert (no one knows they are being observed and the observer is concealed) (CDC, 2008). Since I was part of the process of activities of research, some of the important aspects were obtained by observation, noted down and used as valid.

3.4.5 Checklists, questionnaires and Inventories

From the stage of situation analysis, these were used to obtain information from stakeholders. In some cases they acted as just a guide to the discussions developed to make sure

that some parts of the discussion are not omitted. They helped to keep an organized conversation between the researcher and responds at some instances such as in the industry where people had no much time.

3.4.6 Interviews

Some stakeholders were not able to make to the meetings based on their schedule such as the company CEO. The data was done by using interviews based on guiding questionnaires see Appendix G. Interviews are typical of positivist approaches and involve exchange of dialogue between two or more participants in face to face contexts or otherwise (Holland, 2013). The research used interviews in situations where specific information was required from specific groups or individuals. For example Instructors, industrialists and the Management of the institute.

3.5 Data Analysis

The data was analyzed through triangulation to establish underlying relationships that can be used to make a final deduction. Triangulation involves the combination of two or more theories, data sources, methods or investigators in one study of a single phenomenon to converge on a single construct, and can be employed in both quantitative (validation) and qualitative (inquiry) studies (Yeasmin, 2012). Relationships were drawn from the results of the research and used to make conclusions. Some data was obtained from the Industry or employers of the graduates of the department, from the same place I obtained data from the graduates working there. In so doing I looked at the process the graduates went through to be assimilated in the working environment and the information that the employer was giving and deductively I was able to make conclusions about our students' competences. I also conducted interviews with the representative of the Institute Management in this case the Principal and he shared his view of

the kind of training taking place in the department. I compared this information with what was obtained from the Instructors in order to make informed judgments. The students also that are currently at the department played a big role in providing information that made a tremendous input in the research. Videos, audios and pictures were used to capture important information that was used to draw relationships and conclusions.

3.6 Quality Assurance

The validation of this data was through ensuring the involvement of all stake holders. Live videos were captured to show the proceedings of the research such as the situation analysis, future workshop, machine course and visit to the industry. Since this research was in my own department, I did my best to suspend own perspective and views and to look at things as though they were happening for the first time, thereby taking nothing for granted (Bruyn, 1966).

3.6.1 Responsibilities of the stakeholders

Each stakeholder was given their own responsibilities as shown in Appendix E during the duration of the research. The students and the staffs carried out the most responsibilities of accomplishing the research activities. The management was involved monitoring the changes or any outcomes of the research activities. The development partners, the employers/industrialists were involved in providing third party information. This is because interacted closely with the graduates of the department and their input could be essential to craft recent activities.

3.6.2 Transparent planning

The planning was done in involvement of all stakeholders. Meetings were held at the beginning and along the implementation time of the research and at the end to do evaluation. It was

generally successful due to the efforts of the stakeholders. The institute management prudently offered support to the research activities and was pleased with the progress. The instructors also worked with team work and this inspired the students to also carry out their tasks well. Although the overall seemed very successful, there were cases where we needed to make more deliberations to have members on board. Sometimes in order not to skew the results of the research, some stakeholders were left to observe the positive changes and came on board later by themselves.

3.6.3 Documentation

Every research activity was documented or even recorded in time without allowing time to forget. Computer files were created to keep every information about the research as and when it happened. Manila papers were written alongside the recordings, pictures and videos so that nothing will be forgotten. These were done by different individuals to ensure that all data is properly captured.

CHAPTER 4: ACTION IMPLEMENTATION RESULTS AND EVALUATION

4.0 Introduction

In this chapter, I discuss various actions taken in an attempt to enhance pedagogical methods in order to improve students' practical competence in the Wood Working Department at Nakawa Vocational Training Institute. Actions in this research were purposefully undertaken looking at producing a competent graduate to the world of work in terms of knowledge skills and attitude. The activities of the research were according to the four specific objectives linked to each other in respect of development competence (attitude, knowledge and skills). The first specific objective, the data was gathered through the situation analysis and future workshop. For the second specific objective, a second future workshop was held and different learning strategies were listed as; career guidance, machine course and industrial visit. On the third objective, the research focused on how to implement the suggested learning strategies to improve the students' practical competence. The career guidance was an activity that was given first priority of implementation because it was geared towards improving the attitude of students towards the wood working trade. In order to improve students' practical knowledge and skills an intensive machine course and industrial visit were organized and implemented. For the fourth, the data was captured using closing meetings of activities, recordings and small focused group meetings with stakeholders. In addition to that some observations and capturing comments from stakeholders. On a general trend, the activities posed a unique impact to the department and this impact was closely related to the positive side than the negative. The students were enlightened and they kept their appreciation comments coming to show how the activities were helpful in shaping their attitudes, improving their knowledge and skills.

4.1 Presentation of data

The data will be presented chronologically following the specific objectives.

4.2 Objective 1: To examine the current situation in the department concerning practical training

An analysis of the students' practical competence in the department of wood working Nakawa VTI was done. This analysis involved obtaining information from the different stakeholders of the department such as the instructors, students, alumni, management and development partners of HWK project. These stakeholders were selected based on the fact that they are part and parcel of the department and they largely influence or are affected by the departments' training activities. They were therefore selected to provide multifaceted information to the research based on how each and everyone's view.

4.2.1 Curriculum

The departmental instructors pointed out the challenge of employing a National curriculum which was designed by the intellectuals and given to them to implement. These Instructors find that the gist of vocational Education being the practical side is being suppressed by a huge theoretical content. In attempt therefore to satisfy the requirements of the curriculum, it is practically impossible to produce a graduate a practical competence. The Future workshop therefore came up with resolution that this can be solved through innovativeness of instructors in profit of the students to come up with special training which can impart practical skills to the students. Some instructors were supportive of this idea especially those that have few years of experience in the department. On the other hand those that had more teaching experience were of the view that it has always been that way and therefore nothing can change. This is because of

the reluctance of these individuals to make an extra effort to cause small changes. The research therefore banked on the positivity of a few and slowly had everybody on board.

4.2.2 Partnerships

The department is in partnership with international projects such as the HWK TVET Partnership Project. This is part of the positive energy that the research could run because it took a direction that is within the objectives of the project. In terms of bringing together the staff, the industrialists and Management on board, the Project had already an establishment of a group called Nakawa Woodwork Team. This team is comprised of members of industry(UMA and USSIA), the Wood Working department at Nakawa and the project that take part in the projects' activities. These members on either side industry or Institution have quick response when called upon. These industries are partners with UMA and USSIA and therefore know the issues pertaining Public Private Partnerships (PPP) and so are a great resource to the department. Any initiative from Institution towards students' practical competence improvement is highly welcomed by the industry owners.

4.2.3 Current students

The research targeted basic students who are under the fulltime or evening program that runs for two years. These are the ones that follow the National Curriculum and complete their course after two years with a National Certificate. These students therefore are in either year one and year two. The year one students expressed their being unaware of what could be their practical competence. It was about March and the first years had only reported in February and therefore not had much training.

The second years of the time had been unfortunate having spent one whole year of training with no tangible practical competence. This was because they reported at a time the

department lacked a head of department that could push forward the training activities. They expressed their feeling of incompetence. The students' project, a requirement by National Curriculum, a unit targeting improving the students' practical competence was not completely taught to the students and so they felt a vacuum as far as practical competence is concerned. Students were always pressured at the last moment to produce a piece of work which could be used as a basis to produce marks to the examining body. In turn, students resorted to an unfinished project that was started by another group and they did final touches. This was a loss on the side due to a host of competences lost from the start of the project to where it had reached.

4.2.4 Instructors



Figure 4. 1: Focused group discussion with Instructors.

The instructors in the department represented a good ratio with the students of about 1:2. This according to Ministry of Education is overstaffing because it should be 1 to about 14. These instructors have received concrete training from within and outside the country. Experts from Germany and Japan have spent time in the department to train the instructors or else the training is done abroad. Therefore, in terms of skill they are to a certain level which can be rated as very good.

On the other hand, these instructors were not comfortable with the students' attitudes. They attributed students' lack of competence to their poor attitude towards the practical tasks that are given to them. When it came to industrial attachments, instructors say that some students report one week or two months and disappear and yet this should boost their practical competence. This poor attitude reveals the lack of value attributed to their education. The lack of value attributed to their education also could be a result of other factors such as the perception and societal attitudes to the course that kills students' morale. In such instances, the instructors should have tried to find a solution to such attitudes of students. However, this has never been done and therefore this formed part of my research as will be discussed in objective two.

4.2.5 Institute Management

This is a stakeholder to the department in the sense that it oversees the activities of the department and they were involved in the research from the top level and that is the Principal of the Institute. As supervisors of the department, they were also concerned about the poor performance of the department. One of the concerns was the low enrolment of the department which accordingly was attributed to poor performance of the instructors. The strategies to tailor the training so that it results into a product that will motivate students, to ensure that training is not only concentrated on small models which don't motivate students and the need for instructors to be exposed to the world of work conditions so that training can be remodeled to that was a major emphasis.

4.2.6 Former students

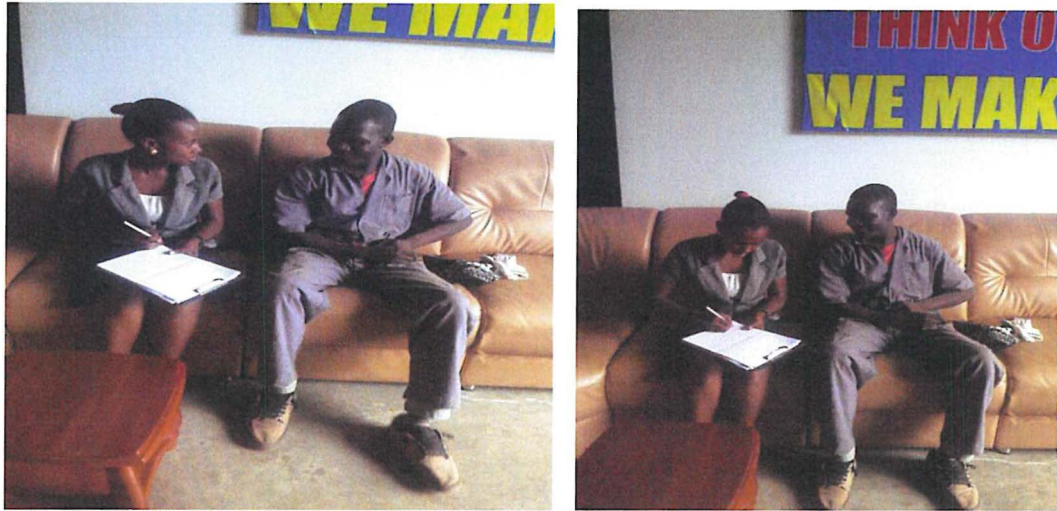


Figure 4. 2: Focused discussion with a former student in industry

The information from these former students revealed that the state of the department in terms of practical training is wanting. These graduates were employed by one of the former instructors of the department at Nakawa VTI who later became an entrepreneur and is now operating a medium scale industry in Wood Works. These students said that from the department, they only obtained the knowledge required to be familiar to the wood working trade but they didn't have the capacity to do the tasks as required by the industry. As a form of assimilation into the working environment, they were given senior employees to retrain them and take them through a process of industrial skills before they could be trusted with the work. They mentioned that the skills that the employers required were machine operation, blade sharpening, setting, assembly and material use and selection. They remembered learning about them in class but they were not engaged practically. This reflected that the mode of teaching concentrates on theory and less practical is taught. In order for the students to fit well in the world of work, the practical must be integrated with the theory.

4.2.7 Employers

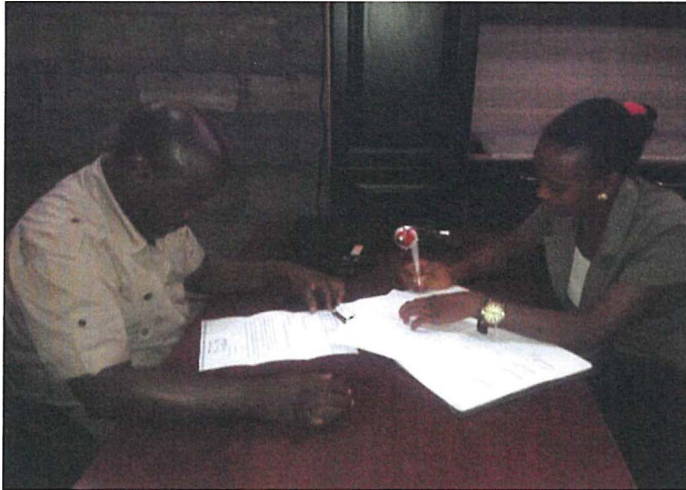


Figure 4. 3: Focused discussion with an employer in the industry and former instructor

This was a former instructor in the department and now employs graduates of the same. He glued to the notion that Wood Work is a practical subject and for one to be called a competent wood worker is not about the time spent in school but the ability to perform a practical task. Carpenters are appreciated for their ability to operate wood cutting machines, join timbers and make different designs in timbers. These and more other competences are developed during the formative stages of attending Vocational Education. However, sometimes our learning environments in vocational institutes have a lot of setbacks that cannot permit development of the desired competences.

Having looked at this state of the department, a future workshop was held with the students and other stakeholders and we highlighted challenges like low integration of theory and practical, limited training facilities/materials, no instruction on costing, no technological approached taught on waste utilization, low exposure to client based products and lack of effective communication channels. All these reflected the failure of the training system in terms

of teaching and learning process. As it is well stated that if trainees do not use the learning soon after, it is estimated that upwards of 95% of the training will be forgotten (Action, 2017). The innovativeness of the students is underdeveloped such that they lack the skill to use the available training materials to enhance their practical skills. They also need to have knowledge of other materials that are used hand in hand with wood but is not in the curriculum. The students need to have applied skills of working with manufactured boards, glass, gypsum and steel. These are not part of the curriculum and therefore it calls for a mode of training that can ensure that students are exposed to all these.

Suggestions to make improvements were forwarded in a meeting with the stakeholders as they were also emphasizing a way forward of having serious integration of theory and practical and development of students' positive attitudes towards learning and instructors to teaching. This led to the development of learning strategies for the practical sessions.

4.3 Objective 2: Development of the learning strategies for practical sessions

This was done through a process of small focused group meetings with the stakeholders and later a full meeting for all to integrate the findings. The following were the findings:

Table 4. 4: Showing Learning Strategies for Practical Sessions

Learning strategies	Rationale	Envisioned out put
Career guidance (1 st priority)	Need to take deliberate efforts to sensitize the trainees the importance of this Wood Working course in the world of work.	Positive attitude towards the learning activities including the practical tasks
	Plan	
	- Set an internal career guidance day - Invite alumni members from industries that have excelled to give a presentation - Give chance to instructors to talk and make their presentations	- To have the students enlightened about where the course might take them

	- Allow students give feedback and ask questions.	- Building positive energy (synergy) amongst the stakeholders of the course. - Allow networking
Parent's day (innovation day) Or Internal exhibition	• It was noted that parent's in the department are less concerned about what the trainees are doing apart from paying fees. It was thought worthwhile to invite them on a day when each trainee can showcase their work to their parents. This will be an internal departmental arrangement through the Management.	- Motivation to be innovative - Sense of feeling that their parents' and guardians are part of their achievements of the course.
Industrial visits (3 rd priority)	• To have specific industrial visits connected to modules being studied. NOT general industrial visit. • To enable exposure to current technology • Help streamline students in case one is interested in specialization. • To show relevance and applicability of a given module. • Target also instructors. These also need industrial exposures because some have never worked in industry and it is total irony to have them train students for industry where they have never been.	- Bridge the gap between class work, curriculum content and the world of work. - Create more relevance of the vocational education attained - Equip instructors with a glimpse of diverse industrial skills required.
Research	• Give students a chance to do research. • Taking example of KiraV and yaka Technologies, they were discovered by university students as did their research at Makerere University and our students also given a chance could make useful discoveries. • Need also to give our students a chance to explore their potential in a non-controlled learning environment	- Development of new technologies.
Exchange challenge Or Knowledge fare	• There are universities with similar departments. Such as Ndejje and Makerere universities. These students could be invited to interact with ours.	- Inculcating self confidence - Allow collaborations and networks - Flattening and integration
Association	• Make an association with the students and Alumni who will share with the existing students. Mindful of Gender.	- Knowledge share

Instructor pedagogical development	• Need to check the methods of teaching • Update on methods and techniques • To be innovative in delivery of lessons • Ensure filing and documentation	- Improved delivery - Keep students motivated and interested.
Input from the students		
Include applicability of the study content	• Guide the students on applicability on every curriculum content.	- Resulted into a machine course (2nd priority)
Practical aspect should be related to industrial demand	• Students find some content not applicable. It may be applicable but they are not told how?	
Incorporate training on hand tools and power tools	• Some students say, they are studying to go and make business in their villages where they cannot find machines	
Proper store management	• Tools should be availed in quantity that can be distributed among the student number instead of giving on tool for the whole class to share, it wastes time. • There is no one to receive the tools after the sessions. • The key is kept by two people who are not always around and this disrupts the training sessions.	-
Career guidance	• To let students know the reason for doing the course because some of them it is not their choice.	-
Increase practical time	• To make it at least every after lunch	-

From the above suggestions, the stakeholders suggested to make career guidance first priority, Machine Course second priority, and industrial visit third priority. The machine course was a result of the interpretation of students comments. The instructors sat down to make meaning of what the students were suggesting or rather dissatisfied about and concluded that a Machine course is suitable to address their issues. See Table 4.4. These were given priority according to the available time and resources. At this stage of the research, all stakeholders were motivated and ready to work to make the situation better.

4.4 Objective 3: To implement the strategies to improve students' practical competence

The following activities were implemented in priority to development of attitude, knowledge and skills in order to enhance to the practical competence of the students.

4.4.1 Career guidance

In the context of this research, competence is a combination of skill, knowledge and attitude.

This career guidance was geared towards shaping the students' attitudes or cognitive which in turn affects the practical aspect. The objectives for the career guidance included;

- To prepare students' hearts and minds to appreciate the course they are doing and understand its value.
- To allow free interactions between the instructors and students to bridge the gap between them and allow them value each other. (There is a history of discrete relationships between the two whereby everyone is about their business and that's all).
- To allow instructors give presentations to their own students so that the students will identify which instructor can be their pseudo guardian/ mentor
- To allow students have a glimpse of the world of work.
- To allow students connect their study content with the requirements of the world of work so that they can take practical tasks assigned seriously.
- To create order in the department by knowing what is the heart of different stakeholders for proper planning.
- To demystify the society's wrong notion that wood working course is failures in life and therefore are brought to school as a form of a day care.

During the career guidance, the students were asked to provide some reasons why they opted for the wood working course, they all had various responses but all reflected influence from

successful family members in the same field and others from their own inspiration. Own inspiration was captured not from most but specifically from a student on mature entry. He completed his studies in secondary teaching course but along the way realized that he can do a skills course and he chose carpentry and joinery. This wasn't surprising because it has been the trend in such a way that mature entry students take the wood working course more seriously than others because they enroll to it through their own inspiration. In addition, most students mentioned that they were inspired by their family members in the same business of wood working and who were very successful. They reflected the fact that they were promised employment as to when they finish to study. These family members did not necessarily have a background in the wood working course but are just successful business men. For these students in this category, they were privileged in that manner that they had a reference and a reason why they were taking the course. And normally such students, away from the class time, they helped out in their family businesses and were noted to be performing better than others. There is another category that had no answer. It could only be imagined that the answer was hard to say. We were not able to deduce why they could not answer but may be for fear to be judged. They probably had no reason and it was just fate that got them to the course. See Appendix F for the list of responses.

The students were also asked about their career plan after the graduating for the Wood Working course. This question was asked as a basis or a trigger for showing students the future after the wood working course. The possibilities amazed them more than they could imagine. The students suggested they wanted to be architects, interior designers, civil engineers, teachers or Lecturers. A presentation was made by one of the instructors to show them that what they mentioned were accurate thoughts for the future but not limited to just those. In addition, he

mentioned to them that they could do research in timber, biomass technology, paper technology and as well business men and women. This was an eye opener to them and the students were encouraged. This sound of gratitude was captured in their after session comments how students were saying that they never know wood work was as broad as that. They expressed the fact that they are now hopeful that their studies were as important as any other course in other fields and they will be able also to compete in world of just as others do. And that they were also able to see the enormous advantage of doing wood work as course.

Inform of counsel to the students, they were advised to focus on skills acquisitions because the Uganda's future is about what you can do and not what papers you have, have a purpose in life and not to waste time because it is a scarce resource and to be determined. They were also told that there is nothing easy but if others have done the same course and made it in life why not them, they urged to know the reasons why they came to school and therefore to work hard and avoid destructions. In view of the current technological era, one of the speakers advised the students to try to learn computer as a necessity in the world of work even though they are technicians. They were reminded that in the world of work, the knowledge of using Sketch up and AutoCAD software is required so the earlier they learn them the better. They were also urged to be unique and not to fear to learn in so doing package themselves to be a person's desired by society. And above all to cooperate with their instructors and take every task given seriously because it is for their own good.

4.4.2 Machine 1 course and Industrial visit.



Figure 4. 5: Students working during a machine course

The second and third priority activities were the machine I course and industrial visit. In cooperation with the instructors, students, the Institute management, the development partners (HWK Project) and the industry, the above activities were organized. The machine course was organized during holiday time where both the students and instructors ought to be off the institute but they cooperated and this was done. This was termed by the Management of the Institute as the first of its kind in the department when the students and instructors could come together for a common cause. The management supported us with the meals to the students and instructors and the HWK Partnership project supported with the materials to run the course.

This machine course I was designed following the Schneeman Model of training which he introduced to instructors in a two weeks training in Cologne, Germany. This has been famously referred to by the team as '**German way**'. This model integrates theory with practical at the same time and at the end of the day one is able to obtain holistic training. This Machine course was used as a research activity and it took the advantage of the rich knowledge

instructors obtained from Germany and created a means how this knowledge could be passed on to students.

The HWK project is the same project that supported a training of instructors in Germany, and this time also accepted to support this initiative to give an intensive machine course to our students. This training ensured that a product is realized alongside the training as students exercised their skills and enhanced them practically. A bed was selected as the product to make and this decision looked at possibility of having students use all machines available in the workshop in the course of producing a bed. Additional small products for workshop safety have been produced such as **push sticks, mallets and samplejigs**.



Figure 4. 6: Sample mallets done by students on the Lathe machine

This initiative was geared towards how to utilize maximally the available time and resources available to enhance the practical skills of our students. This was the reason therefore why this course was called ‘Intensive Machine course’. ‘Intensive’ in the sense that so much has to be covered in a short time. A ‘machine course’ meaning that all the basics of a wood working machine would be covered. For example, safety precautions, usage, maintenance, operation,

accessories, jigs and types of blades. These are the vital competences that are not easy to exhaust in the normal training that follows the curriculum.

After the 6days training, the students were glad and excited and this was reflected in their comments as one student said that he used to see people use the circular saw but now he has learnt how to use it too. Others commented that they learnt the machines components that they could de-install, install and could even sketch and name all the parts. This was addition to them because the curriculum does not cover the internal parts of the machines. Other students felt that their knowledge about safety precautions was enhanced while operating the machines. That they learnt how make jigs and push sticks and use them during machine operation to avoid accidents.

Above all they appreciated having learnt to work together in groups and as a team. The recognized that it was very interesting to have the whole department focused on one thing towards a common goal.

4.4.3 Industrial visit

As much as teaching is done institutes, there is need to align it with the demands of the industries. Therefore industrial visits for both the students and instructors are necessary to keep them updated with the situation in the world of work so that the training can be well aligned. This is particular visit was organized to compare the technology that is in the industry to that that is our department. The students were required to spend the day in the workshop trying out to operate the machines in industry under the industry supervisors and at the end of the day deduce their experience to that in the department.

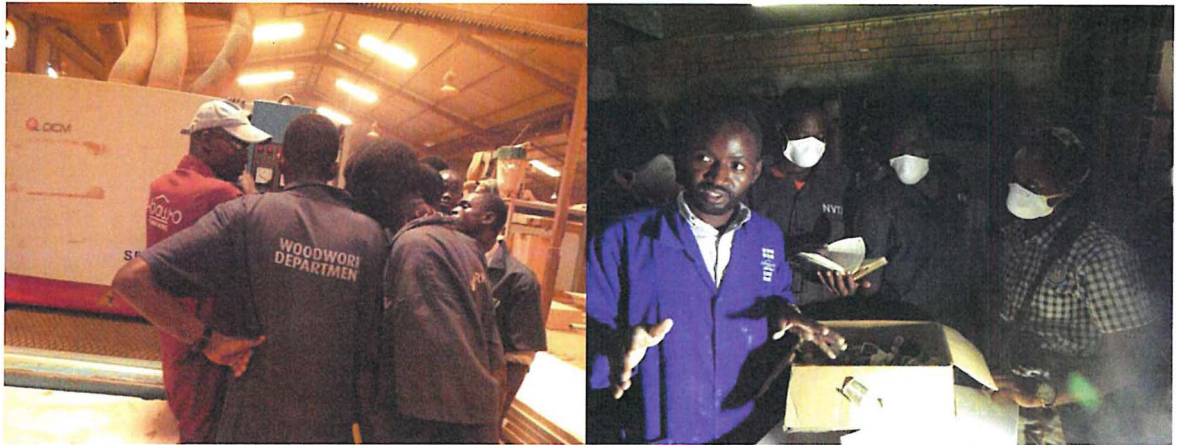


Figure 4. 7: Students in industry

The day started with a brief from the Institute's management. This was intended to make the students feel the support of all stakeholders. A representative from industry was also part of the team. This was a sign of collaboration. We then set off 11 students and 2 instructors. This was 92% students' attendance and 25% staff representation. At the industry, we were guided by the manager of Mbawo timber works who helped the students to go through the work processes and later allowed them to work with the rest of the workers under guidance.

The company had different production lines, the board production, timber line, flush door line, and the finishing. The students were taken through all stages. The students were spread all over the production lines and given to different company supervisors to train them in operation of the industrial machines. The machines were bigger versions of the ones in the department however the functions were almost similar. The students were observed able to operate them after a simple orientation. This was due to an elaborate introduction during the four days training in the department.

Some facts were noted that in the industry the work is highly mechanized. Some machines are pneumatic, some electrical and others are both. Therefore, to survive in industry is

basically to have skills in machine operation. It was also noted that the industries are seriously looking for skilled labour if they could find. For example the manager was asking if we could send him a skilled technician to repair drills, other power tools and machines and he was lamenting about not being able to get the quality manpower that he desires in all professions not only wood work.

The strong recommendation received from various stakeholders especially the institute management and the industrialists was that one day in the industry is not enough because it left much to be desired. I therefore, recommended that if possible for the department to think about organizing for a longer time such as two weeks, a month or more and have students spend more time in industry.

4.5 Objective 4: To evaluate the effectiveness of the learning strategies

In order to evaluate the effectiveness of the learning strategies, I gathered information from evaluation meetings at the end of every activity. From both the students and instructors since we were in the same department some feedback was in form of unintended conversations. From the Administrators, I received feedback every time I approached their office in search of any support in terms of permission, facilities or lunch for students. For the three activities: career guidance, Machine course and industrial visit the feedback was as follows.

4.5.1 Career guidance

The career guidance was done in one of the students' classrooms and it was moderated by the HWK expert, an alumni student who is also employing graduates of the department and the instructors. At the end of the session, the students commented that they found the speakers enlightening by the fact that they helped them to understand the relevance of their course. The students said they never knew their course could be marketable, as the alumni was explaining.

He explained to the students the financial relevance of their course in a way that students had never thought about. He talked about collaborations with already established businesses where students can channel customers to already established customers and they only get a commission. The HWK expert talked expounded the relevance of TVET globally and how the students are privileged having chosen TVET instead of general education. He informed them that the future preferred work force will be those that have skills and are able to be innovative with in their trades. He hinted on the fact that the students needed to be disciplined in order to achieve the most of their education. This made the students excited about their more than ever before and at the end of the session they said it until now that they feel more privileged than their peers who made different choices.

The instructors gave the students the opportunity to see the future after graduating in the wood working course. The different channels for upgrading and other fields they can join as well as different fields they can work. The students' comments saying they had never known how wide the scope of the course could be and the different options they had. One of them said 'I thought I was meant to be only a carpenter on the road side but I know I can be an interior designer if I want, civil engineer, teacher or I can even upgrade and become an architect'. The students were motivated to explore different fields including wood chemistry, timber structures and design or even forestry and environmental conservation.

4.5.2 Machine course

The machine course employed a new method of teaching, where students and instructors were actively involved from the planning to the implementation. The students found this interesting and were amazed at how they could be involved in their learning. Their appreciation of the process was observed in their active participation which was not the case before. The motivation

may have been a result of the career guidance but at least for this time the attitude was commendable. The students were placed in groups however at the end of the day the group that finished in time diffused in other two groups and cooperated until they finished. Apart from that, the machine course consisted thorough aspects of all machines for maintenance to operation. Students said they have always seen the machines but had never known they could operate them as much as they can now after the course. They told me personally that they felt more confident to face the world of work.

4.5.3 Industrial Visit

The industrial visit was a continuation of the machine course. The major objective of the machine course was to compare the technology in the department and that in the industry. The students found that the industrial machines were not complicated to operate but would be manageable after a small orientation from the industrial supervisors. The machines in the industry were more massive than those at the department. They are more automated but still with the knowledge that they obtained at the department, they never found them challenging. The principal before he saw off the students to the industry urged the instructors that what we are going to should have been done before and that he felt that one day wasn't enough. He added that he hoped this was not the last time and the last time could be for about two weeks and not only in our department but to teach all in other departments.

CHAPTER 5: DISCUSSION OF FINDINGS

5.0 Overview

This chapter presents the discussion of findings from the action research that I held in the Wood working department at Nakawa Vocational Training Institute. The findings are a combination of all the stakeholders' contributions. The students and instructors were the most active participants of all the stakeholders of the research and they formed the biggest part of the information that will be discussed. This is because the teaching and learning processes directly affect them. The discussions will be based on the activities that formed the research and the theoretical underpinning in chapter two. I will base my discussion on the following major sub-themes:

- i. Situation analysis
- ii. Career guidance
- iii. Machine course
- iv. Industrial visits

5.1 Situation analysis

The situation analysis started in the one industry where some graduates of the department are employed and this industry was chosen because the CEO is not only a former instructor at the Wood Working Department in NVTI but also engages students every year in form of employees, interns and apprentices. In this sense he was a good example of a Public Private Partnership (PPP) with the department who understands very well the side of training and the side of employment. Such kind of partnership, is always critical to the development of high quality vocational education and training because it allows for regular communication between employers and VET providers (Hawley, 2005). In my opinion when high quality Vocational

Education and Training is referred to I relate it closely to practical competence because the gist of VET lies in practical training. The information from this industry implied how the quality of training is still lacking in the department. He questions the departments' graduates in terms of the skills in machine operation, maintenance and use of other materials apart from wood. Normally a competent wood worker needs skill to work with other materials that are used as composites with wood. The PPPs are essential in this case because they inform the VET providers about what is required in the WoW so that the training can be tailor made. That is why Hawley, (2005) further elaborates how the PPPs are a means that enable VET to learn about skills are in demand so that training can be shaped according to changing needs of industry. He also adds that these partnerships are essential in curriculum formulation as they have got important information for content development that is worthy to be passed on to the students.

Looking into the recommendations from the CEO of the industry where situation analysis was done, it revealed a message to VET providers that in as much theory teaching is important but the practical training is more crucial. However, the practice too has to be guided by the demand from the industries. It was noted from this, that the existing training was based on the curriculum of which the only requirement are small practical models which impart little or no competence desired by employers. In fact, it raised a desire to have instructors themselves visit industries occasionally to keep themselves up to date with industrial trends.

The Alumni that I found in this particular industry were honest about their inability to fit in the industry easily. However, when I was talking to them I realized a brightness in their faces showing gratefulness that someone could be concerned about them after they left school. They were glad to feedback into what they felt their experience was while they were still at the department. They appreciated safety training but expressed concern about lack of sufficient skills

in machine operation and maintenance. Machine operation and maintenance is not the only skill in the wood working course but it stands prime to all others because the whole process of production depends on it. Little has been documented about the wood working trade but from word of mouth as I discussed with the CEO of the industry, he affirmed that these days the work in wood work has been highly automated in such a way that an ordinary wood worker is almost useless. These words may be proved and connected to the poor attitude students have towards the course, probably they have seen other fellows doing badly in the wood work trade probably because they have trained as ordinary wood workers in a day such is not required.

This drew me to realize that practical training is important to keep students motivated from generation to generation. This is because the image of the trade is carried on gradually into society and to change the societal image positively is to commit to quality VET.

The principal of the institute stands a prime position in the training of the students. It became difficult to obtain a positive comment from him. His feedback is based on the emphasis that students are cardinal stakeholders in learning, therefore Instructors need to concentrate on them and offer quality education. In as much he feels that the instructors have a big part to play, the instructors felt otherwise in terms of material input for the training but during the research there was a general consensus that with the available materials and time, an output can be realized. With the cooperation of all instructors, the activities were done in minimal time and facilities than normally happens. This research remained a reference point future trainings.

5.2 Career guidance

The career guidance was organized as an activity to allow students obtain more information about their course. It tackled issues of future prospects after doing the course but

among others, the financial significance. Society always dictates to young people that ‘go and study, finish, start work and earn money’. Any field of study should therefore promise students that the future is bright in monetary terms. This is affirmed by Nielsen survey that the road to better jobs, more money and improved lifestyles is Education (Nielsen, 2013). In our context, unfortunately, the students always placed less value to their education in wood work course they are been offered because they believed it would yield less monetary return. This is not their making but a societal construct and this explains the reason why many students, during the career guidance gained courage to pursue the course in a new way because one of the alumni expounded on the financial aspiration from the course, that if they took it serious. This kind of discussion birthed motivation in the students but this motivation is nothing but understanding the roadmap into their future. In essence, this career guidance should be something they receive right at the beginning of the course so that each one has a view of what the course means to them.

‘Knowledge is power’, was a statement proved after the career guidance after understanding what the wood work course is all about, there was a positive energy that the students developed to show that they now had a view of the future. It was evident that career guidance helps people to reflect on their ambitions, interests, qualifications and abilities and helps them understand labour market demands and education systems and to relate to what to what they know they know about themselves (OECD, 2003).

The Administration of any institution sometimes requires staff that is extra-ordinary that can think outside the box. This activity was outside the curriculum but the administration of the institute was much pleased with the initiative to the extent that they recommended that it should be rolled out to the rest of the departments. I looked at this as an indicator that the success of the students always lies at the disposition of the teacher in such a way that it takes just an initiative

or slight innovation to make a rich contribution to the students' learning experiences. I strongly believe that students have a part to play for their future success but as according to (Hamilton, 2017), that among school related factors, teachers matter most.

5.3 Machine Course

The machine course was a research activity designed to enhance practical skills of the students and also to open their mind about the technology. Since the training in the department follows a National curriculum and it is believed that all content necessary for the students is embedded in it, however the research discovered that there is much to be missed if the training sticks to the curriculum. It was also discovered that the easiest thing to do as VET provider is to religiously follow the National curriculum, where in essence is just a minimum for training a competent individual for the world of work. In some instances following the curriculum is termed as neglect of learning because in some teaching content that exhibits Competence Based Education and Training is not yet fully established (Cornford, 2006). This research also revealed that traditional training is that based on achieving the requirements for passing the end of year assessment. On the contrary, as I concur with Cornford, (2006), the industrialists revealed that there has been failure for trainers to recognize that business and industry frequently have different standards for the same task or service.

The machine course was selected as an extra curricula training activity that would be termed as 'credible and innovatory teaching strategy' to enable students have a glimpse of what is required in the WoW. Throughout the course the students were able to learn through the activities that they did physically. These activities were well planned and since the course had something 'special' (there was a feeling that we are doing research) about it, the instructors

employed all content than usual and made the training thorough in the sense all machine aspects were taught to the students. During the course of teaching, students were given enormous chances to try out by themselves for example to replacing blades. During the research it was observed that this kind of training was long overdue considering how students responded with desire to participate. I was reminded of my first days at this work how fellow instructors warned me about poor attitude of the students, it was about time for this to change. Drawing example from the Learning by doing theory, Dewey, (1916), believes that students should be involved in real life tasks and challenges, and his point of view continues to strongly influence the educational approach of learning. He personally puts more emphasis on the physical action part because it gives more value to the education and connects the students' experiences and teaches them what they can do by using their body actively. According to Dewey again, to learn by experience one must be aware of the step leading up to what they do and the step that comes after what they do. Applying Dewey's school of thought in the research brought an unprecedented transformation in the department affecting both the instructors and the students. For the instructors it was a question of strategies of instruction and for the students the opportunity to participate in learning activities.

The machine course formed an important basis of the action research in such a way that the students and instructors were involved in the hands on activities from the planning process to the implementation. Both parties (instructors and students), as the key stakeholders in implementation realized that they shared a concern that they had to deal with it jointly. The course was really intensive with no much time available but just a week, for example, the planning and implementing fore casted to result into products including a bed, push sticks and molded mallets. These products were planned as motivators but within the process of learning, to

prompt students to use all machines and learn more as they keep engaged to accomplish those tasks. These skills included using all the machines that are within the workshop, safety precautions for example using a push stick and working glues and different wood connectors.

The students' comment that 'we have always seen these machines and used some of them, however, this time, they feel special ability to operate any wood working machine' revealed enormous potential in involving students in the learning activities. First of all students became open to give their contributions in form of feedback and some of them were observed trying new thing (becoming innovative) especially when there was a power crisis. Students used the available hand tools to accomplish part of the work and were seen to teach others to adopt the same tricks. Other important aspect from the machine course include the following as discussed below;

5.3.1 Integrated method of teaching and learning

The machine course was implemented using the Integrated Method of teaching. In this method, the teacher gives theory within the execution time of the practical tasks in such a way that there is no designated time for theory and practical but both are done concurrently. This is also the context in which this method will be defined because different scholars have different meanings for the same. This was new to the students and instructors too but they both adapted to it fast. This method was adopted from the German instructor that had done a training before in the department. He had tried to teach the instructors to apply the same in teaching but it was still a challenge however the research presented a good chance to implement this method of teaching. This integrated method of teaching requires that students think fast and act fast and at the same time not only apply the knowledge but also create new knowledge as they execute the tasks. At the beginning, students were seen trying to write notes but later as the activities continued they

developed capacity faster in knowledge acquisition and application. We can relate this to Kolb & Boyatzis' (1999) "experiential learning" to emphasize the central role that experience plays in the learning process. He says that many educational institutions offer experiential education programs such as internships, field projects, and classroom experiential learning exercises to add a direct experience component to their traditional academic studies. Here it is thought of as an educational technique like service learning, problem-based learning, action learning, or team. I concur with him because I look at the practicality of learning processes and how vital they are for knowledge acquisition and storage. This approach in turn became a source of motivation for both the students and staff. We observed this during the research that the instructors were more motivated to teach and delivered much more than the old way of teaching whereas the students responded to the learning tasks with enthusiasm than has been the case before. The activities of the research happened to be like extra load on the instructors. However, even without extra pay, they cooperated to work and this was registered as the first time when such kind of motivation could be reflected among them.

5.4 Industrial visit

The industrial visit was the last activity of the research at the end of the machine course. It was designed to enable the students to interact with the technology in the industry after experiencing the one at the department. Then industry as opposed to the VET training provides a real life experience of work flow. The processes from the selection of materials, to seasoning, to storage and finally to design and manufacture. The students were taken through all the stages only to realize that there is more to the profession than just learning a few concepts in class. It was important to note that when students are given a glimpse of what takes place in the industry, they

take every bit of the training seriously because they can relate with what they observed. Drawing from the report by Hawley, (2005) he mentions what make the German VET system a strong one is that at the heart of it the collaboration between the Education system and the private sector. Actually, needless to mention is that the trainers in the vocational schools in Germany are bound to teach that which is demanded by the industry. The kind of technology that they use for training is dictated by the industries depending on the current needs. In such an instance, mismatch of training needs is seldomly an issue in such a system. On arrival at the industry, the students were not allowed to enter the work except with some minimum safety gear or even to operate any machine without supervision, this indicated to the students that safety is very crucial in the industry. The production lines were organised in order according to the level of production, these production lines did not only produce wooden products but also dealt in board products. This helped the students to realise that wood work is not only about wood but diverse knowledge is required in industry.

5.5 Conclusion

This research was carried out at the wood working department of Nakawa Vocational training institute and it considered ideas from instructors, students of the department, the Institute management, industrialists and development partners at the institute. The research majored on how to enhance the pedagogical approaches in the department in order to improve students' practical competence so that they can be relevant in the world of work. We emphasized the use of the available resources and time to make sure that we can bring out a better result in terms of training output.

The research encouraged students to engage in practical activities that were geared toward improving attitudes, knowledge and skills. The students worked hand in hand with the instructors to accomplish tasks that were critical additions to the curriculum and required both their attention. Due to the practicality of the activities, the students were motivated to move an extra mile in discovery of new knowledge and even became more inquisitive about their trade. This is because they were able to view the trade differently from the previous approaches where they were not very involved but kept on the receiving end. This is supported by Michael (2006, p. 160) that “learner centered approaches encourage active learning by the students which in return can lead to increased motivation to learn, greater retention of knowledge, deeper understanding and more positive attitudes towards the subject being taught”.

Apart from the involvement of learners in the teaching and learning processes, it is important to note that the instructors also adopted an integrated method of delivery of theory and practical at the same time. This method was proved to be effective in the sense that it did not allow any leakage of information, following the fact that students practiced all that was being taught practically and so easily identified with the knowledge instead of just writing down the knowledge and not practicing. This was a method adopted from a German trainer Mr. Schneeman through a training of instructors that took place in Cologne at Butzweilerhof. The research also culminated into the following:

5.5.1 Team Work

The success of the research relied heavily on the team work that developed into the stakeholders. The students were thankful and they said that it was their first time to have opportunity to closely relate with their instructors. However, though some students were still shy to make contributions but as time went on they gained the confidence. The instructors developed

a special desire to help students in the subsequent activities. This I observed that it was a result of how the students were treated by other stakeholders during the research meetings. The company representatives treated students' suggestions with great concern and this brought Instructors to an understanding that students are very important stakeholders. Consequently, the students cooperated to accomplish tasks assigned to them by their instructors.

One of the days, after the students had worked hard, I supported them to go to a good restaurant and have lunch. This act was not intended to mean anything to the research but instead it inculcated confidence in the students and gave them worth even before the rest of the staff. According to Akrawi (2011), the narrower the gap between the teacher and the students, the more the quality of teaching and learning. This indeed is a sure statement because in our context the teachers were able to know the students' needs and the students too were able to know what the teachers require. For example during the machine course, it was clear that gradually there was a transformation from the traditional way of teaching where the teacher is a dictator to a more colloquial activity.

5.5.2 Democracy

During the research, we emphasized Democracy from the beginning to the end. This democracy as far as the research was concerned, referred to a situation where all stakeholders were free to give their suggestions and in that case that their suggestions had equal share of attention. Students were the weaker group and therefore the environment was created to enable them to be free and give suggestions. For example during the situation analysis, the future workshop and the other meetings concerning the research, the students were given chance to give their input whereby this input guided a big part of the research such as the suggestion to hold a career guidance was discerned from how students expressed their suggestions as well as the

machine course. Before the research, these students had never had such a chance to give any input as far as their training is concerned. Bradbury (2001, p. 18) in (Arakit, 2016, p. 84) suggests that democracy should be emphasized in Action Research. And he emphasizes that dialogue should be based on the principle of give and take not one way communication. All participants are under obligation to help other participants to be active in dialogue and all participants have same status in the dialogue arena and any experience the participant has when entering the dialogue must be seen as relevant and it should be possible for all participants to gain an understanding of the topics under discussion. In view of this, students as the minor group of the stakeholders were given equal opportunity to participate both in the presence of other stakeholders and in their absence. In so doing, the students developed a sense of confidence that was surprising that they had never had before. They had been used to domineering system where the teachers and administrators are the overall, but this time it was different.

Democracy made the Instructors more supportive to the students because for some challenges mentioned like inability to use machines, were a challenge to the instructors. They never believed this to be true among the students and yet the students expressed their true situation and instructors felt indebted to them. According to Luz (2016, p. 2), teachers need to be supportive to their students. He explains a supportive teacher as one who creates efficiently a positive classroom environment, who encourages students to behave well in classroom and to be motivated. Supportive teachers also are teachers who emphasize the learning process by giving all the students the chance to construct their learning, and be engaged with the content. To give the students the chance to build knowledge and develop skills teachers should shift from a traditional teaching methods to methods and strategies focused on communicative instruction and cooperative learning. Communicative instruction and cooperative learning provide students

with the necessary skills to succeed while learning because they allow students to be the center of the learning process and can positively affect students' learning, promoting good interaction. In view of this, I observed that the research sparked a new day for the department where by communication became effective. In order, to do the machine course, the students were called to make suggestion for how the drawing could be done which was new to students for normally they were given finished drawings and they were just supposed to start work without making any changes.

5.5.3 Group work

Due to the low enrolment in the department, the research involved all the two years of the basic students¹ and some activities involved group work. The groups were selected in such a way that they first and second year students were mixed. This helped the students to appreciate each other in such a way that the superiority complex of second years against the first years was totally minimized. These groups were supported by instructors in turns and therefore the students had collective experience with all of them and improved their relationship with all instructors. According to Luz, (2015, p. 13), students' ability to connect with their teachers is one attribute that can make a great difference in students' learning achievement. During the research, students also were able to understand the instructors' strengths and they how these instructors could be of importance to them outside class work activities. This was created by the close interaction during the research. It was observed that the students identified instructors' unique abilities and now are able to engage any of them on different facets.

The students in one of their comments said they appreciate the new system of teaching and how they are now discussing issues with instructors in the department. Our process of

¹Full time and part time students enrolled for a two year National certificate in Wood Work Technology.

research created an environment that even the instructors realized the necessity to collaborate with students in knowledge creation. In so doing the students felt motivated because they felt they are valued. Weber, Martin, & Cayanus, 2005 cited by (Luz, 2015) found out that when students consider their classroom work to be meaningful when they have the opportunity to demonstrate their competence, and believe their input is vital to the course, they are motivated to communicate with their instructors for relational, functional, and participatory reasons.

5.5.4 Challenges

As if all was going well except some members of the team that always were opposing what the team had decided to do. I happened to be the youngest on the team of instructors and this almost worked against me. However, some members considered the wider picture of the benefit of the research activities to the department and offered their cooperation. When group members take on dysfunctional roles, this can lead to very ineffective team behaviors (Monash, 2001). The research faced a challenge of some stakeholders feeling insecure amidst the new changes taking place. As though students would change royalty but this changed when they realized that students only responded to a change in the teaching methods and so much about personalities.

5.6 Recommendations

Throughout the research process I noted that Action Research was a very effective method of research due to the fact it involves all stakeholders at all stages of the research. This was very important to the quality of the research because it unveiled issues from all angles and gave the research a rich experience. Johnson (2012) as cited by (Hine, 2013, p. 153) asserts that action research bridges the gap between research and practice. That is why the research became

beneficial to the stakeholders because they practiced and the finding were as a result of an engagement process of all stakeholders.

It was also noticed that involving learners in the learning process is very important because it helps them to be motivated, innovative and able to create new knowledge. As the research activities progressed, it was observed that students could set their own goals to achieve in terms of accomplishing the activities. It was interesting to observe because it was an indicator of a change process that took place with in them.

During implementation of the research, it was evident that there is need to make a clear plan in time and involve all stakeholders to know about that plan. This is because some of the activities may require more time than earlier anticipated and it may be difficult to adjust when it is too late. For example, the visit to the industry seemed to have required more days than just one day but this was realized late through a comment from one of the Managers at the institute and again from the factory manager.

In a nut shell, this research realized that Public Private Partnerships (PPP) are very crucial. This was realized during the industrial visit. The manager to the industry had very many ideas which couldn't be effected in one day the students spent in the industry. It occurred that the collaboration with the World of Work has to be enhanced in a certain way in order to benefit from their enormous suggestions. I recommend that if anyone is to do further research can base on how these PPPs can be enhanced to improve the students' practical competence and make them relevant in the WoW.

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LIST OF APPENDICES

Appendix A: Introductory letter

KYAMBOGO UNIVERSITY
 P. O. Box 1 Kyambogo, Phone: 041-285001/2 Fax: 041-220464
 www.kyambogo.ac.ug
 FACULTY OF VOCATIONAL STUDIES
 DEPARTMENT OF ART & INDUSTRIAL DESIGN
MASTERS IN VOCATIONAL PEDAGOGY PROGRAMME

28th September, 2016

NAKAWA VOCATIONAL TRAINING
INSTITUTE

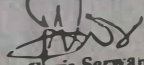
RE: INTRODUCTION OF BARIGYE DOREEN.

This comes to introduce to you BARIGYE Doreen a student of Masters in Vocational Pedagogy (MVP) Programme at Kyambogo University. This student bears registration no. 15/U/14575/GMVP/PE and in her 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 her is highly appreciated.

Looking forward to your usual support.

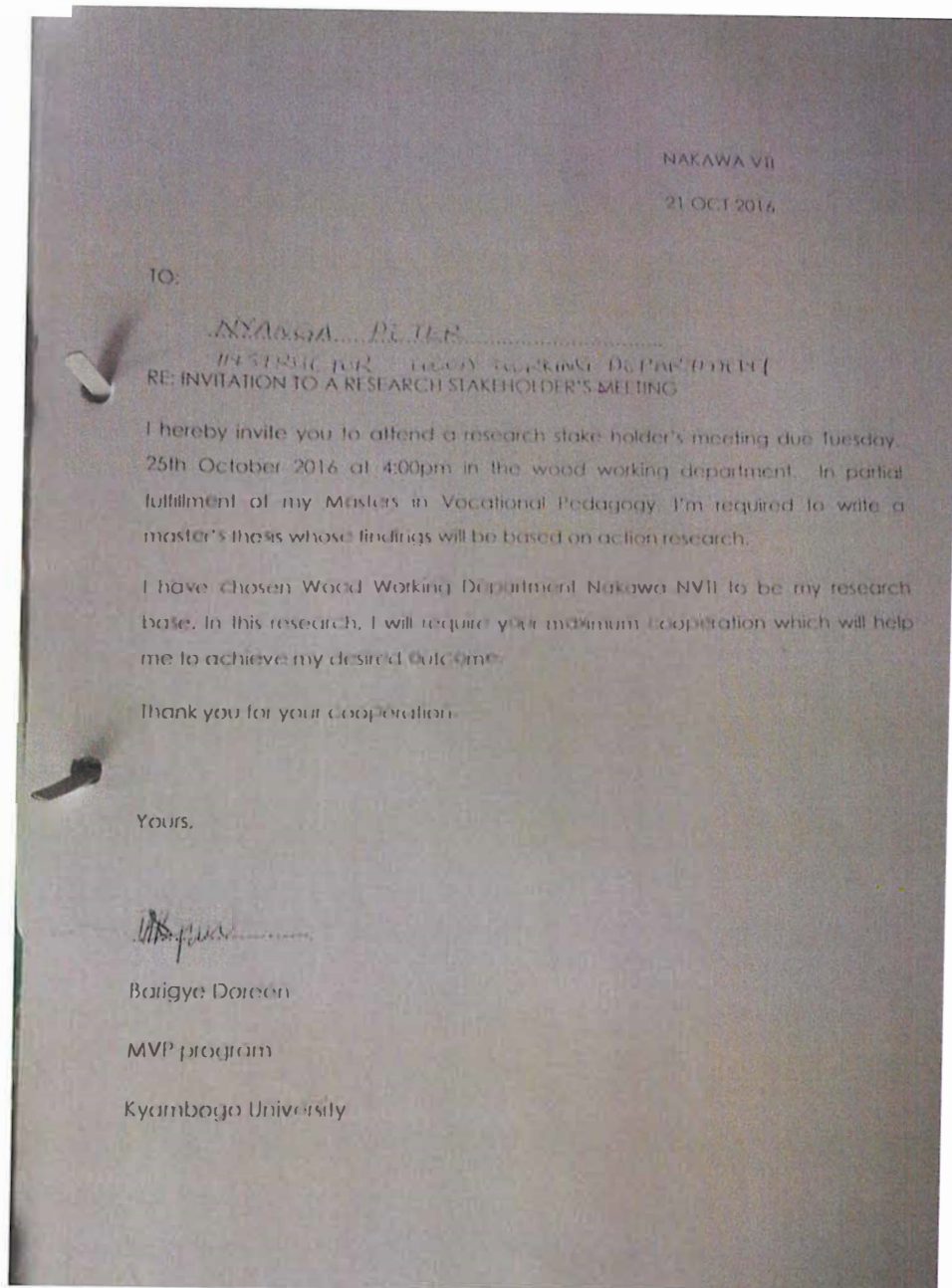
Yours Sincerely,



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



Appendix B: Invitation letter to the research meeting



Appendix C: Findings from Future Workshop

Compilation of findings from future workshop held at wood working department nakawa vocational training institute (nvti)

From situation analysis, the area of concern that came out from all the stake holders was

Pedagogical approaches in the Wood working department. This was followed by a future workshop represented by the following stakeholders.

NAME	CAPACITY	COMMENT	CONTACTS
Mr. Muwanga Fred	Principal	Sent his submission the day before	0757193827
Mrs. Cornelia Zupp	HWK Technical Advisor	Development Partner	0773265508
Mr. Elvis Mulimba	Former student	Industrialist (USSIA)	0703209970
Mr. Chris Sserwaniko	Mentor KYU	Coordinator-MVP programme	0772400814
Dr. Justine Nabaggala	Research Principal Supervisor	MVP programme	0777579257
Barigye Doreen	Researcher	MVP programme	0754070774
Kivumbi Lydia	Co-researcher	MVP programme	0772469164
Nakanwagi Joweria	Co-researcher	MVP programme	0787423419
Musoke Henry	Co-researcher	MVP programme	0706691364
Twesigye Pascal	Head of Department	Wood Working Department NVTI	0772892734
Nyanga Peter	Instructor	Wood Working Department NVTI	0759960565
Tom Olwa	Instructor	Wood Working Department NVTI	0774398900
Nyanzi Richard	Instructor	Wood Working Department NVTI	0752955621
Kijjambu Saul	Student	Wood Working Department NVTI	0701720184
Iga Juma		Wood Working Department NVTI	0782574219

Kalange Magidu		Wood Working Department NVTI	0772244713
Ogwang Geoffrey		Wood Working Department NVTI	0788737483
Muhangi Allan		Wood Working Department NVTI	0757143132
Kibalama Francis		Wood Working Department NVTI	0784226983
Opolo Peter		Wood Working Department NVTI	0701991325
Oire Paul		Wood Working Department NVTI	0777862864
Katungi Innocent		Wood Working Department NVTI	

Summary of stake holders

- Administration/Management NVTI
- Students of wood working Department NVTI
- Instructors Wood Working Department
- Representative from the industry
- Representative of former students
- Development partners HWK project

Academic support

- Supervisor
- Mentor
- Co researchers

Rules of the workshop

- Keep your phone in silence

- Respect others views and opinions
- Be brief and to the point
- Refer to your own experience
- Do not generalize

The discussion of the future workshop was based on highlighting the expectations, experiences and gaps that all stake holders have about the pedagogical aspects in the wood working department. The issue of concern; 'pedagogical Aspects' was obtained through a situation analysis which was done with focused discussions from different stakeholders.

Expectations from the students

- To learn basic craft skills such as working with machines, portable tools and hand tools.
- To acquire skills in computer for example to sketch using software
- To do only practical but found also theory
- Came with a feeling that wood work is for failures
- To learn creativity in production
- To learn many designs in carpentry

How have these expectations been met (Experiences)

- Acquired skills and knowledge in carpentry of making furniture but less skills in using machines
- Learnt theory which sometimes is not connected to practical learnt

Gaps

- More theory than practical -1
- Lack of exposure to costing -2
- Practical training does put in consideration time factor -1

- Community attitude towards technical education -3
- Theory subject are hard and de-motivate learners -1
- Lack of career guidance before enrolment to programs -3
- High fees structure -3
- Attitude towards changing circumstances-1
- Poor flow of information from administration to students -3
- High rate of drop out from the course -3
- Training on small models other than big projects that motivate learners -1
- Lack of feedback mechanism -3
- Poor facilitation to department from management-3
- Historical background of technical education -3
- Instructors attitude towards student -1
- Lack of self-appraisal-1
- Lack of open communication channels -1
- Industrial partnerships -1

Categorisation

The categorisation was done using number 1, 2, 3 and 4 representing the following categories.

1. Teaching and learning processes
2. Perception
3. Management

Pair wise matrix

Voting done democratically.

	1	2	3	Total tally	Ranking
1				2	1
2	1			1	2
3	1	2		0	3

The more pressing problem concerned the teaching and learning processes of which included the following issues;

- Low Integration of theory and practical
- Limited training facilities/materials
- There is instruction on costing of materials, products and labour to students
- No technological approaches taught on how to use of off cuts to make products
- Limited use of project based method of teaching and learning
- Instructors don't have effective channels of effective communication with students.

Fantasy

- To be given more practical than theory.
- Instructor have the interest to teach and also students have a positive attitude towards their studies.
- Instructors should not only dictate notes but also print out student hand outs
- Students to be availed with smart phones and computers to facilitate learning in terms of research.

- Demonstration of different aspects taught in theory should be done practically immediately after.
- Computer room should be made accessible to students
- Instructors to be always prepared
- Students should always be prepared with their books

From the different aspects under the teaching and learning category, the stake holders chose to handle the issue of 'Increasing the practical competence of wood working students'. The following are the activities that were suggested to be done to that effect.

Solutions

- Immediate practical after every theory lesson
- Create a balance between theories and practical
- Learning computer aided design
- Proper preparation for instructors
- Student preparation

Activities

- Plan enough practical activities for the planned time
- Make more comprehensive practical tasks for students
- Proper briefing to trainees for relevance of practical tasks
- Real life projects (client based tasks).

From here I will start on the proposal writing and later will hold other stake holder meetings or another future workshop when need arises.

Appendix D: Time Frame

Activity	Start	End	comment
Situation Analysis and Future Workshop	Oct 2016	Dec 2016	Completed
Writing proposal	Dec 2016	Mid-March 2017	Completed
Data collection	March 2017	End of April 2017	Completed
Data Analysis	May 2017	Mid-June	Completed
Final touches on thesis writing and submission	Mid-June 2017	October	Pending

Appendix E: Stakeholders' Responsibilities

<u>No.</u>	<u>Stakeholders</u>	<u>Responsibilities</u>
1.	Instructors	• Attend all research meetings conducted at the department • Present their views • Refine the research meeting outcomes tailor-making them to the departmental schedule and plan • Guide students
2.	Students	• Attend research meeting and all other research activities • Accomplish tasks assigned by instructors that are part of the research
3.	Institute management	• Provide views • Provide the permission to use the institute(wood working department) as center of the research
4.	Former graduates	Give their experience at the department and in the world of work
5	Development partners	• Provide their views • Support the activities where necessary
6.	The industrialists	• Give their views • Accept partnership for some research activities.

Appendix F: Responses about the reasons why wood work students joined the course

	RESPONSE	ANALYSIS
1.	Own inspiration	This was said by a student who is on mature entry and that has always been the trend to have two or one students who take the course seriously but all on mature entry. Direct entrants from s.4 are always laid back.
2.	By father, by brother, by sister	- These are students whose relatives have made it already in life in this particular profession and their choices were based on the fact that when they are through with school they will automatically go to work with them. - This does not necessarily account for a positive attitude because some thought it's all about learning skills and no theory at all which is not true. However, as far as skill is concerned they are interested. Thought: <i>if our students are well trained and they make it in life they could inspire many and the future students could be even better inspired with a better attitude.</i>
3	No answer	The answers could not be obtained by force

**Appendix G: Situation analysis tool (interview guide) for Wood Work
Department; 26th October 2016**

Nakawa Vocational Training Institute

Instructors

1. What is your work rhythm or how does your day go on a daily basis?
2. Describe your teaching experience situation?
3. On a yearly basis how many students are able to be placed in the world of work?
4. When and how do you use ICT's in your teaching?
5. What are your expectations from your employers?
6. What do your employers expect from you?

Students

1. How do your days normally go?
2. What are your expectations from your instructors?
3. What do you think is expected from you?

Assessment of competence

- Attend class together with the instructors and observe where the gaps could be
- Could it be the teacher is good at his job?
- Do the students respect him/ does he/she have control over the class.
- Could it be the type of the students that are admitted?

- Could it be an issue connected with the instructor, student or administration?

Employers

1. How do you feel work goes in the wood working department?
2. How is the recruitment process, how do you find your workers?
3. Do you carry out in house trainings. If yes in what areas?
4. How often are the trainings. Then how is the training need identified?

End

Thank you!

Appendix H: Data from situation Analysis 12 June 2016

AREA	Responses		
Teacher's work rhythm at wood work	Planning - Starts from a work Plan normally termed as an activity plan for the Department. This is done termly by the HOD and staff and reference made to the previous work plan- see what to carry forward or not. - Each instructor extracts their daily activity and therefore individual plans start with; - Preparation of schemes of work, lesson plans, lesson notes, worksheets, Assignment sheets and Students Projects - Career guidance –voluntary participation in class and by the institute - Records keeping of attendance and assessment - Hold staff meetings and keep a record of minutes – at the beginning of the term or plan and in the middle of the term to assess progress. - Assess students and produce report cards. Continuous assessment – summative and cumulative- categorise		
Teacher's experience	Ranges from 2years to 20 years –the number of instructors are six.		
Training	- Training is conducted following the curriculum – both Institutional and NCDC(government curriculum)-how do we merge the two. - The department receives trainees in different forms - Basic (curricula based)-2years programme - DITTE (curricula based)-one year - Ndejje Students (industrial Training)- 3 months training - Non-formal (Modular) – DIT and how long? - Special groups (Modular) can organized by individuals or companies. accreditation by the institute- how long? - The department emphasizes the following methods of training: - Project/problem based learning – how? - Workshop learning –how - There is learning by doing it is done and to which extent - The students are always motivated by their products		

Issues	• Training content is limited to the curriculum. Teachers feel students miss some content that is not stipulated in the curriculum (extra curricula content is not easy to give to student but through tactful ways a teacher can improvise). Previous mode of training and curriculum talk about it. It pros and cons-compare with current its pros and cons. • Establishment of a mode training that addresses the positive strategies with in the two modes for better training. (could be one strategy) • Incorporation of ICT in training is a challenge due to lack of sufficient equipment and proficiency of the trainers – Lack of in service training in wood work. How best can we improve ---- schedule our • The enrollment system- the department receives mostly the least performers from UCE or “rejects” from other departments and must train them into useful citizens. –state the observation of how the students direct from UCE are not good performers and yet upgraders can do well. Departmental career guidance-why the drop outs? • Low employability of current graduates of the department (due to lack of practice-no more CUM production like before) –stock taking - proper accountability system and follow up. • Training is more theory than practical (through DIT exam the students were observed to be missing some skills) - • Poor attitudes ✿ By the students towards the trade ✿ By the public towards the trade Result: carpentry is never a first choice for the students. Why? Some parents just bring students to occupy them during the day. It serves as a day care engage the parents... • CUM production provided students with extra practical industrial skills but since it was stopped the graduates are less competent –why can't the students be made competent with in the available resources. • Adoption to news technologies is a problem by both instructors and students • Student counselling not adequate • Non-productive department • In adequate skills and competence by the students -
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Recommendations	• Instructors lack some competences –follow up plans • Need to do industrial visits by the instructors to motivate the former trainees - • Short trainings ideal for the department • Emphasize industrial attachment • Self assessment and evaluation- • Students evaluating the instructors to show their level of satisfaction		
FROM THE INDUSTRY			
MAYONDO ENGINEERING WORKS (the owner is a former trainer at the department)	• Employs 2 former students from the department • Receives students from the department per year for industrial trail training –how has this affected the performance of the department		
Why were the students retained?	• They worked at the workshop during industrial training • Later they came back job seeking • They were retained because of their good attitude • However they required a lot of training. • They did not have skills required. They were just in a state that they could be trained. • They could learn quickly because of the vocational Institute experience (just the fact that they went to school; normally the others are hard to teach because of their attitude) •		
Which particular skills were you looking for?	• Machine operation • Maintenance, setting, sharpening, drawing, drawing interpretation, auto CAD, sketch up. • For example, our trainee who was first at Hwansung she learnt CAD and she is now at Mayondo. However she still needs a lot of training. • How to bring CAD with in the curriculum- must train Facilitator		
	• The director was not employing students from any vocational schools because they never had any skills needed. • In schools they only teach timber		

Trainings needed	• Safety • Better work methods • Machines – use of jigs		
	• There is what he termed as wood work style where by the students are taught only wood and ignore glass, Gypsum partitions, marbles, plywood, veneers and other engineered products. • These days an ordinary wood worker is almost useless- collaborate with industries to instruct students from there. • Only joints, models are not very applicable in the industry because most it is work that is done by the machine. • No much hand skill is required in the industry these days.		
recommendation	• Mind about world of work during training • Train schneeman style. In this style, the student has a perfect example to work towards. He makes a product and the student tries to make exact like his. But our training the students don't know the difference between good and bad. • More training for instructors • Instructors to undertake industrial training????/ Use mayondo to reflect on the mode of training (pedagogical aspects) Reflect on his experience as a former trainer How can we establish his synergy btn the institute Work placement contact • Emphasize real life projects..... CUM		
Germany way	• When something is new in industry, the schools must get information about it and are provided with material to effect it.		
ALUMNI			
	• Obtained the job through relationships during industrial training • Networking talk about the key players those that are influential and those that are important.		

Industrial training	• It was very helpful because we applied the knowledge we learnt and added also to the same • The knowledge was familiar but they learnt well from the job eg. ✚ Setting—done in theory ✚ Blade sharpening ----was not learnt ✚ Glue knowledge--- done in theory ✚ Machine operation—more theory and less practical ✚ Safety—overtaught Share this in the future workshop.		
review	• At the NVTI they used so much of hand tools • Trained for very small wood working jobs not for medium scale industries • Had little time to use machines at the department • Evening students had very limited time on practical because the instructors never used to keep time		
General comment from the students	In C&J, theory is good but practical is better. Design a mode of instruction that equates both theory and practical		