MASTER THESIS

MASTER OF VOCATIONAL PEDAGOGY

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PROJECT BASED LEARNING AS A TEACHING METHOD AT THE UGANDA HOTEL AND TOURISM TRAINING INSTITUTE

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APPROVAL

I declare that Mr. Kaweesi Emmanuel has done this Masters' thesis under my due supervision.

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DEDICATION

To NANSUBUGA RONNE,

for the character she is.

ABSTRACT

The study was carried out at Uganda Hotel and Tourism Training Institute (UHTTI) and it focused on using Project Based Learning (PBL) as a teaching method. The purpose of the study was to improve my practice as a vocational teacher of pastry and bakery. This was done by conducting two practical lessons using PBL. The first one was done and observations were made by students and participant colleagues. Basing on their observations, a second project was held to check whether I had made some improvement in the organization and implementation of PBL.

The study was driven by the following objectives; conducting pastry and bakery practical lessons by using PBL, discovering the learners' outcomes from PBL, finding out the challenges of PBL and the way forward for UHTTI. The research design was qualitative, in which case a descriptive and explanatory nature of writing was adopted. The research approach used was action research. This involved planning, observing, acting, and evaluating almost at every stage of the research process. In some cases, the original plan was changed to suit the prevailing conditions.

Purposive sampling was used to get a sample size of 30 participants. These included 25 students, 2 administrators and 3 colleagues. To collect data, I used methods like focus group discussions, participant observations, the log book and interviews. Literature was searched from ODA (Open Digital Archives), ERIC (Education Resource Information Centre), Taylor and Francis, and google scholar. Some copies of books were also got directly from the HiOA library.

The results show that learners get enormous outcomes from PBL. These include but not limited to generation of new knowledge, communication and leadership skills, time management skills, skills of creativity and innovation. The teacher of PBL needed to continue improvement in the areas of scaffolding learning, teaching students about group dynamics before project starts, and general preparation before the project, such as rehearsing the project and making models for the students. The main challenges discovered with PBL is that it consumes a lot of time, controlling learners' discipline is hard and its expensive in terms of materials used in the practical.

It has been suggested that learners can sell some of their products from the project to facilitate the teacher, and also to conduct more projects for study purposes.

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LIST OF ABBREVIATIONS

UHTTI	The Uganda Hotel and Tourism Training Institute
HiOA	Oslo and Akershus University College of Applied Sciences
KyU	Kyambogo University
DIT	Directorate of Industrial Training
HoD	Head of Department
MoES	Ministry of Education and Sports
MVP	Master of Vocational Pedagogy
GoU	Government of Uganda
PI	Principal Instructor
HSC	High School College
PLE	Primary Leaving Examinations
BTVET	Business Technical Vocational Education and Training
UJTC	Uganda Junior Technical Certificate
UNDP	United Nations Development Program
ILO	International Labor organization
MTWA	Ministry of Tourism Wildlife and Antiquities
R&P	Research and Pedagogy

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.0 Introduction

The issue of teacher quality has been an important focus in recent education policies at the national level in Australia (Bell & Aldridge, 2014, p. 2). The teacher's lack of pedagogical knowledge has remained a problem in higher institutions of learning in some countries. Duch, Groh, and Allen (2001, p. 4) noted that in America most college and university faculty embark upon business of teaching with very little instruction or training in pedagogy. Due to this, vocational teachers tend to choose methods that do not give students the involvement they deserve in practical lessons. Yet Dolmans, De Grave, Wolfhagen, and Van Der Vleuten (2005, p. 733) argue that learners should be involved actively in order to get deeper and richer understanding and better use of knowledge. Also, there seems to be a shortage of vocational teachers. Egau and Humphrey (2002, p. 7) emphasized that there is need to develop a vocational teacher development to address the current problem of both shortage and quality of vocational teachers. The shortage of teachers in VET institutions seems to have resulted into poor quality vocational education. GOJ (1997, p. 21) noted that in Japan people who may have special knowledge and skills, but no formal teaching certificate, can be appointed as special lecturers in order to augment the school curriculum. The main concern of this thesis is about improving the teacher's competency to choose and use the right method to teach practical lessons at The Uganda Hotel and Tourism Training Institute (UHTTI) especially in pastry and bakery.

1.1 Personal Background

I have been in the field of vocational studies since 2000 when I started high school at Lubiri Secondary School where I opted for Food and Nutrition[1] as one of my subjects. The teachers in this school gave more attention to theorized content. According to (Dutch et al. 2001, p.4), this mode of instruction gives students a naïve view of learning in which the teacher is responsible for delivering content and the students are the passive receivers of knowledge. Education Review Commission (1992) in (Egau & Humphrey, 2002, p. 7) stated that no education system can be better than the quality of its teachers. And in this case, the teachers seemed too theoretical yet they were teaching practical subjects.

[1] Food and Nutrition is one of the vocational subjects offered at secondary school level in Uganda.

By 2002, I enrolled at (UHTTI) as pastry and bakery student. My student years as at UHTTI were characterized by teaching and learning that was not so well structured. This was because many of the teachers were experienced hoteliers who lacked pedagogical background. Therefore, their teaching was more from hotel experience without considering pedagogical principles. I did the mandatory industrial training at The Sheraton Kampala Hotel.

I later continued with my hotel practice at Paraa Safari Lodge and later Serena Hotel Kampala. These are commercial hotels aimed at profit making. I was lucky to get some on-job training in order to fit into their standards without causing them excessive losses or decrease their production. Later on, I became the in-charge for trainees and partly, my inspiration to qualify as a vocational teacher starts here. This is because the catering trainees I handled then had a lot of theoretical concepts that they could not translate into practical skills application. Zhang (2009, p. 75) noted that in terms of teaching content, theory is overemphasized, while practical training is ignored; theoretical teaching is dominant, while practical teaching is placed at a secondary position, which cannot reflect characteristics of vocation and technique. This was now reflecting in the students at the work place.

I joined the Bachelor of vocational studies in Home Economics with Education at Kyambogo University (KyU). While at Kyambogo, the teaching was more teacher centered. Unlike at the hotel school where instructors lacked pedagogical knowledge, at Kyambogo most lecturers lacked experience in the trades they were teaching. Therefore, I was confident enough that the degree coupled with my hotel experience would help me in facilitating at even higher levels such as colleges and universities and this would bridge the gap between school lessons and the world of work.

As a student of Vocational Pedagogy (MVP[2]) at HiOA I have been exposed to teaching methods that I can use to improve my Professional Vocational practice. I have also been exposed to the modern methodology of teaching and learning which put the student at the forefront of his learning. These are the student centered methods of teaching such as Project Based Learning. I have realized that I was doing more for myself as a student than what actually the professor did

[2] Master of Vocational Pedagogy

for me and as a result, it was not easy to cope. This is because the schooling I have been exposed to from home since childhood suggests otherwise: that the teacher should do more for the student as the student is put on the receiving end of his learning. This is particularly dangerous for practical lessons. I want to agree with Selener (1997) in (Vaccarino, Comrie, Murray, & Sligo, 2007) who pointed out that "action research is intended to lead to actions which promote improved educational practices". I aimed at using my knowledge of action research to improve my educational practice as a vocational teacher at UHTTI.

1.2 Thesis theme

The theme of the study is to understand how vocational teachers can involve learners more in their learning through selection of appropriate teaching methods. It is directed towards improving my practice as a vocational teacher by actively engaging learners and willing colleagues in teaching and learning process. I have opted to view it that learners can take responsibility for their learning and me as their teacher can turn into their facilitator[3] in order to make learning more meaningful and interesting to them. This is something I had not tried before. In my study, I chose to collaborate with my learners and willing colleagues who might as well have needed to improve their various vocational practices.

The shortage of competent vocational teachers has been noted in China. Zhang (2009, p. 76) mentioned that their teaching force is constituted by young teachers who are relatively weak in terms of practical teaching, and their theoretical teaching usually goes out of joint with practice. Usually, for the case of UHTTI, this category of teachers is the one that have pedagogical training. The other majority of teachers are experts in their fields but with no pedagogical knowledge. The reduction in skills of our students that our partners have consistently raised may be partly attributed to the way they are taught practical lessons.

Many vocational teachers have graduated mainly from Kyambogo University but these usually lack work place experience in the various vocations they graduate in. Zhang (2009, p. 76) notes that;

[3] In the traditional system, the teacher is the authority of knowledge and learners are usually considered to be receptive participants. Facilitator here means less teacher involvement.

> *'Large number of teachers don't have working experiences in enterprises. Besides, they are lacking in necessary practice afterwards, so it is difficult for them to conduct "application-based" education on students. He adds that currently, young teachers in most vocational-technical schools account for a larger proportion, most of whom "enter schools from schools" and are short of specific working experiences in the forefront of enterprises, so their manipulative ability is generally far from enough.'*

The concept of entering 'school from school' in my understanding emphasizes the lack of vocational practice for such teachers. In my view, it would be a good idea to enter the industry after school, get some experience for about three years, then join vocational teaching after getting the feel of what happens in the world of work of your trade or enterprise.

In Norway, the situation seems to be the way to go and Mjelde and Daly had this to say;

> *'In Norway, vocational school teachers have learned trades, developed their qualifications, and been part of the manual labor market before they trained as teachers and researchers. This flux and change is the starting point for their work as teachers – for addressing people's need for skills in relationship to sustainable development at any one point in time' (Mjelde & Daly, 2012, p. 46).*

This puts the vocational teacher in a better position to give relevant skills to the learners, so that when the learner finally goes to the field he can skillfully connect.

When I joined The Sheraton Kampala Hotel[4] for my training I realized that what I had got from the UHTTI as a student was not connecting to the world of work which I was facing at the time. Yet one of the objectives of Business Technical Vocational Education and Training (BTVET) in Uganda is to provide relevant knowledge, values and skills for purposes of academic progression and employment in the labor market (MOES, 2008, p. 5). This implied that the learning outcomes I had gained from UHTTI had not fulfilled the objective of BTVET as stated by law.

[4] Sheraton Kampala Hotel is a five-star modern Hotel in Kampala

I later joined UHTTI as an instructor[5] and I viewed this as giving back to the school that had mentored me. I have taught subjects like Nutrition, microbiology, safety and hygiene, research methods, Energy use and conservation, menu planning and language, Kitchen organization and equipment, pastry and bakery for now five years. And some of my teachers were still there. It was the same old story of teachers lacking the 'double quality' characteristic as (Zang, 2009) calls it. Kyriacou (2007, p. 14) commented that teaching skills continually need development to improve one's own practice and to meet new demands. The teachers at UHTTI, in my opinion had not done enough to improve their own practices. Many teachers lack trade experience while those who have it lack pedagogical training. I then became more determined to be the agent of change because I was a double 'quality' teacher; having worked in five star hotels for over five years and gotten pedagogical training from KyU. This meant that I had the trade experience and the pedagogical training and it had to be reflected by the way I handled the practical lessons I was given.

1.3 Background to the thesis

While at Serena, I attended workshops on how to design occupational[6] profiles for various vocational fields. This workshop was organized by Directorate of Industrial Training (DIT). We developed occupational profiles and test items basing on the knowledge we had acquired from the field. (Hiim, 2013) in (Hiim & Stålhane, 2016, p. 1) emphasized that vocationally relevant curricula can only be developed through close collaboration between vocational schools and firms where the vocational teachers play a key role. This can help vocational teachers to teach using tools developed by industry experts. This can help to reduce the gap between school and workplace. This increased my interest to join the teaching profession so that I could bridge the gap I had seen in the trainees I constantly trained. Mjelde and Daly (2012, p. 46) noted that as a background to their teaching, the experiential learning vocational teachers get from their trades provides them with a basis for understanding the dynamics of change in the labor market.

At the moment, there is a breed of new teachers at UHTTI who have joined directly from the university. Okinyal (2012, p. 23) noted that newly qualified graduates are immediately posted to

[5] The word Instructor is used to mean Teacher at the hotel Institute in Uganda

[6] Occupational profiles in the Ugandan context actually mean curricula of a given occupation developed by practicing experts.

institutions as trainers. These teachers in our country lack work experience in the vocational fields they are teaching and therefore they face problems to link what they teach to workplace needs. Christie (2014, p. 2) emphasized that too many of these recent graduates feel unprepared as they enter the classroom. Sometimes it is evident that these young teachers lack experience and this has made it difficult for them to impart practical vocational skills to students.

As a vocational teacher at UHTTI, I have been teaching in the traditional way that also mentored me. Zhang (2009, p. 75) has noted that teachers just echo what the books say, students copy notes, and experiments and practical courses become courses of "an armchair strategist". This is what I have been doing because it is convenient and not time consuming. Mertler (2008, p. 21) commented that many teachers believe that they have mastered their profession and that they will be successful if they simply keep doing what they have been doing. This may be partly because there is not enough motivation to carry on the more tedious tasks of organizing a project and other learner centered teaching approaches. Consequently, students do not seem to be so much involved in their learning because teachers decide everything; the objectives of the lesson, the nature of the practical, which group a student will be, the teaching method to use which usually favors my personal schedules at the expense of students' learning.

In order for UHTTI to achieve her mandate, mission and vision, human resource with different skills has to be acquired to foster teaching and learning. As noted in Kaweesi. (2016, p. 57) the principal of UHTTI emphasized that the school needed teachers with either tourism or hotel experience and pedagogical training; and she added that such kinds of people are hard to find. This is what Zhang (2009, p. 76) calls the lack of "double-quality" teachers in vocational education, as they call it in china. Usually, a good instructor chef will be hired but without pedagogical training and the same goes for tourism officers who are in charge of teaching our tourism students. It is not surprising that most of the instructors at the institute lack basic teaching and learning skills. Elom (2014, p. 77) noted that the quality of any teaching program cannot rise above the quality of teachers. This implies that in order to have a good teaching program, there ought to be good teachers. Egau and Humphrey (2002, p. 7) added that good technical and vocational training requires instructors who have technical skills, industrial experience and pedagogical skills.

As already noted, it was discovered in my project one that most teachers used theoretical methods to teach practical skills and this leaves a lot of questions not only on the teacher's effectiveness but also on the learners' achievements from such a lesson. Am looking at improvement of my practice as a transition from the old way of using teacher centered teaching to the new method of PBL in which learners will be more involved.

It will be remembered that Kaweesi. (2016, p. 57) recommended that teachers at UHTTI needed continuous pedagogical training in various aspects relating to documentation of the teaching and learning process. In my understanding this implies that such training must not been limited to merely documentation but also practice. The teaching methods may well be documented on a teaching plan but this may not guarantee proper implementation of such methods. In recent years, UHTTI no longer enjoys the monopoly of tourism training it enjoyed in the early 1990s. Competition from private institutions is on the rise and very often our partners in the industry have raised concerns about the quality of our graduates in the past ten years, especially related to inability of our students to integrate theoretical knowledge into practical skills application. Hiim and Stålhane (2016, p. 1) noted that students as well as employers in vocational firms complain that the school based education content is not sufficiently relevant to the vocations in question. UHTTI has tried to include industry player in the development of their curricula in order to bridge the gaps.

The teaching and learning process at UHTTI has remained so traditional without putting the learner at the fore front. The problem of lack of 'double quality[7]' vocational teachers still exists and this affects our students in the world of work. It is high time we adopted student centred methods of teaching so that as learners get more involved, even us the teachers improve our vocational practice, from the traditional methods of teaching such as demonstration, lecture, among others to the most contemporary ones which are more experiential. These may include but not limited to Project Based Learning. And thus my statement of the problem goes as below;

[7] Double quality teachers refer to those with experience in their occupations and also experience in pedagogy

1.4 Statement of the problem

How to improve my practice by using Project Based Learning (PBL) as a teaching method at The Uganda Hotel and Tourism Training Institute?

1.5 Problem identification

The above problem statement was arrived at after several meetings with the institute's stakeholders. These included the students, teachers and administrators. Coghlan and Brannick (2014, p. 10) emphasized that the stakeholders of the project should engage in constructing what the issues are, however provisionally, as a working theme. They add that this should be the basis on which action must be planned and taken. Therefore, we had to brainstorm about the issues that were handled in my project three which was about improving the organization and preparation of pastry and bakery practical lessons. The members made their various contributions which were continuously noted down. The issues were later categorized and ranked. We realized that the teachers had to change the way of their teaching such that students felt more included. It therefore followed that we would try out PBL, as it is indicated above.

1.6 Explanation of the problem statement

Behizadeh (2014, p. 99) defined PBL as "a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks". For such knowledge to be imparted into learners, it requires a creative instructor with trade experience and pedagogical training to drive the expertize. Efforts of my improvement are centered around using action research with the involvement of the students and willing colleagues. Project Based Learning was chosen as a teaching method because it emphasizes active, transferable learning and has potential for motivating students (Hmelo-Silver, 2004, p. 236).

In my understanding, teaching methods refer to the different ways that the teacher employ in order for the learners to get the best learning outcomes from the lesson. At UHTTI, these methods have predominantly been teacher centered and the learners seem to have been left at the receiving end of the teaching and learning process.

The UHTTI is the only government owned hotel and tourism training institute. At the moment the school is aiming at capacity building of the employees so that they gain modern methods of teaching hotel courses. The overall result will be that UHTTI will become the quality controller for all tourism training institutions in the country. The idea of PBL was to use it in the tutoring of pastry and bakery practical lessons that I am in charge of at UHTTI. The overall result of this would be to improve my practice by employing action research principles.

1.7 Objectives, purpose and research questions

1.7.1 Objectives

i. To improve my practice by conducting pastry and bakery practical lessons using PBL

ii. To discover students' learning outcomes from PBL

iii. To find out the challenges of PBL and the way forward for UHTTI

1.7.2 Research questions

i. How can conducting a pastry and bakery practical by using PBL help to improve my practice as a vocational teacher?

ii. What learning outcomes do students gain from PBL?

iii. What are the challenges of PBL and what is the way forward for UHTTI?

1.7.3 Purpose of the study

Norton (2009) mentions that 'the fundamental purpose of pedagogical action research is to systematically investigate one's own teaching/learning facilitation practice, with the dual aim of improving that practice and contributing to theoretical knowledge in order to benefit student learning.'

Therefore, the main purpose of this action research was to investigate my vocational teaching practice and contemplate on how to improve it by using PBL to teach pastry and bakery practical lessons so that learners get more involved in their learning.

1.8 Scope and significance of the study

1.8.1 Scope of the study

The research was carried out at UHTTI located in Jinja district. The school is the only government owned hospitality training institution that awards specialized Certificates and Diplomas. It was under Ministry of Education and Sports (MoES) until recently when it was pushed back to the Ministry of Tourism, Wildlife and Antiquities (MTWA).

The study was limited to involving of all stake holders in the improvement of my practice as a vocational teacher and that of interested colleagues in using Project Based Learning to teach practical lessons. My informants were mainly students, the administrators, and instructors. The pastry and bakery class of 2015 was used and they were 25 in number; 18 girls and 7 boys. 15 students of this class came directly from high school while 10 of them came from the field with various certificates and work experiences. My students study 17 weeks in a semester. Of these, 4 weeks are spent on the job at our training hotel, The Crested Crane Hotel[8]. The other remaining time is spent on theory and practical classes in which case they have five hours of practical lessons per week and three hours of theoretical knowledge. 19 of them are residents at the institute while 6 stay outside the institute due to lack of accommodation fees. I worked with two administrators including the principal, and the Academic Registrar. I also worked with three Instructors, two for pastry and bakery and one for food production. The Instructors have 5-10 years teaching experience in vocational institutions.

All my pastry practical lessons are conducted in the Demonstration Kitchen (DK) which has a narrow end and a wider end. The kitchen has some cookery tools and equipment but many tools specifically meant for pastry tutoring are missing such as soufflé moulds, pastry rulers, sugar and chocolate mats, cake decoration kits, bread prover, dough moulders, pastry cutters, loaf tins, pastry brushes, dough mixers, dough rollers or sheeters, among others. This is a kitchen originally built to facilitate learning for 15 students only but over 50 students use it at a go today. Due to large student numbers, sometimes two classes are scheduled to use the same kitchen at the same time. This happens in cases where the timetable master thinks that one class is too small to be in the DK alone. For example, most of the pastry certificate courses have numbers less than

[8] The Crested Crane Hotel is now the only government owned Hotel after all the others were sold to private investors

fifteen students. The diploma in pastry and bakery management is for two years. At the end of the two years with internal on the job training as already mentioned, learners are taken out for the external on the job training commonly called industrial training for three months. Two study trips are also organized for the students after which they write reports.

There are other programs offered at the institute besides the certificate and diploma in pastry and bakery. These include basic certificate in hotel operations, basic certificate in tour guiding and driving. There is also a diploma in hotel management (3 years) and a diploma in tourism management (2 years). All certificate courses take one year.

1.8.2 Significance of the study

(Elliot, 1998) as quoted in (Hiim, 2007) asserts that the purpose of educational action research conducted by teachers is to develop knowledge of importance to the teacher herself, participants in the project, and for the teaching profession.

This action research will be useful in helping me to improve my practice as a vocational teacher. My participant colleagues will also benefit because their various practices may be equally improved. The students of UHTTI will benefit from the increased involvement in the practical lessons and they may also achieve better learning outcomes. The administration at the institute will benefit because teachers might continue to improve on their practices and this can cause development through research and development. Knowledge about teaching pastry and bakery by using PBL will be generated and shall be added not only to the teaching profession but also the bakery profession.

1.9 Organization of the report

This Masters' thesis has been built up in different chapters as explained below. Important to note is that each chapter ends with a chapter summary.

Chapter two

In this chapter, I have elaborated about the education system in Uganda. It includes the historical background of education in Uganda and how it was influenced by the colonialists. A brief historic perspective of vocational and technical education is discussed and how this history affects today's vocational education. The current education system in Uganda has also been

discussed in details. In addition, UHTTI has been explained including its background, mandate, vision and mission. The programs offered at UHTTI have been mentioned and particular emphasis has been put on the course of pastry and bakery which I teach. The curriculum, ingredients, and a brief history of pastry is given.

Chapter three

I have called this chapter theoretical framework. I start with the pedagogical framework in which case I have used the didactical relations model to explain its main parts and why I find them important for my study. Also, I have elaborated on the theories that I find important for my action research such as; the theories of PBL, Freire's banking theory of education, the theory of a reflective practitioner, the theory of constructivism. I have also talked about teaching and some characteristics of teachers.

Chapter four

This is my methodology chapter. I have included here the process how I did the systematic literature search. The research design has been explained including action research and qualitative data. The area and population and how I chose my sample is explained. The methods and tools use to collect data are document and justified. Issues of reliability and validity, and also ethical issues are discussed. The limitations to the study are also mentioned in this chapter.

Chapter five

I have called this chapter presentation of findings. It contains the data I got from the field using the different methods and tools. The data has been given in themes derived from my objectives. Theme one is about the pastry and bakery projects that we conducted and the observations of how I have to improve my practice. Theme two is about the learning outcomes that learners gained from PBL activities. Theme three concerns the challenges of PBL and its way forward at UHTTI.

Chapter six

This chapter has called discussion of findings. The data is discussed based on the themes directly generated from my objectives already stated.

Chapter seven

This chapter has been called concluding remarks. It includes the evaluation of the project and the action research process. This chapter also includes the reflections, the lessons learnt from the project. It also includes recommendations to UHTTI, to myself and to my colleagues. Suggestions have also been given about possible areas for further research concerning PBL in relation to pastry and bakery tutoring.

The last sections include the list of references that I read and some appendices.

CHAPTER TWO: THE EDUCATION SYSTEM IN UGANDA AND UHTTI

2.0 Introduction

In this chapter, I will inform the reader about the past and present system of education in Uganda. I will also give a brief history of vocational education in Uganda. In addition, I discuss the only government owned hotel school in Jinja, its history and how it operates at the moment. I have explained the pastry and bakery program at UHTTI; its curriculum, the students, the timetable, equipment, materials used in the trade, among others.

2.1 Education system in Uganda

2.1.1 Brief history of education in Uganda

Scanlon (1964, p. 7) notes that before the arrival of missionaries in Uganda, education was carried on privately within the various tribal[9] groups. Among the Nilotic people it, was customary for young people to attend meetings of the elders who had discussions of disputes among the people of the community. In this way, it was felt, the youth would learn the laws and customs of the people. Youths from the royal families of the Buganda Kingdom were trained as pages in the royal courts. By this method, they became acquainted with the outstanding people of the country and were brought into the operation of the Kingdom. In my understanding, this was a part of indigenous knowledge which helped to preserve culture by passing on information from one person to the other. In some cultures, this still exists and the youth are given skills by their parents especially in rural areas.

The Uganda education system was mainly constructed by the colonialists who introduced the British system to suit their needs of colonizing Uganda at the time. This was achieved mainly through the missionaries whose covert purpose was the spread of Christianity. For this to be achieved, their converts needed to know how to read the bible and write down important scriptures. This is in line with Scanlon (1964, p. 7) who noted that most of the missionary groups required that the individual be able to read and in some cases, to write before being accepted as a convert. They established schools such as Namilyango College (1901), Gayaza high school

[9] Uganda is composed of about 58 tribal groupings

(1905), Kings College Buddo (1906), among others. The majority of these schools were to train people who could do some clerical work for the missionaries.

2.1.2 History of Vocational and Technical Education in Uganda

Skills training was part of Uganda traditional education system. As noted by Okello (2014, p. 5) If cooking was going on then, the elderly women taught the young women how to cook or care for the house. If the construction of the house or store was going on, the men would teach the art of construction to the boys. The teaching and learning took place in other places where people carried out social, economic and political activities. For technical skills, blacksmiths had designated area, especially within the homestead for classes and place of work where they impart their knowledge to the younger generations. This practice made the youth to get much involved in the trades of their parents at an early stage and this made them more confident in these crafts.

However, the missionaries did not find it important to put emphasis on vocational training until they realized that they needed some skilled people to deliver services for them. For example, the carpenters, to make school and office desks, masons to help with construction of classrooms, among others. Okello (2014, p. 10) mentions that missionaries had not given much attention to technical and vocational education at first. It was not in their immediate intellectual and spiritual holy write to train technicians. In my understanding, the missionaries had chosen to concentrate on theoretical knowledge teaching more which could produce white-collar job seekers.

Okello (2014, p. 11) asserts that Mackay took credit for his tireless efforts in introducing technical education in the country. This role made him popular to all people in Buganda in particular where he was based with his new educational goods which had immediate demand there. In line with that Scanlon (1964, p. 8) noted that Mackay established a workshop for ironwork, carpentry, and other artisan skills quickly. These artisans would help to build a mission whose construction would not have been possible without the help of the natives he had trained. In my understanding Mackay's establishment of workshops was intended to give his students the practical skills involvement they needed in order to fit into the market present at that time.

Most of the education commissions in Uganda have highlighted the need for vocational education. The education review commission of 1989 particularly noted that learners needed to get skills that could enable them to be self-reliant. Self-reliance in my understanding means being able to stand alone amidst economic challenges of the world. This requires proper training from the teachers responsible for imparting knowledge into these learners. Such skills like collaboration, independent thinking, and self-critic, among others would be important.

Recently, MOES (2012, p. 5) identified the investments areas to expand output in critical sectors of the economy, and one of these areas was identified to be skills for productivity in the informal sector. In addition, among the investments to raise quality of vocational training was identified as Instructor training. The Government has of recent acknowledged that the instructors in vocational schools need more training in most aspects of pedagogy.

2.1.3 Current Education System in Uganda

The current education system in Uganda is 7:4:2:3-5. This is the system that I have gone through and it denotes seven years of primary education, four years of lower secondary, two years of High School College (HSC) or upper secondary and three to five years of university education, depending on the program undertaken. However, there is an exception between HSC and University in which case some students opt to join other tertiary institutions as shown in the figure below;

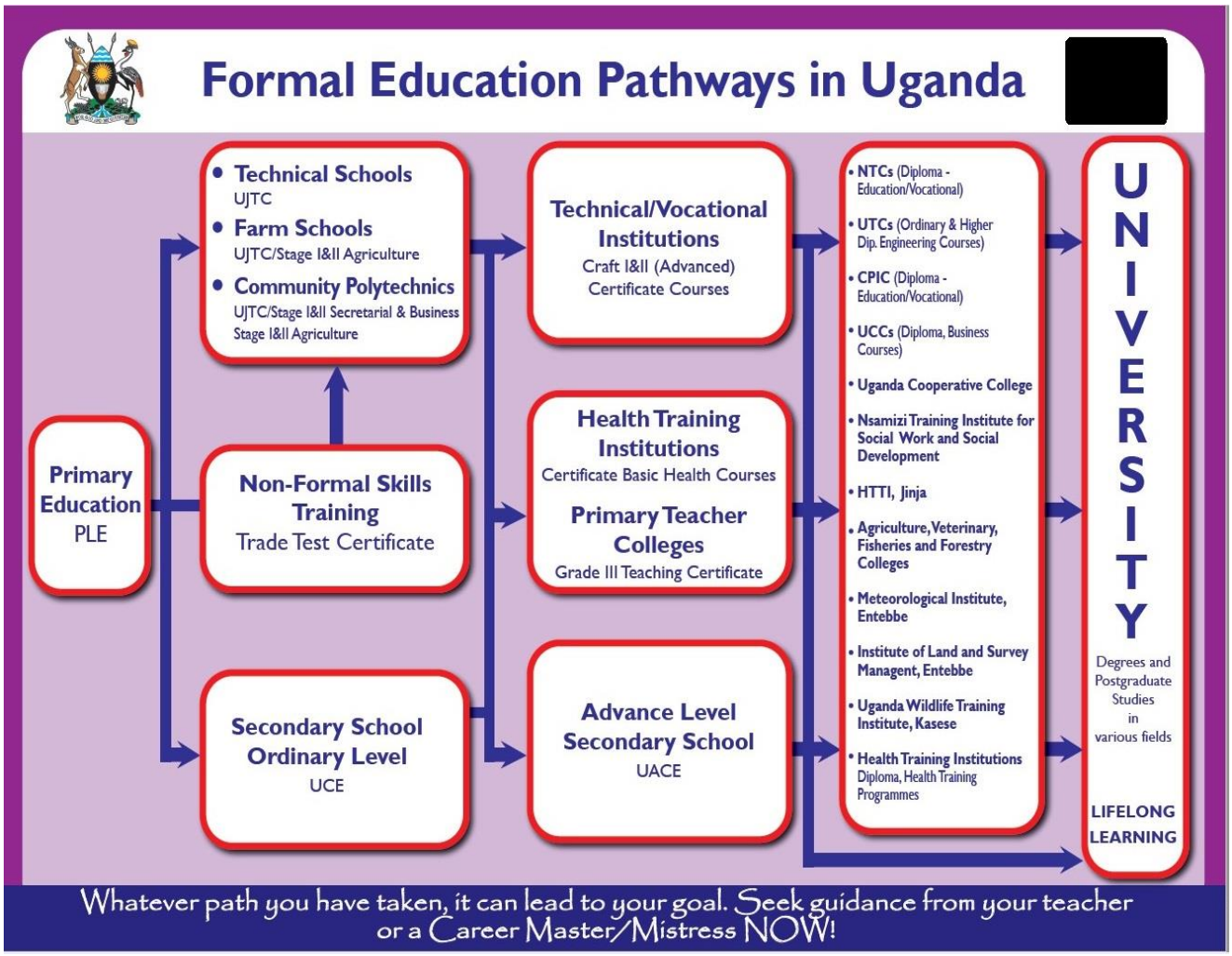

Figure 1: Formal Education Pathways in Uganda

Adapted from: http://www.education.go.ug/files/downloads/Poster.pdf

The diagram above shows the current education system of Uganda. Though it may be so elaborate according to me but it provides a framework on which other assertions can be built. For example, it tends to ignore the nursery and kindergarten section which until recent the government had also ignored and left it in the hands of private investors and without any legislations. Generally, children begin Nursery at age three and spend three years there before they join primary school at age six. Primary education covers a solid seven years and pupils sit for Primary Leaving Examinations (PLE) at the end of the course.

Most of the primary graduates choose to join lower secondary which takes them another four years of academic learning. Lower secondary leads to Uganda Certificate of Education (UCE). Most of the subjects are theoretical but there is also a vocational section in which subjects like food and nutrition, agriculture, art and design, technical drawing, music, among others are grouped. However, pupils have an option of joining technical and vocational training but most of them seem to shun it at this stage. The system provides for technical schools, farm schools and community polytechnics from which learners can be awarded Uganda Junior Technical certificate (UJTC) in various vocations such as shoe making, carpentry and joinery, bricklaying and concrete practice, among others. Also, there is a non-formal skills training and upon completion learners are awarded Trade Test Certificate (TTC). This is in line with MOES (2008, p. 6) that outlined one of the principles of Business Technical Vocational Education and Training (BTVET) as to recognize skills that are both formally and non-formally acquired.

From that level, learners from lower secondary proceed to upper secondary while those from the technical schools and other avenues proceed to higher craft certificates and diplomas of their trades. Ward, Penny, and Read (2006, p. 5) summarized Uganda's tertially education 'Tertiary education includes universities, colleges of commerce, technical colleges, and teachers 'colleges. Both universities and colleges of commerce require the UACE as a basic entry qualification. Technical and vocational colleges train craftsmen, technicians and other skilled workers for industry. These colleges include an intermediate level for students who have completed primary schooling and an advanced level for students who have completed "O" level.
Students studying to become primary school teachers enroll in teachers' colleges after "O" level, whereas students studying to become secondary school teachers must complete "A" level before starting their training. In addition to the formal system, a non-formal education system operates to serve disadvantaged children and young people.'

Liang (2004, p. 5) notes that 'the higher education curriculum in Uganda is outmoded and irrelevant to the needs of the current economy, with much of it being centrally determined, specialized, and often theoretical.' This may imply that the products of such a curriculum may not be relevant to the job market.

Liang (2004, p. 23) noted that the Ugandan education system follows a 7-4-2-3 pattern: seven years of primary education, followed by four years of lower secondary or "Ordinary" level, two years of upper secondary or "Advanced" level, and a further three to five years of tertiary education. In parallel, there exists a technical and vocational track, including three-year technical and farm programs that follow immediately after primary education and three- or four-year post-secondary technical programs.

2.2 The Uganda Hotel and Tourism Training Institute

2.2.1 Background of UHTTI

The UHTTI was originally called Hotel and Tourism Training Institute (HTTI). It started in late 1980's after a feasibility study under the project of United Nations Development Program (UNDP) and International Labour Organisation (ILO). The institute was established at Fairway Hotel in Kampala in 1989 as a pilot school under the ILO/UNDP. When Fairway Hotel was repossessed by its original owners in 1991, ILO/UNDP pulled out of the project, leaving it entirely to the Government of Uganda. Government enacted Statute No.14 of September 1994 that established the present UHTTI and transferred the former Crested Crane Hotel and all its assets to the new Institute. The Statute commenced in 1994, and the institute resumed training in mid1996 at Crested Crane Hotel in Jinja, 80kms East of Kampala, with a new management under Ministry of Wild Life and Antiquities, later Ministry of, Tourism, Trade and industry.

The statute however, was repealed by section 130, sub– section 1 and 2 of the Universities and other Tertiary Institution Act, April 2001 that commenced on the 6th April 2001. The Hotel and Tourism Training Institute, fully owned by the Uganda Government, was in 1998 transferred to the Ministry of Education and Sports (MOES) as its line Ministry. In November 2007, following Cabinet directive, HTTI was again transferred back to the Ministry of Tourism, Trade and Industries as its parent Ministry. It is now under the new Ministry of Tourism Wildlife and Heritage. Recently, cabinet recommended that the hotel school in Jinja must have a Ugandan identity for more collaborations to come such as World Bank. The Uganda gazette is yet to publish the official name of the hotel school as The Uganda Hotel and Tourism Training Institute (UHTTI).

The main objective of UHTT is '*to equip the students through specialized training, with requisite knowledge and skills in Hotel Management, Tourism Management, and pastry and Bakery for the hospitality industry.'*

2.2.2 Mandate of UHTTI, vison and mission

The mandate of UHTTI is derived from statue No. 14 of 1999 Universities and other tertiary institutions Act of 2001. UHTTI was mandated by cabinet to;

- Organize and conduct courses in tourism, hotel management and catering and to make provision for advancement, transmission and preservation of knowledge.
- Conduct examination and grant certificates, diplomas and other higher awards of the Institute.
- Consult and cooperate with anybody or organization in or outside Uganda having similar functions.

The vision for UHTTI is: *To be the leading centre of excellence in 'hands on' training in Uganda of highly skilled workforce for the Tourism and Hospitality industry.*

The mission of UHTTI is: *To produce highly skilled and competent workforce for the national and International hospitality industry.*

2.3 The programs offered at UHTTI

MTWA (2015, p. 1) has indicated that there are mainly three diploma programs offered at the school. These include diploma in pastry and bakery (2 years), diploma in tourism management (2 years) and the diploma in hotel management (3 years). In addition, there are one-year certificate courses. These include a basic certificate in pastry and bakery which is still new, basic certificate in hotel operations, basic certificate in tour guiding and driving. In addition, there are other tailor made programs at the institute which run from one month to six months. Those in the line of pastry and bakery include short courses in bread science and production, cake making, ice cream production, fruit carvery, dessert making and presentation, jam and marmalade making, chocolate and sugar studies, among others.

2.4 The pastry and bakery program

In its efforts to reduce unemployment, the government started the diploma in pastry and bakery course with the hope that graduates would not seek jobs, but create them and even employ more people. This is because the startup capital for beginning a medium sized bakery business is not much. Most of the people engaged in the bakery business then and now have not received formal training but they seem to be doing well.

In our context at UHTTI, pastry and bakery program aims at producing personnel that are capable of making flour based products, candies, chocolates, ice creams, among others.

The program was started in the year 2000 and since then there is not much impact. Many of the graduates seek formal employment in the hotels or bakery. Many complaints have come from the partners in the industry complaining about the lack of skills in our graduates.

2.5 The pastry and bakery curriculum

The curriculum was structured to include subjects that prepare the trainee for the world of work in the vocational sector of the bakery industry. The core subject is pastry and bakery but the students also study other subjects pertinent to this program. For-example hygiene, microbiology, energy conservation and use, safety in the bakery, bakery equipment, and bakery control. Business subjects like marketing, accounts, management, among others help students to open up their mind for starting a bakery business before they leave the institute. According to the Head of Department pastry and bakery, these subjects are revised every after five years in order to meet the current needs of the industry.

The pastry class spends most of their time in practice at the Crested Crane Hotel. Practical lessons are emphasized. However, it has remained a problem hiring people who can handle this program to the fullest. Also, many of the facilities required for running the program efficiently are lacking (Namutosi, 2013, p. 3). This includes modern utensils and machines. Students go for study trips but they still lack international exposure.

The pastry and bakery curriculum puts emphasis on hands-on training and originally it aimed to train operatives only. Therefore, there were few theoretical subjects taught to pastry students.

Recently it was restructured to include business and management subjects so that products of this program do not stop at operational level only in their career. Such subjects include management, entrepreneurship, sales and marketing, customer care, business communication, hospitality law, accounts, stores management.

2.6 The main pastry and bakery ingredients

The main products that students are exposed to are breads and cakes. Students are also taken through the making of desserts, including sugar and chocolate studies. Gisslen (2011, pp. 925 - 934) has categorized the main ingredients used in the production of pastry and bakery products. Flour is used to give body to the baked items for example white wheat flour, whole wheat flour. Fats include shortenings, butter, margarine, oils, lard and their main role is to soften the pastry and bakery products. Sugar helps to add sweet taste and flavor to the pastry product for example, granulated sugar, molasses, brown sugar. Liquids such as water, milk or cream are used as solvents for the dry ingredients. Eggs help to emulsify immiscible liquids together in pastry mixtures. Leavening agents make pastry products light and they include yeast, baking powder, bicarbonate of soda, among others. Salt strengthens gluten in flour. Flavoring include chocolate, cocoa, spices, cinnamon, nutmeg, mace, cloves ginger, among others.

2.7 History of pastry and bakery

(Gisslen, 2013, p. 3) noted that baking is one of the oldest occupations of the human race and that it began thousands of years ago. Today, the profession includes baking artisan sourdough breads and assembling elegant pastries and desserts. The professions of baker and pastry chef are growing quickly and changing rapidly and this demands that thousands of skilled people need to be trained every year. Baking offers ambitious men and women the opportunity to find satisfying work in the industry that is both challenging and rewarding.

The ancient Egyptians developed the art of coking leavened bread in molds. The molds were heated and then filled with dough, covered, and stacked in a heated chamber. Long ago, breads made from wheat flour were costly and so they were affordable for only the wealthy. Most people ate bread made from barley and other grains (Gisslen, 2013, p. 4).

(Gisslen, 2013, p. 5) emphasizes that to become master bakers, workers had to go through a course of apprenticeship and obtain a certificate stating that they had gained the necessary skills. Certified master bakers could set up their own shops. Master bakers were assisted by apprentices, who were learning the trade and so were not paid. This therefore implies that training of bakers and pastry chefs is not a new phenomenon. It also emphasizes the fact that to become a pastry man or lady, you must undergo training under the mentorship of a more senior person

Gisslen (2013, p. 6) noted that bakers also made cakes from doughs or batters containing honey or other sweet ingredients such as dried fruits. Many of these items had religious significance and were baked only for special occasions.

2.8 Summary of chapter two

In this chapter, I have elaborated about the Ugandan education system from the most elementary level to higher levels. I have put particular emphasis on post-secondary education which includes colleges and universities. In addition, I chose to give a historic perspective of the education system and how it was influenced by the colonialists to imply that vocational education was not good enough. The history of vocational education in Uganda has been given leading to the current trades that we have today such as pastry and bakery. The background of UHTTI has been discussed and the program of pastry and bakery, and its curriculum has been thoroughly explained because it's the focus of my teaching practice.

CHAPTER THREE: THEORETICAL FRAMEWORK

3.0 Introduction

In this chapter, I will explain the theories that inform my study. These include the theory of reflective practice, the theory of constructivism, Freire's banking theory of education, the theory of PBL as a teaching method. I have also talked about teaching and the characteristics of vocational teachers. I begin with the Didactical relations model because it is important to me as a teacher for planning teaching and learning activities.

3.1 The Didactical Relations Model

The didactical relations model in this regard forms the core of my pedagogical framework as a vocational teacher who is interested in improving my practice.

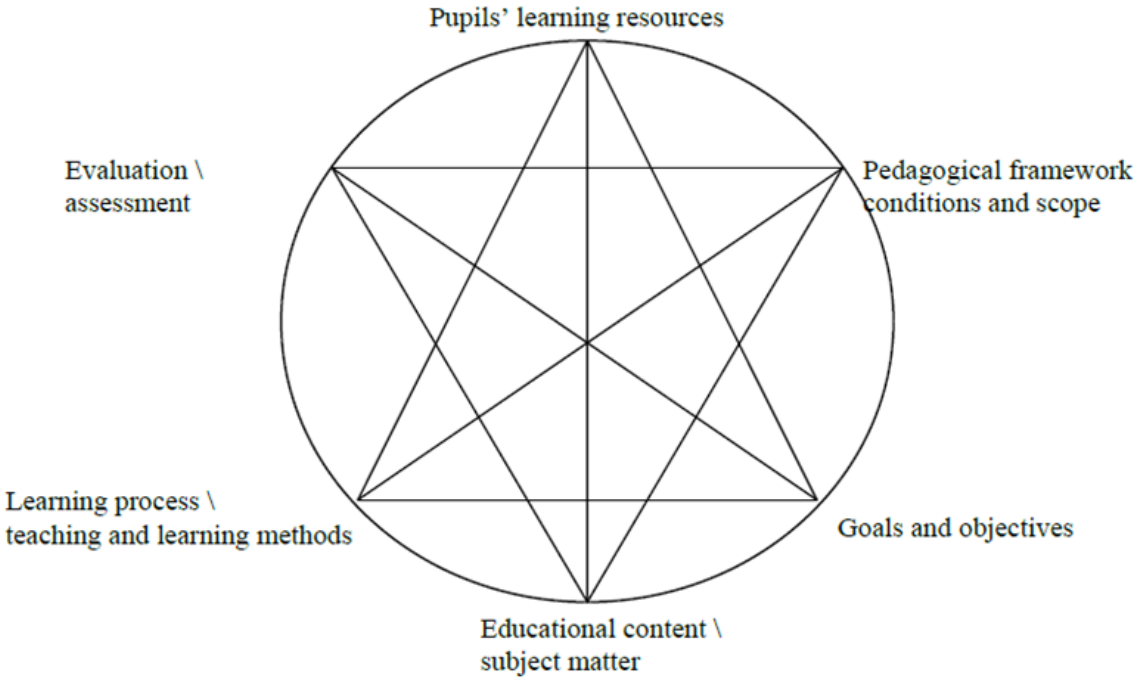

Figure 2: Didactical relations model

Adapted from **(Hiim, 2011, p. 20)**

According to Hiim & Hippe (1992) in Hiim and Stålhane (2016, p. 2) didactics involves practical theoretical planning, carrying out and critical analysis of education, teaching and learning. Hiim (2011, p. 20) raises the following questions that all teacher researchers should ask themselves while trying to interpret the model below;

i. What are the didactical relations in the educational situation, seen by different participants, especially pupils? How many relations can be improved?

ii. What is the relation between pupils' learning resources, interests and needs, and subject matter in the actual situation?

iii. What are the relations between pupils' learning resources, educational goals, and teaching and learning methods?

As a pedagogue, I find the relations model of didactics relevant to my study not only for grounding my research but also for directing it into educational terms. My research problem can be contextualized into all the six phases of the didactical model shown above. As a teacher researcher, I find the didactical relations model important to me in the following aspects;

i. Pupils' learning resources

These refer to things that facilitate teaching and learning. Our practical classes are held in the Demonstration Kitchen (DK), which has since then become very small for the current number of learners available. Most of the equipment is old for display in the museum, while many equipment specifically meant for pastry and bakery tutoring are completely missing. The setting of the DK does not favor teaching by demonstration because learners behind will not be able to observe the demonstration. This is because it was constructed as classroom. The learners have a library with some books to back up their practical theory before the actual practical. Most of the books in the library are biased towards tourism study and food production. Also, there is free internet, to be used while inside the computer laboratory. The learning environment at the institute seems favorable for students learning processes. In addition, we have a training hotel. We consider this a main resource because our students are allowed to come in any time for hands-on training under the guidance of experienced hotel staff.

ii. Pedagogical framework, conditions and scope

These are the conditions surrounding the teaching and learning process and how wide spread they are. My learners have 5 hours of practical study and three hours of theory study on the official time table of the institute. We are four teachers in the department of pastry and bakery, all from Kyambogo University but with different skills and experience to offer to the learners.

In this project, I worked with the pastry class of 2015 and they were 25 in number. 15 of these learners are very fresh from high school while 10 of them are certificate holders in pastry and bakery from the same institute. They have been in the field for about two years working in busy bakeries. 19 learners stay at the institute's hostel and we call them residents. 6 learners do not stay anywhere near the institute and are called non-residents. 12 of my learners have a scholarship from GoU while 13 of them have to get fees from their parents or guardians or by themselves, as may sometimes be the case. 5 of my learners are parents, of these 4 are girls whilst 1 is a boy.

Some learners especially those on private scholarship have fees problems and sometimes have to miss theory or practical classes. Also, the parent learners sometimes miss classes due family reasons, and I have to consider all this because they usually communicate.

The institute operates her own curriculum since it is semi-autonomous according to the Act that established it. The syllabus is usually covered to the dot. Both the curriculum and syllabus are in the library for the students to conduct their private reading.

All these pedagogical conditions are very important to me to me as a teacher researcher because they reflect to various aspects related to training such as democracy and teacher effectiveness. All these conditions affected my choice of teaching method, content and even the evaluation method to be used in the assessment of the learners' projects.

iii. Goals and objectives

These explain what the learner must have achieved at the end of a lesson or study program. As a teacher, I have been more inclined to demonstration as a teaching method, but with recent complaints from the world of work I intended to improve my practice by using project based method of teaching pastry and bakery practical. I gave my learners a chance to get involved in the

setting of lesson objectives and their suggestions were so amazing. This contributed much in making my learners own their learning and take responsibility for it. Some of the objectives for our PBL included encouraging collaboration between teams, enhancing cooperative learning, to get involved in creative thinking, to construct knowledge, among others

iv. Educational content \ subject matter

The subject matter was already dictated by the syllabus and curriculum which is the teacher's main resource for working. However, I put it to my students after having generated the lesson objectives together, whether they could come up with their own content. The learners overwhelmingly accepted. So, they had to write out the process of doing, challenges, how they overcame them, their collaborations with friends, the taste of their products, the shapes, among others. Mjelde and Daly (2012, p. 48) also noted that we can best address the vocational education problems that manifest themselves at the local level by pursuing rigorous documentation of 'local knowledge'.

v. Learning process \ teaching and learning methods

There was dialogue between me and my students. They asked me to make sure that I used a method that was going to make them active and more challenged to learn more. As I always used demonstration method it was hard for me to find a better method. After consultations with the Head of Department (HoD) who also happens to be my teacher during the time I did the diploma in pastry and bakery at the same school, I realized that project based method of teaching could be the best for my conditions already explained. The learners took the center stage of actions while I did minimum actions and they seemed to like it. As they did their actions, they took note of every stage and this was later to act as their subject content. They used log books to record events as they happened. The method chosen also dictated that the learning process would not occur on one day but over a period of time. I also invited fellow teachers at the school to come and get involved in the process. This is supported by Hiim (2011) who asserts that from a pragmatic point of view, the purpose of teacher research is not to produce a kind of knowledge ruling action, but to describe and show examples of action and reflection. The issue is to describe shared involvement in challenging educational situations, seen from different participants' point of view.

vi. Evaluation \ assessment

Evaluation concerns its self with measurement of outcome from teaching learning process. Throughout our project, I considered myself as a learner too because I was using this for the first time to see how best I could improve on my vocational practice as a teacher. Therefore, my learners were tasked to evaluate all my actions in as far as achieving their goals was concerned. As a traditional teacher, I have been groomed in a system that evaluates subject matter only in the form of giving exams or tests. This time I was also tasked by the HOD to evaluate the learners' right from the planning stage until they exhibited the project. The learners had to evaluate themselves and also evaluate their peers. I also told learners to evaluate me and the participant colleagues. The friends I collaborated with also assessed the whole project, and also assessed me. This was very important for my improvement.

3.2 Freire's banking theory of Education

This theory explains the tradition way of teaching that I was mentored through and which I also adapted. However, it is what am trying to improve up on and change. Freire (1993, p. 72) noted that;

> *'Education thus becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiques and makes deposits which the students patiently receive, memorize, and repeat. This is the "banking" concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing, and storing the deposits.'*

In my understanding, learning is not about depositing knowledge and receiving it but rather it should be sharing where the learner gets from the teacher and the teacher also learns from the student. In line with this Behizadeh (2014, p. 100) comments that;

> *'In the banking model of teaching, students are seen as empty vessels to be filled with knowledge, rather than as co-participants with the teacher and other community members in the construction of knowledge. This method of presenting decontextualized information to be memorized is not only disengaging, but cognitive research indicates that the approach does not work.'*

It is therefore important not to consider learners as empty vessels. No one is borne empty headed, we are all borne with some sort of knowledge. And it is the role of the teacher to be open-minded and put themselves in the position of a facilitator or a guide rather than to assume that they are the authorities of knowledge whilst the learners remain seekers, just to absorb whatever the teacher gives them. The teacher should try all his methods to see that the inner knowledge of the learner is released. This can be done through the proper use of teacher's questioning techniques.

> *Freire (1993, p. 72) adds that 'people themselves who are filed away through the lack of creativity, transformation, and knowledge in this (at best) misguided system. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other.'*

Considering the above quotation, it seems to advocate for PBL where inquiry and creativity are involved. The traditional methods seem to destroy this sense of knowledge creation. In my understanding, whenever students are given a chance to interact with one another in a learning situation, everyone will struggle to invent something for the group and this leads to knowledge construction. They engage in constructive discussions and deliberations that generate a pool of ideas in order for them to solve a single problem.

Freire (1993, p. 72) asserts that in the banking concept of education, knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing. Projecting an absolute ignorance onto others, a characteristic of the ideology of oppression, negates education and knowledge as processes of inquiry. The teacher presents himself to his students as their necessary opposite; by considering their ignorance absolute, he-justifies his own existence.

3.3 Project Based Learning (PBL)

3.3.1 Definition

PBL is grounded on projects. The acronym of PBL sometimes used to mean problem based learning. However, in this thesis I have chosen to use PBL as Project Based Learning. (Jones, Rasmussen, & Moffitt, 1997) in (Thomas, 2000, p. 1) defined projects as complex tasks, based on

challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities.

Duch et al. (2001, p. 6) commented that in the problem-based approach, complex, real-world problems are used to motivate students to identify and research the concepts and principles they need to know to work through those problems. Okumus and Wong (2004, p. 25) noted that when the problem is presented to the students, it is made clear that they need to gain new knowledge before they can solve the problem.

Behizadeh (2014, p. 99) adds that PBL allows students to learn by constructing their own understandings in collaboration with peers. In my view, the difficult tasks given to students help them to think. This can be a very good chance for students to create knowledge in the small groups where such tasks are done. Dolmans et al. (2005, p. 734) also added that problems are the driving force behind students' learning in PBL and are used to engage students actively in their own learning. In my understanding, whenever someone is faced with a problem, they are more catalyzed to think for a solution. Okumus and Wong (2004, p. 25) also mentioned that in PBL, the learning process takes place when students work on solving the problem. In the projects I did with the students, they handled real life problems which made them to think to their best.

3.3.2 Characteristics of Project Based Learning

Thomas (2000, p. 3) mentioned five characteristics of projects that qualify to be used in PBL. These include

PBL projects are central, not peripheral to the curriculum. *In PBL, the project is the central teaching strategy; students encounter and learn the central concepts of the discipline via the project.* In my understanding students may actually achieve more than just the central concepts of the discipline. Such skills as communication, crisis management, decision making among others, may not be indicated on the curriculum. This implies that PBL may actually help the teacher and learner achieve much more than what the curriculum stipulates.

PBL projects are focused on questions or problems that "drive" students to encounter (and struggle with) the central concepts and principles of a discipline. He has also indicated that a

good project should be able to combine two or more subjects or topics. Projects should therefore be multidisciplinary so that the learner is able to integrate knowledge from different fields while handling one task or problem. This can help the student to realize the importance of other subjects.

Projects involve students in a constructive investigation. An investigation is a goal directed process that involves inquiry, knowledge building, and resolution. The project should stimulate the learner to be able to construct knowledge through their various group discussions. It is also important that projects should give learners some degree of difficulty.

Projects are student-driven to some significant degree. In my view, the teacher should play his role as a facilitator and not as an authority of knowledge. The learners should be left ample time to consult their group members in order to discover more knowledge and negotiate their sides of view. The learner should be able to discover himself and his peers in the process of their inquiry and this must be with less teacher interference.

Projects are realistic, not school-like. The students must feel the originality of the project. Projects embody characteristics that give them a feeling of authenticity to students. The project should reflect the real world where the learner is aware of. The project should not be like the usual classes at school but rather a reflection of issues in society.

3.3.3 Teachers' role in PBL

(Haith- Cooper, 2000) in (Okumus & Wong, 2004, p. 25) commented in that in PBL, the tutor acts as a facilitator and students are expected to be active collectors and processors of information rather than passive recipients of knowledge. I understand that facilitation in this sense means less teacher's interference into the students learning activities. This is supported by Okumus and Wong (2004, p. 26) who also commented that the tutor should be careful not to intervene too much in the problem solving processes of the students.

Dolmans et al. (2005, p. 734) mentioned that teachers are facilitators who stimulate students towards self-directed learning. The tutor's task is to keep the learning process going, to probe the

students' knowledge deeply, to ensure that all students are involved in the process, to monitor educational progress of each student in the group and to modulate the challenge of the problem. The role of the tutor is to scaffold student learning, which implies that the tutor stimulates elaboration, integration of knowledge and interaction between students by means of asking for questions, asking for clarifications and application of knowledge. (Wood, Bruner, & Ross, 1976) in Palincsar (1986, p. 74) described scaffolding as a "process that enables a child or novice to solve a problem, carry out a task, or achieve a goal which would be beyond his unassisted efforts". In my understanding, this implies that learners still need some assistance from the teachers as they work on their projects.

Dolmans et al. (2005, p. 735) commented that dominant tutors in the group hinder the learning process, but the quiet or passive tutor who is probably trying not to teach also hinders the learning process. In both situations, PBL cannot be characterized as self-directed. In my view, the teacher must find a middle ground, so that he so that he neither hinders learning nor also try not to avoid teaching.

Knight and Yorke (2003, p. 10) comments that the teacher can encourage learning by giving people new tools with which to work, creating new rules or codes, and making it easier for people to share problems, brainstorm answers and talk. He adds that emerges from the construction of meanings in the flux of using tools and rules, and the contributions of other people when tackling tasks. I agree with this. In our project, we had to order to cake tins that were suitable for the task to be done. On seeing the tins, students became more excited and motivated to learn than ever before. Solomon (2003, p. 2) adds that in PBL, the teacher's role no longer includes just delivering instruction or expecting students to repeat facts on tests. Instead, it is to offer resources that help students investigate and develop content purposefully and creatively. Okumus and Wong (2004, p. 25) also noted that the institution should provide good IT and library resources for students. The students always view the Teacher as a representative of the Institution.

Hmelo-Silver (2004, p. 239) also noted that the teacher help guide the learning process through open-ended questioning designed to get students to make their thinking visible and to keep all the students involved in the group process. Questioning is a critical characteristic of a teacher that

helps him to travel through the students' mind and thoughts. (Ofsted, 1995) in (Kyriacou, 1997, p. 80) also noted that a good teacher is one that makes good use of a variety of questioning techniques.

3.3.4 Why use Project Based Learning

Blumenfeld et al. (1991, p. 372) noted that projects can serve to build bridges between phenomena in the classroom and real-life experiences. He adds that the questions and answers that arise in their daily enterprise are given value and are shown to be open to systematic inquiry. I agree with this statement because the gap between the classroom and real life can seem to be enormous during traditional teaching yet in PBL, students go into the laboratories (kitchen in our case) to experience the real world and later during the exhibition, the public comments about their work. This can be a source of inspiration and greater creativity.

Behizadeh (2014, p. 102) commented that the first reason is that authenticity matters. The importance of authentic learning is emphasized by a number of educational researchers who advocate for authentic learning as an effective way to increase student engagement and achievement. "Authentic" refers to students being able to connect what happens in school to their experiences outside of school. When tasks are authentic to students, they are more than just the means to earn a grade. According to Behizadeh, there should be originality in the problem being handled by the students. There should be realism so that learners can link the school project to the daily activities they experience in society.

(Okumus & Wong, 2004, p. 25) mentioned that students may find PBL interesting and stimulating because they will be working on real business problems and scenarios. He adds that this method can help students use their previous knowledge as well as to gain new knowledge in new areas and, finally, to put this knowledge into practice. In my understanding, the students construct new knowledge. They also integrate various concepts from the other subjects as they work on one project. For example, as I rolled down the project for my learners, I thought that I would help them to connect knowledge gained from lessons of hygiene, safety, entrepreneurship, cost control, management, among others.

(Schon, 1983) in Ayas and Zeniuk (2001, p. 64) commented that project-based learning lays the foundation for communities of reflective practitioners. In my view, learners do a lot of reflections either knowingly or unknowingly. This acts as a starting point for a reflective cook. Therefore, creativity and innovation that is involved in PBL, cannot take place without reflections. It is a good idea to encourage our students to take personal reflections serious so that there is continued improvement their practice on a daily basis.

Ayas and Zeniuk (2001, p. 63) noted that projects may serve as the ideal setting for developing inquiry skills that enable us better understand our assumptions and the consequences of our actions. This brings in the aspect of responsibility during PBL activities. Each learner is responsible for the other. This sometimes forces learners to come up with group leaders so that they can help to command others. Therefore, a certain sense of responsibility is attached to the duties that students execute during PBL.

3.3.5 Challenges of Project Based Learning

(Doyle, 1986) in Thomas and Mergendoller (2000, p. 2) commented that the most problematic issue in PBL is the maintenance of classroom order especially for activities that allow student mobility and choice, include group and out of classroom work, and culminate in procedurally complex tasks. I agree that in PBL, classroom management can be a problem because students work most of the time without the teacher. And some undisciplined students may take advantage of the student centered class room. (Okumus & Wong, 2004, p. 25) also commented about the problem of dealing with students in PBL activities.

Ayas and Zeniuk (2001, p. 64) also noted that the challenge with project based learning is developing the capability of continually enhancing the collective capacity to reflect, to (un) learn and to ‘learn to learn’ over time. In my understanding, this challenge is about dropping our old way of working which we are already used to. But also it has another dimension of consistence in conducting PBL activities. In my view, once started, the teacher together with the administration should try their best to see that PBL continues to thrive at their institutions.

(Okumus & Wong, 2004, p. 25) this method may be time-consuming for the tutor in terms of the amount of preparation involved. PBL tends to consume a lot of preparation time for the teacher especially if he decides to design models for the students to follow. This may also turn out to be expensive for the institution. Also, scaffolded learning may require that a teacher needs to find time for each group separately because they may be facing different challenges. In some cases, the teacher's time will also be needed to attend to individual learner's needs. These may include but not limited to reassuring the student, building their confidence levels and showing them their good side that they might not have seen themselves.

(Baptiste, 2003) in (Okumus & Wong, 2004, p. 26) mentioned that assessing the students' learning may also be problematic. Since much of the assessment is done by the students, it is difficult to tell the objectivity of students' judgement in evaluating themselves or their peers. Some students always tend to take advantage of the activity to give good comments to their friends or those they fear within the class.

3.3.6 Features of Problem based Learning

Grant (2002, p. 3) outlined the characteristic features of PBL as; an introduction to "set the stage" or anchor the activity; a task, guiding question or driving question; a process or investigation that results in the creation of one or more sharable artifacts; resources, such as subject-matter experts, textbooks; scaffolding, such as teacher conferences to help learners assess their progress, the teacher needs to clear doubts of the students during the project; collaborations, including teams, peer reviews and external content specialists; opportunities for reflection and transfer, such as classroom debriefing sessions, journal entries. Students reflect on their activities and document the knowledge gained.

In my understanding, Grant has identified the most significant issues that constitute PBL. In my view, the planning stage and the task can be merged to comprise one stage. So that the problem is generated at the planning stage, ready to be solved by the students. He shows the need for resources to be availed and the teacher's role of scaffolding learning. These would facilitate the investigation process of the students. Therefore, in my view, resources should be availed well in time. In our case, our resources included ingredients that we used and the machines. We also

considered the human resource in form of the students in their various groups and the teachers. There were various collaborations, for example the suppliers who delivered our ingredients. I encouraged students to continuously reflect on what they did so that they envisage how to improve upon it the next day. We used log books for our daily reflections.

3.4 Theory of constructivism

3.4.1 Definition and Teachers' role

Terry Anderson (1996) in Null (2004, p. 182) defined constructivism as an interactive process during which teachers and learners worked together to create new ideas in their mutual attempt to connect previous understandings to new knowledge. Null (2004, p. 181) adds that knowledge construction occurs in the process of teaching and learning and that teachers should strive to understand students' points of view. He adds that the need for teachers to pose to students' questions that are relevant to their daily lives and experiences is important. Teachers should consider prior student knowledge when they plan lessons, as well as to the notion that teachers should make learning as natural as possible. Further, instructional constructivists advocate teaching practices that are interactive in nature rather than domineering and one-sided.

In my opinion, learners do not come to school as empty slates, they come with their past experiences and these may enhance teaching learning processes. Traditional methods must be dropped because they do not seem to recognize this thinking paradigm.

Dolmans et al. (2005, p. 732) notes that the constructive learning principle emphasizes that learning is an active process in which students actively construct or reconstruct their knowledge networks. Learning is a process of creating meaning and building personal interpretations of the world based on individual experiences and interactions. It is important to note that the teacher should provide a conducive environment that enables this knowledge construction to proceed well. Personal interpretations of students can be based on project work that they engage in and the reflections that they come up with during the project. Clements and Battista (1990, p. 35) also argue that the role of the constructivist teacher is to guide and support students' invention of viable ideas rather than transmit "correct" adult ways of doing things, Constructivist teachers must be able to pose tasks that bring about appropriate conceptual reorganizations in students.

Dolmans et al. (2005, p. 733) identifies collaboration as a very vital aspect in constructivism. He adds that it is not a matter of division of tasks among learners, but involves mutual interaction and a shared understanding of a problem. Collaborative learning takes place when the following conditions are met: participants have a common goal, share responsibilities, are mutually dependent and need to reach agreement through open interaction. Dolmans adds that Engaged learning is often collaborative either with peers or even with the teacher as a co-learner. Sometimes the learner becomes the teacher. It is therefore vital for the teacher to ensure that meaningful collaborations are made by the students. These collaborations should aim at finishing the task at hand and building new knowledge.

Dowling (1995, p. 2) suggests that engaged learners are energized by learning. True learning is fun! Engaged learning is intrinsically motivating. Engaged learners take responsibility for their own learning. They set goals and can self-regulate their progress toward the goal. Actually, some have trouble with self-regulation and you have to make them stop working! I believe in engaging and involving my learners in all aspects of their learning. So that they own it and cooperate with each other as I facilitate them and clear their unanswered worries. (Dowling, 1995) adds that engaged learners are strategic learners, they are consciously aware of the process of building on prior knowledge, resolving cognitive dissonance and so on.

(Bruner 1986) in Clements and Battista (1990, p. 35) also mentioned that the constructivist teacher, by offering appropriate tasks and opportunities for dialogue, guides the focus of students' attention, thus unobtrusively directing their learning. I understand that in a constructivist class the challenging tasks may replace the teacher’s presence. But this can only be true if all the class members embrace and own the project as their own. So, that they concentrate on knowledge construction and creativity.

3.4.2 Tasks in a constructivist class

Dowling (1995, p. 2) mentioned the characteristics of tasks given to students in constructivist class.

They are challenging. They are complex and require real growth. The tasks given must seek for the students' sense of maturity so that innovation is achieved through deep thought. Simple tasks may imply to the learner that the learning is still traditional and school – like.

Tasks are authentic; that is, students can see a correlation to the "real world." In my understanding. Students must see meaning in the tasks they do. Otherwise the project will become boring to them. Tasks can be chosen from the learners' surroundings so that it is easy to attach meaning to them.

Tasks are often multidisciplinary. In the real world - authentic problems are complex and rarely involve a single discipline. My understanding of this is that tasks given to students in PBL should be able to relate to more than one subject area on the curriculum. This will help students to achieve more skills unintentionally. Student roles involve tasks normally associated with apprentices, explorers, practitioners, and producers of knowledge.

Another indicator of engaged learning is the nature of social interaction. Work is often cooperative rather than competitive. There should be evidence of cooperative learning within the group during the execution of the project.

Group work often draws on the strength of each member. In my view, every group member becomes important due to their shared roles. In my context, the energetic learners did the creaming of the cakes whilst the others did the oral presentation at the exhibition, they organized the venue, among others.

3.5 Teaching and the Characteristics of Vocational Teachers

According to Elom (2014, p. 77) Teaching is an art and the quality of teaching depends on the love, dedication and devotion of the teacher towards the subject of the knowledge. As you can see, Elom suggests that quality teaching has a lot of bearing to the teacher including their dedication and devotion. Kyriacou (2007, p. 4) also noted that teaching skills can be defined as discrete and coherent activities by teachers which foster pupil learning. This implies that teacher's activities with learners ought to ignite some degree of learning.

Allery (2009, p. 58) comments that in order to teach a skill, trainers need to be competent at performing the skill themselves, they must be able to provide balanced feedback within a structured approach, assess the proficiency of the learner and ensure that there is a phased withdrawal of supervision which allows the trainee to feel that they are supported fully and then trusted to perform the skill as an autonomous practitioner. As it is noted by Allery I believe that as vocational teachers, we need to have enough competence in the skills that we impart to students and this can best be gained from prior experience gained from the occupation before we start to teach it to others.

Stronge (2007, p. 47) noted that effective teachers create warm and cooperative classroom climates by developing rules and having high student involvement. In my view, the teacher needs to be considerate through the use of rules. He must also use the rules to get students involved. For example, the teacher can attach a mark to the project activities using the institution's rules for tests and exams.

Sternberg (1998, p. 66) noted that instruction should involve teaching for analytical, creative, and practical thinking, as well as for memory learning. In my understanding, PBL has got to be creative. The problem posed to the students must not be usual, so that it ignites their creativity and practical thinking. Some people may feel that there is little memory work in PBL but I would like to disagree with this because students are encouraged to write down the content generated by themselves, and this could be much easier to recall or use when needed.

Vocational teachers need to be enterprising. According to Mitchell, Chappell, Bateman, and Roy (2006, p. 12) assisting innovative enterprises requires the use of different strategies by VET practitioners and the development of additional capabilities by VET providers. This means that teacher need to have a wide base of knowledge so that they are in a better position to support the innovations of their students.

(Good and Brophy, 2003) in Kyriacou (1997, p. 12) have typically identified the following ten characteristics of effective teaching to be observed by all teachers in all the classes:

Clarity of the teacher's explanations and directions. The teacher should give clear explanations to the learner. Despite the fact that PBL is more learner centered, there are several scenarios during this method that would require the facilitating teacher to restore the students' direction by giving a clear explanation.

Establishing a task-oriented classroom climate. In my view, PBL is filled with tasks that are executed by the students in their small groups to achieve the goals set by themselves. The teacher simply gives a general problem and leaves it for the students to brainstorm in their groups.

Making use of a variety of learning activities. Learners generate the learning activities with the guidance of their but teacher, but without the teacher imposing his feelings on to the activities of the students. The students are left to challenge their thinking.

Establishing and maintaining momentum and pace for the lesson. This principle in PBL may come in when the teacher gives deadlines to the students as to when the project must be completed.

Encouraging pupil participation and getting all pupils involved. In PBL, pupil participation is sometimes taken to be automatic. This is usually not the case because some students enjoy riding on others. The teacher makes spot checks in the various student groups to find out which student absents themselves from participation.

Monitoring pupils' progress and attending quickly to pupils' needs. It a good idea to monitor the progress of the project in line with the deadline you set for your students. Failure for your students to deliver the project on time may imply a weakness on the teacher's part.

Delivering a well-structured and well-organized lesson. PBL is usually well structured and organized, otherwise, it ceases to be one.

Providing pupils with positive and constructive feedback. The teacher must keep encouraging his students during the course of the project. Usually, students tend to become so weary and fatigued towards the end of the project and the teacher's counsel may be of much help at such a time.

Ensuring coverage of the educational objectives. The problem being handled in PBL must reflect the educational objectives indicated on the curriculum. So, the teacher must ensure that the problem is placed there.

Making good use of questioning techniques. Asking the students questions will help to enrich the teacher's knowledge but also challenge the student to do more self-discovery.

3.6 The Theory of reflective Practice

Norton (2009, p. 21) suggests that the term reflective practice was first known from the work of Donald Schön (1983). Therefore, Schön is considered to be the father of modern reflective practice the way we know it. This is also confirmed by (Norton, 2009, p. 21) who claims that the word 'reflective practice' has come from the work of Donald Schön (1983). Donald basically considered reflection in action and reflection on action. He seemed to suggest that reflection can occur as the action are taking place or it can occur after the exercise of acting.

Vaccarino et al. (2007, p. 8) mentioned that reflection is a tool for promoting actions. I sought promote actions at my work place through action research and also encourage my learners to embrace the principle of reflection in everything they do. Postareff in (Norton, 2009, p. 32) also suggested three forms of reflection; reflection prior to (reflection for action), concurrent with (reflection in action) and retrospective to teaching (reflection on action).

Reynolds (2011, p. 5) mentioned that reflection involves thinking about past or ongoing experience of events, situations or actions so as to make sense of them, potentially with a view to informing future choices, decisions or actions. In so doing, we draw on existing ideas – our own or other people's – and in applying them to our experience, may confirm these ideas or develop

new ones. In my understanding, when we study our present, it helps us to focus into the future in more prepared and determined manner.

Schøn (1983) in Lappen (2011, p. 62) suggested that the capacity to reflect on action in a process of continuous learning is necessary in carrying out a professional practice and the main characteristic of a "reflective practitioner". The capacity to reflect *in* action, while doing something, and *on* action, after you have done it, has become an important part of professional training in many disciplines, like teacher training. This concept of reflection 'in action' and 'on action' is of great interest to me. This is because it provides the framework for self-evaluation and improvement. In my case, this would work as well for my students because through my improvement I envisage that they also become reflective cooks. Reflecting in action is fundamental to correct the mistakes encountered during pastry production while reflection on action may help to judge the products after the process.

Reynolds (2011, p. 6) identified that reflection is highlighted as a key element of experiential learning activities, group conferences, project-based learning, outdoor management development, coaching and, not least, action learning. Experiential learning ensures that learners have a feel of their learning process. (Dewey, 1933) in Ayas and Zeniuk (2001, p. 64) also noted that reflective practitioners are open-minded and willing to accept responsibility for their decisions and actions. They have enhanced learning capabilities; they can accommodate multiple perspectives and cope with complexity.

Amulya (2004, p. 1) mentioned that the key to reflection is learning how to take perspective on one's own actions and experience - in other words, to examine that experience rather than just living it. By developing the ability to explore and be curious about our own experience and actions, we suddenly open up the possibilities of purposeful learning — learning derived not from books or experts, but from our work and our lives. The trainee cooks underwent this for the first time. Keeping daily logs for their actions and also keeping a journal for my areas of improvement. My observation was that they seemed to like it and basing on their reflections, they became responsive without me reminding them of what to do.

Amulya (2004, p. 2) mentions that Reflection can be practiced at different frequencies: every day, at long intervals of months or years, and everything in between. Reflection can also vary in depth-from simply noticing present experience to deep examination of past events—as well as in the numerous purposes it can serve, such as examining patterns of thinking, documenting learning, realigning daily activity with deeper values, developing shared thinking, and many other objectives.

Amulya (2004, p. 3) argued that stories and dialogue can be effective technologies for the reflective process because they provide cognitively complex and culturally potent systems for conveying the way we think about, feel about, and make connections in experience.

McGill (1998) in Norton (2009, p. 22) said that reflective practice has benefits not only to the teacher for thinking about how to improve their own practice but also for the students, as teachers will be modelling the reflective process for them. He continues to add that some academics are resistant to changing the way they have always taught or to examining their own practice, preferring instead to talk about their experience.

Norton (2009, p. 23) commented that reflecting on practice as part of an action research cycle is essential if any enduring change is to be effected, because it involves some transformation from previously held assumptions to adopting a new framework. He adds that the action research process encourages academics to take control of their own professional development by being active learners. I therefore sought to engage in action research in order to improve my practice. It was also important for me to cause some change at UHTTI in terms of teaching and learning, so that willing colleagues could also improve their practices and those of their students.

Kember (2000) in Norton (2009, p. 28) writes about the importance of what he calls ‘perspective transformation’. He says that our professional practices can become so ingrained by often what are unconsciously held conventions that often we do not realize how these conventions may be constraining us from challenging existing practice and making changes. This relates to the routine ways in which we do our things. Usually, changing from the old to the new is not very easy and

many people get challenged. The existing practice is what everyone does and changing it might imply that everyone changes, yet most people are afraid of change.

Boud, Cohen and Walker (1993) in Norton (2009, p. 32) define reflection as a generic term to describe the process involved in exploring experience as a means of enhancing understanding. (Postareff, 2007) also in Norton (2009) adds that reflection is essential because it is the means by which experience can be turned into action.

(Day, 2000) in Norton (2009, p. 33)It is difficult to confront yourself and challenge beliefs and practices which have become valued routines, and, if you seek to change them, may be disruptive and uncomfortable. We are unlikely to see our own weaknesses particularly if they are personal ones, so we need other people to tell us such things.

3.7 Summary of chapter three

In this chapter, I have described the various theories that inform my research. Outstanding among them is the theory related to Project Based Learning; where the roles of teachers and challenges encountered have been mentioned among other things. The theory of constructivism which emphasizes that learners should be given time to generate their own knowledge in groups and the theory of a reflective practitioner which encourages all professionals to continuously reflect on their professional practice every day for sustainable improvement and change.

CHAPTER 4: METHODOLOGY

4.0 Introduction

In this chapter, I will describe the aspects related to the methodology undertaken in order to answer my problem statement. The main aim was to get students' involved and responsible for their practical learning. I have briefly described how I searched the literature. In addition, I have explained my research design; including qualitative research design and the approach of action research. The area and population of the study, sampling technique and how it was used to select participants, the sample size and how it was distributed, the methods and tools used to collect data, how validity and reliability of the research was ensured, and the ethical issues that I considered during the whole process, have all been discussed.

4.1 How the literature was searched

The literature search was done by using search engines and scientific data bases provided by HiOA through her learning center and library. The most general search engine was called Oria. Some of the books on Oria showed that the full text was available but could not easily open. Later through self-discovery I was able to open some of them. Also, some central literature in form of hard copies of books were used.

Barbour and Barbour (2003, p. 182) noted that if a review is to aspire to being systematic or comprehensive it is important to carry out searches on other databases. In line with this, I tried to search on ERIC (Educational Resource Information Center) and, Taylor and Francis. Before I learnt how to refine literature from data bases, I basically imported every book or journal article whose title looked to be in line with my topic. Then later I realized that some of them could not open due to some reasons. There were some that could open, only to find out that they were just book reviews and not the actual books. Also I realized that I had the opportunity of making my search much more specific.

It was hard finding books from the databases but many journals were readily available. This was a big problem for me. Barbour and Barbour (2003, p. 182) also noted that there are significant challenges with regard to literature searching, which forms an integral part of the systematic review process.

I actually had many literature sources before I learnt how to refine and check if they could open. (Lowe & Barnett 1994) in Barbour and Barbour (2003, p. 183) emphasized that the researcher's own terms should be made to the thesaurus, which explains how terms are used in the context of each database. I did consult the thesaurus and it provided me with words which had the same meaning as the one I was looking for. When I re-did the search, the literature sources reduced tremendously. On the whole, journal articles were much easier to access as opposed to books.
During refining of literature, I used limiters' for sieving my literature. For example, literature could be limited to full text, available on microfiche, peer reviewed or by the date of publication. Since most of my literature sources were journal articles, I concentrated on the ones that were peer reviewed. This meant that experts in that field had read the article and passed the contents of it.

Therefore, I had to redo my search including other search engines such as google and google scholar. So, I checked one at a time to sieve out those that could not open. Then I remained with the relevant ones that could open. I succeeded in downloading pdf files into my folder, implying that I needed not to go back to the data bases to find literature but I only had to check in my library folder. The main method I used in all these searches was self-discovery by doing and it indeed helped.

4.2 Research Design

In this project, I employed a qualitative nature of research, concentrating on making descriptions and explanations of events and their implications in the context of my problem at hand. The main research approach used was action research. In this regard, several actions were undertaken in order to improve my practice.

4.2.1 Qualitative research

Strauss and Corbin (1990, p. 10) defined qualitative research as a type of research that produces findings not arrived at by statistical procedures or other means of quantification. He adds that it can refer to research about persons' lives, lived experiences, behaviors, emotions, and feelings as well as about organizational functioning. Some of the data may be quantified but the bulky of the analysis is interpretative.

I chose to use the qualitative strategy because the research problem has more bearing to my experience as a researcher in as far as improving my practice was concerned. This involved processes such as carrying out projects in the field and these could best be analyzed by qualitative methods. Also, I chose qualitative research because it is a more valid and valuable approach to research (Snape & Spencer, 2003, p. 9)

Snape and Spencer (2003, p. 3) also asserted that there is fairly wide consensus that qualitative research is a naturalistic, interpretative approach concerned with understanding the meanings which people attach to phenomena (actions, decisions, beliefs, values etc.) within their social worlds.

The functions qualitative research have been called descriptive or exploratory (Robson, 2002) in (Ritchie, 2003, p. 28). My main purpose was to explore how my participants viewed the whole concept of PBL. I wanted to get views of the administrators, the students, and the colleagues. Some colleagues such as those who taught me when I was a student at UHTTI had taught using the traditional methods for so long. Qualitative research was meant to help me answer why such such phenomena occurred this way. This is because the role of qualitative methods in seeking and providing explanation is widely recognized (Ritchie, 2003, p. 28). I was particularly interested in finding out information in the setting of UHTTI about processes and outcomes of PBL and according to (Ritchie, 2003, p. 29), qualitative research contributes to both of them.

A major feature of qualitative methods is their facility to describe and display phenomena as experienced by the study population (Ritchie, 2003, p. 27). As on one of my data collection methods was participant observation, I had a feel of what my study population experienced during the project implementation. Also, the same happened during focus group discussions and during the in-depth interviews that I conducted. Therefore, describing these experiences probably meant that a qualitative design would be the best.

Qualitative inquiry includes collecting quotes from people, verifying them and contemplating what they mean (Patton, 2015, p. 14). While in the field, I collected qualitative information using focus groups, participant observation, interviews and log. Some quotations from such data have been included in the presentation chapter while others are in the discussions.

4.2.2 Action research

The origins of action research are not entirely clear Berg L (2001, p. 179). However, Adelman (1993, p. 7) refers to Kurt Lewin as the originator of action research. Lewin was particularly concerned to raise the self-esteem of minority groups, to help them seek "independence, equality, and co-operation through action research and other means (Lewin, 1946) in (Adelman, 1993). Nolen and Vander Putten (2007, p. 401) also noted that action research is viewed as a practical yet systematic research method that enables teachers to investigate their own teaching and their students' learning. Hiim (2011, p. 21) also noted that teacher research is based on professional tasks concerning educational processes. Therefore, I focused on investigating my professional teaching tasks such as teaching methods and how these impacted on my learners.

My intention was to develop the quality of essential educational and teaching functions, through systematic cooperation between all involved (Hiim, 2011). These included my students, fellow teachers and the administrators. According to Locke, Alcorn, and O'Neill (2013, p. 115) action research may involve teachers working to improve their practice through exploring new ways of working with students. I concentrated on PBL as a new way of delivering skills to my learners as opposed to the old way in which I used demonstration as a teaching method. According to Mcniff and Whitehead (2010, p. 98) action researchers always hold a value commitment to improving the quality of life and learning for all. By improving my practice and involving more learners in practical lessons, it would improve the quality of their learning through discovery.

Stringer (2013, p. 1) defines action research as systematic approach to investigation that enables people to find effective solutions to problems they confront in their everyday lives. (Wadsworth, 1998) in Berg L (2001, p. 178) mentions that action research, sometimes referred to as *participatory action research*. The approach has been described to be a highly reflective, experiential, and participatory mode of research in which all individuals involved in the study, researcher and subjects alike, are deliberate and contributing actors in the research enterprise. In my study, I collaborated with several participants including my students, the administrators and my colleagues who were willing to improve their various practices. I decided to use the approach of action research because it involves all concerned and provides direct access to the area of investigation (Holter & Schwartz-Barcott 1993) in (Coghlan & Casey, 2001, p. 675).

(McNiff, 2002) in Vaccarino et al. (2007, p. 6) suggest that the basic principle underpinning action research is that this research involves "identifying a problematic area, imagining a possible solution, trying it out, evaluating it (did it work?), and changing practice in the light of the evaluation" we were able to identify a problem at my workplace and also about myself. And me and my participants wanted to improve upon it. As already noted this problem was the wrong methods that are used to teach practical subjects at UHTTI, thereby creating little learner involvement.

We as practionners tend to generate a number of practices in our vocations. Much of these remain outdated in the contemporary times but we still remain held in our past, claiming to be experienced. (Norton, 2009, p. 22) warned that experience is undoubtedly an important element but, of itself, is not sufficient. I made use of action research so that I could reflect on my routine practices and demystify some of those that did not fit the modern pedagogical principles. Vaccarino et al. (2007, p. 5) also referred to action research as practitioner-based research or self-reflective practice because it involves practitioners reflecting on their own work.

I sought to carry out action research in my own setting at the work place. Zeni (1998, p. 8) noted that when teachers conduct action research they aren't outsiders peering from the shadows into the classroom, but insiders responsible to the students. I carried out an insider research at UHTTI because I also work there and am a former student. This implies that I was not new in the area. I was driven to change the teaching practices that had formed part of me as a student and the ones I had practiced as a teacher in the same institution.

Atweh, Kemmis, and Weeks (1998, p. 24) mentions that action research involves learning about the real, material, concrete, particular practices of particular people in particular places. My action research involved learning about my practice and all the things concerned with it such as materials, equipment, processes and others. Atweh et al. (1998, p. 25) asserts that through action research people can come to understand their social and educational practices more richly by locating their practices, as concretely and precisely as possible. I sought to understand my practice of teaching pastry and bakery. A critical look at my educational practice in the past years

made me to realize that there was need to improve. For example, I was teaching the same things, in the same way but to different groups of students because learners come and go. This fact alone meant that different learners join school with different aspirations and therefore methods used to tutor them needed to be varied.

Also, (Zuber-skerrrit, 1996b) in (Cohen et all, 2007) suggests that the aims of any action research project or program are to bring about practical improvement, innovation, change, or development of social practice and the practitioners' better understanding of their practices. Woohouse (2005) in Norton (2009, p. 31) says that there are two main benefits to doing research collaboratively: time in terms of making time for the research and support from others in the action research group.

I have based my action research on the model suggested by (Mertler, 2009). This model emphasizes four steps of action research including: study and plan, take action, collect and analyze evidence, and finally reflect. These stages are not an end in themselves. The model shows that action research is a continuous process in which case, every after reflection, the process can be repeated.

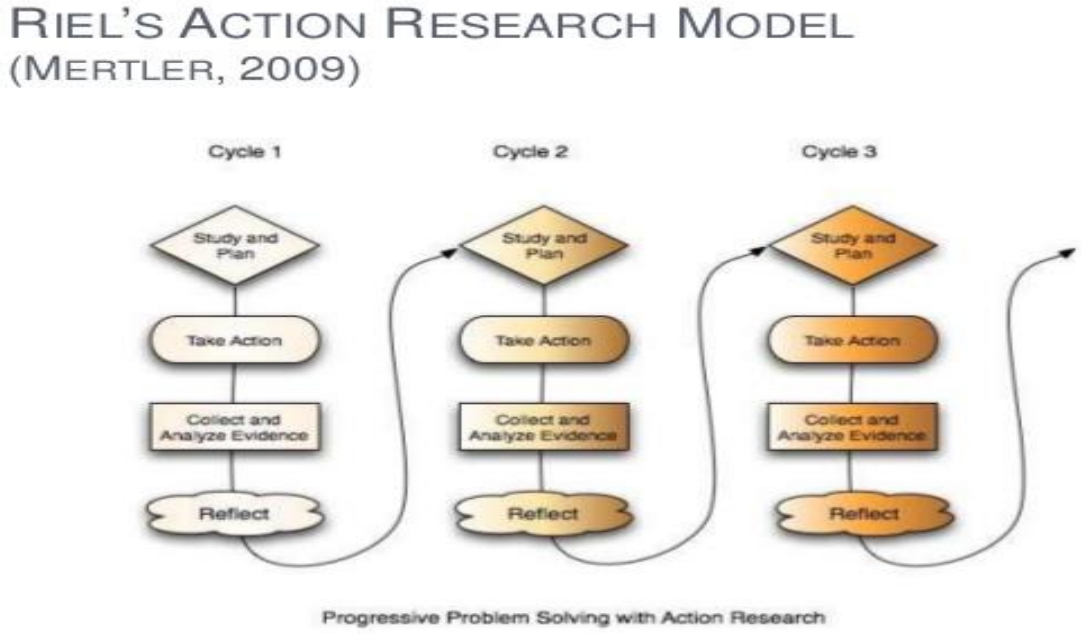

Figure 3: Action Research Model

The above model shows that action research. In our study we did the following

- Studied situation and planned it. This involved identifying the problem and planning the best way to address it. The problem was identified, as already noted in consultation with all stakeholders concerned. After that I looked at my professional practice critically. We agreed to have two projects of pastry and bakery which we could use to collect our evidence.
- Take action. Actions were taken at several stages. Access was duly sought, participants selected, interviews conducted. In addition, focus group discussions were organized, observations done and written in logs, pictures taken. The students were grouped and the actual project was held. Evaluation of the project was done. After the first project, we had to review our original plan and this required us to conduct a second project which occurred under limited resources because the administrators thought it was becoming too expensive for the institution. And many other actions took place as is elaborated in the text. This also acted as our main implementation stage in this action research.
- Collect and analyze evidence. Evidence was collected using qualitative methods as is explained in the section of data collection instruments of this chapter. Data was generated by all the research participants basing on the conducted projects as our line of judgement.
- Reflect. Me and my research participants reflected on our actions. Usually we reflected before the action, during the action and after the action. These reflections have been explained in chapter seven. We also carried out a general evaluation of the whole process in addition to the mini evaluations that we usually did after each project cycle.

4.2.3 My Field work plan

Before going to the field to collect data, I had my original plan of activities that would help me to get the information that I really wanted. Some of the plans worked out while others did not. Those that did not were changed according to the prevailing conditions in the field at that time.

Months (2016)	**Actions to be taken**	**Persons' responsible**
February	- Seeking official access	- KyU coordinator at MVP - Myself - UHTTI Principal
March	- Learning participants - Briefing them about research activities - Formation of groups - Meeting with principal	- Myself - Participants - Principal
April	- Execution of first project - Documentation of observations in log - Writing of reflections from students	- Participants - Myself -
May	- Execution of second project - Documentation of project details - Writing of reflections from participants - Meeting with Principal	- Myself - Participants - Principal
June	- Conduction of focus group discussions - Conduction of interviews - General evaluation of project - Group reflections	- Myself - participants

Table 1: Field Work plan

4.3 Area and Population of study

The study area was UHTTI. Berg L (2001, p. 29) noted that the study site or setting should be a location where: entry or access is possible, the appropriate people (target population) are likely to be available, there is a high probability that the study's focuses, processes, people, programs, interactions will be available to the investigator, and the research can be conducted effectively by an individual or individuals during the data collection phase of the study.

I sought to undertake the study at my place of work because being allowed as an insider researcher would not be difficult. Also, communication to the participants would be easy. My workplace also had the appropriate population that I needed for the study and these included the students, my colleagues and administrators at the Institute. And all the processes seemed to favor the problem statement at every stage of the research. My main question guided me in the selection of the study area and this was in line with (F1ick, 1998) in (Berg L, 2001) who noted that the research question is generally regarded as the primary guide to the appropriate site or setting selection. To gain access to the study area, I had to seek official access and this is elaborated under the section for ethical issues of this chapter.

Berg L (2001, p. 29) asserts that one must be careful to identify an appropriate population, not merely an easily accessible one. I was conscious of this because my workplace was accessible to me. So, in line with Berg's argument, I had to ensure that the population at UHTTI was appropriate. Ritchie, Lewis, and Elam (2003, p. 87) adds that such a population must, by virtue of their proximity to the research question, be able to provide the richest and most relevant information. Ritchie et al. (2003, p. 87) continues to assert that the appropriate population may be obvious, but often it will be necessary to think through the roles, knowledge or behavior of different groups and their ability to shed light on different aspects of the research question. The students were included because they are affected by my practices and they would benefit from any improvement I make. The colleagues share professionalism with me and some of them showed interest to also improve their practice. The administrators determine which resources are allocated to what project. The overall population comprised everyone who works at UHTTI but I had to sample out the most appropriate.

4.4 Sampling

4.4.1 Sampling Technique

Purposive sampling was used. Berg L (2001, p. 32) calls it judgmental sampling and he notes that when developing a purposive sample, researchers use their special knowledge or expertise about some group to select subjects who represent this population. I used my experience and knowledge about UHTTI to select a sample that was conversant with the research problem. This was done because I was confident that the selected sample had the necessary information. This is in line with (Ball, 1990) quoted in Cohen, Manion, and Morrison (2007, p. 115) who assert that in many cases purposive sampling is used in order to access 'knowledgeable people', i.e. those who have in-depth knowledge about particular issues, maybe by virtue of their professional role, power, access to networks, expertise or experience. Having used this sampling technique it meant that all members in the UHTTI population did not have equal chances of being selected since they did not have the same knowledge, experience and power in regards to the problem at hand.

Cohen et al. (2007, p. 115) mentions that purposive sampling is chosen for a specific purpose. This is more emphasized by Ritchie et al. (2003, p. 79) who confirms that purposive sampling is precisely what the name suggests. Members of a sample are chosen with a 'purpose' to represent a location or type in relation to a key criterion. I chose my sample so that it could represent the wider population. I had to ensure that participants with a bearing to my research question had to be part of this sample. This included my students, fellow teachers and the administrators at UHTTI. This was also in line with Ritchie et al. (2003, p. 107) who commented that sample units are chosen 'purposively' for the ability to provide detailed understanding. He adds that

> *'Purposive samples are designed to be as diverse as possible, including all key groups and constituencies, and units are selected on the basis of 'symbolic representation' - because they hold a characteristic that is known or expected to be salient to the research study.'*

Ritchie et al. (2003, p. 78) noted that the sample units are chosen because they have particular features or characteristics which will enable detailed exploration and understanding of the central themes and puzzles which the researcher wishes to study. By default, some members of the population at UHTTI were excluded because they did not purposively qualify to have the

information that I needed. These participants lacked the features or characteristics which I need for thorough exploration of my study. Some got angered because participation especially for colleagues meant that they could take a small cake home.

4.4.2 Sample size and selection

In total my sample comprised of 30 subjects. These included students of DPBM 2015 intake who are 25 in number. Two administrators participated in the research and these included the principal and academic registrar. Three instructors took part in this research. These were the head chef and two pastry instructors, one of whom happened also to be the Principal Instructor (PI) academics. I was conscious of gender balance from colleagues and administrators in which case there were two ladies and three gentlemen. It will be remembered that my class of DPBM 2015 had already suffered gender imbalances and I had no way of controlling this. The class had 18 girls and 7 boys only.

DPBM 2015 was chosen because they have stayed longer on the campus and have had more exposure to pastry practical lessons than the other pastry groups. Since the institute has both resident and none resident students, sometimes it was hard to get all the students at once because day scholars tend to delay at home, finishing chores before reporting to school. Towards the end of our project, we agreed with the students to occupy some public holiday so that we delivered on time. Most day scholars did not attend and it was hard getting them though I tried to reach them on the phone.

The administrators were chosen because of the power and experience they have at this hotel institution. They determine how much money should be allocated to what and why? They decide the priorities on the institute's budget and have power to influence many things. Action research being a new thing in our methods of work, not only did it confuse the researcher, but also some of the subjects. At one time a certain administrator confessed that he was yet to know what I was doing and they looked impatient because my meetings were becoming many, in their view.

The Instructors are the ones involved directly in the teaching and learning process with the students. It was important to have them in the sample not only because the research aimed at improving their methods of teaching practical lessons but also because they were individually interested. Out of the three colleagues I collaborated with, two showed interest from the start but

I had to engage the third one and convince him to join us. I explained the usefulness of the project to him but he said he had no time because he was a part time staff. So, we agreed that whenever he was around the Institute, he would join into the project, and we really got him several times.

4.5 Methods and Tools of Data collection

4.5.1 Interviews

Berg L (2001, p. 66) defined interviewing as simply a conversation with a purpose. In my study, this conversation was programmed with the Principal and the Academic Registrar in order to get information to answer my main research question. I called the principal and informed her of my intention to interview her. Since she was already aware of my research activities, I did not go into details. She gave me an appointment to her office so that we drew the program. I visited her office on 18\05\2016 and we agreed on the day of the actual interview, which was two weeks from the day we met. The venue she chose for the interview was her office at 9am. Legard, Keegan, and ward (2003, p. 165) noted that at least an hour is required, but it will be difficult for both researcher and interviewee to concentrate if the interview lasts for more than two hours. Therefore, ours was scheduled between 9am to 10am on 01\06\2016.

The day before our set interview, I called the principal and reminded her about our program and unfortunately she was attending a workshop upcountry. We had to change the program. She delegated to her deputy principal who also doubles as the Academic Registrar. So, I ended up conducting two interviews in one because the deputy principal also said he would not give me another time in the capacity of Academic Registrar. I accepted. I recorded the interview using my phone so that I could listen to it many more times and I succeeded in doing this. I was conscious of the warning given by Hermanns (2004) in Flick (2009, p. 172) about interviewers not being too anxious about using tape recording during the interview.

Flick (2009, p. 170) noted that it is characteristic of interviewers to bring more or less open questions to the interview situation in the form of an interview guide. I designed an interview guide which was solely based on my problem statement and research questions. Some of the questions in the interview guide that were of particular interest to me included the following;

- *Do you think teachers engaged in PBL need extra financial facilitation?*

- *What challenges have you noted with teaching and learning by PBL?*

I was particularly interested in the above questions because they directly related to resources of financing PBL. Also, as teachers we were curious to know whether the new innovation would pay off. This is because we anticipated that it would probably be more tedious as compared to the traditional methods we were used to. Some informal interviews were also conducted with some students and the participating colleagues. These mainly meant to refine certain issues that arose in their focus group discussions. These interviews were conducted one on one.

I conducted several pilot interviews with friends and other willing colleagues. After piloting, I had to change some of my questions basing on the recommendation of my pilot samples. Our main points of discussion with the deputy principal included how best to facilitate PBL teachers, the challenges of PBL, how best to handle the lack of double quality teachers, the future of PBL at UHTTI, among others.

4.5.2 Focus group Discussions

Wilkinson (2006, p. 178) mentioned that focus groups can be used in action research projects. This is one of the reasons why I chose to employ them in my study. *(Becket al.* 1986: 73) in Wilkinson (1998, p. 182) defines a focus group as an informal discussion among selected individuals about specific topics. I conducted focus group discussions with my students and participant colleagues. The research question was the guide and I was the facilitator. (Wilkinson, 1998) asserts that discussions between group participants are directed to a greater or lesser degree by the group 'moderator'. This is also supported by Berg L (2001, p. 120) who mentions that focus group procedures include a trained and practiced facilitator who asks a small group of individuals a series of open-ended questions, about a specific topic.

Picture 1: Students during the Focus groups discussions

I divided the students into three focus groups but the topics or questions of discussion were the same. Two groups had 8 members while one group had 9 members. This is in agreement with Finch and Lewis (2003, p. 172) who suggested that typically, focus groups should involve around six to eight people. The participating colleagues were in one group because they were only three.

Focus group discussions were conducted after the practical sessions of observing activities of PBL. The main core of the discussions was for students to comment about their feelings about the new method of teaching and learning. They were tasked to give their perception of PBL, challenges faced, the teacher's role, among others. As noted by Finch and Lewis (2003, p. 171) that data are generated by interaction between group participants and that they have to hear from each other, I advised participants to accommodate the views of others. In each group there was a secretary who wrote down all that was discussed. This however might have meant that the secretaries in the groups had little input into the discussion. Some of the questions discussed in student focus groups included the following;

- *Did you like the projects we did?*
- *What was interesting about learning by project based learning?*
- *Do you think that your teacher did a good job while implementing PBL?*
- *In your view, which areas would you like the teacher to improve?*
- *What challenges did you face as a student during PBL?*

By working with my students in focus groups, the suggestion by Flick (2009, p. 203) who mentioned that it is generally suggested that it is more appropriate to work with strangers instead of group of friends or people who know each other very well could not work well with me. This is because the study was to improve my practice and see that my learners are better involved in teaching and learning process. Therefore, I could not have worked with strangers. And the students already knew each other, the same applied to my colleagues.

I was able to also conducted focus group discussions with participating colleagues to give their views about challenges faced and the possible way forward for UHTTI. Some of the questions discussed included the following;

- *How did you measure student activity during the projects?*
- *Do you think students got some learning outcomes from the projects?*
- *What challenges did you face or you think your colleague faced during the project?*
- *What would you like the administration to improve upon on PBL?*
- *Suggest some areas of improvement for your colleagues in PBL*

4.5.3 Observation

Robson (2002) in (Cohen et al., 2007, p. 396) asserts that what people do may differ from what they say they do, and observation provides a reality check. Schwartz and Schwartz (1955, p. 344) defines participant observation as a process in which the observer's presence in a social situation is maintained for the purpose of scientific investigation. In my understanding, I believe that observation also includes recording events as they unfold or later after they have happened. This was also noted by Cook;

> *Cook (2005, p. 180) noted that the most important place to construct observational data is the field diary. Kept, at worst, every few days during your 'fieldwork', its purpose is to*

keep some kind of record of how your research has progressed in terms of what you have participated in and what you have observed, day by day, and what you have come to (mis)understand as a result.

I obtained a note book that I used as my field diary, as (Cook, 2005) called it. My original plan was to record events as they unfolded but sometimes I failed to do it because of other commitments at work such as attending of important meetings. Most of my observation data was recorded from my interaction with the students as they carried out their project. Cohen et al. (2007, p. 396) commented that observation offers an investigator the opportunity to gather 'live' data from naturally occurring social situations. He adds that observation can focus on *events* as they happen in a classroom. In particular, I focused on observing events related to cooperative learning in the group, dialogue, discussions, resolving group misunderstandings, critical thinking, innovation and creativity, autonomy, consensus, communication, hygiene, time management, among others. I also covertly observed colleagues whenever they could be around; I was particularly concerned with their role during the PBL. Flick (2009, p. 240) noted that the main features of participant observation are that you as a researcher dive headlong into the field and you can observe from a members perspective but also influence what you observe due to your participation.

Schwartz and Schwartz (1955, p. 351) commented about the issues that may distort observational data – the observer may become anxious because he is an out- sider and as such is not accepted by the observed. He also mentioned bias. I was particularly not affected by the first one but I suffered observer's bias. Since I was aware of it, I tried to be more objective in my observation rather than following my bias. The observation guide was so helpful in this aspect. Schwartz and Schwartz (1955, p. 345) asserted that what happens in the time interval between the event and its final recording is of utmost importance. I tried my best to record events as they happened when I was there so that I reduced distortion of information due to time lag. Getting firsthand information also meant that my data would be more valid. I tried to observe similar events that happened again to verify the earlier one.

4.5.4 Log books

These were used for recording data from participant observation. Logs were used because they contribute to collaborative learning, as was noted by (Lappen, 2011). The observations made were in line with objectives and the observation guide was also followed. The log book was used by myself, the colleagues I worked with, and the students. The log book had the format seen below;

Done	**Learnt**	**Smart to do**

Table 2: Log book format

Such a log was helpful for us to reflect on what we did, what we learnt from our actions and what would have been the smartest thing to do. We also encouraged our students to keep a daily log. This has been suggested by (B. Barron & Darling-Hammond, 2008, p. 4) who commented that students should maintain an ongoing record of experiences, reflections and problem solving throughout a project. In my view this can help students improve on what was not done properly in the earlier attempt.

We used logs as part of our individual reflective study work (Lappen, 2011, p. 67). My participant colleagues and I decided to reflect on our activities before, during and after the process. I also asked learners to make reflective journals of our conduct which they would hand over to me through their group leaders. I made it clear that they should not indicate their names on them so that I did not get ant bias on each of them but rather to help me improve my practice.

4.6 Validity and Reliability

4.6.1 Validity

(Winter, 2000) in Cohen et al. (2007, p. 133) comment that in qualitative data, validity might be addressed through the honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation and the disinterestedness or objectivity of the researcher. In order to get rich information, I used more than one data collection method, so that varied data may provide the depth required. In particular, observational data indicated on logs and the reflective journals was so enormous. Also, (Agar, 1993) cited in Cohen et al. (2007, p. 134)

asserts that in qualitative data collection, the intensive personal involvement and in-depth responses of individuals secure a sufficient level of validity and reliability. I was personally involved at various stages of the research and the participants gave in-depth responses because they were purposively chosen, implying that they had sufficient information about the issue at hand.

Triangulation is a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study (Creswell & Miller, 2000, p. 126). Data collected using the different methods was sorted to find common themes. I was therefore able to locate the major and minor themes in my data as will be indicated in the presentation chapter (Creswell & Miller, 2000, p. 127)

I was able to carry out member checking. Lincoln and Guba (1985) in (Creswell & Miller, 2000, p. 127) describe member checks as the most crucial technique for establishing credibility. These validity checks focus on the participants' acceptance that data transcriptions and interpretations are really want they intended to mean. I was able to take back the information and sorting it to my participant B, did not disagree to the data. I did the same with the participating colleagues. These changed one of my sub themes to exactly mean what they intended.

Credible data also come from close collaboration with participants throughout the process of research (Creswell & Miller, 2000, p. 128). As already noted, I collaborated with my students, colleagues and administrator. Particularly, the students and colleagues were fully involved in data collection. Students wrote their observations about me every time we met. Colleagues did the same, and this information was really rich. At the stage of problem identification, all the three categories of my participants were involved.

4.6.2 Reliability

(Bogdan and Biklen, 1992) as cited in Cohen et al. (2007, p. 149) argue that in qualitative research, reliability can be regarded as a fit between what researchers' record as data and what actually occurs in the natural setting that is being researched i.e. degree of accuracy and comprehensiveness of coverage. Since I employed participant observation, did my best to be with my participants in most of the activities of the action research, especially during the projects where most of the data was generated from.

Lincoln and Guba (1985) in Cohen et al. (2007, p. 148) mentions that reliability in qualitative research can also be called dependability, confirmability, transferability or consistency. In this sense, the dependability of my data was ensured by involving several participants on a particular theme. This was also done by using several methods. There was some repeatability of data from different methods and from different people as will be seen in the presentation chapter. This demonstrated some degree of reliability of the findings.

According to Golafshani (2003, p. 604), engaging multiple methods, such as, observation, interviews and recordings will lead to more valid, reliable and diverse construction of realities. As already noted, I used several methods such as interviews, focus group discussions and observations and in line with Golafshani, this could have increased the reliability of my findings. In my view, since triangulation has been confirmed to guarantee validity, there can be no validity without reliability Lincoln and Guba (1985) in (Golafshani, 2003, p. 601).

4.7 Ethical issues

According to Locke et al. (2013, p. 115), the focus of research ethics is the protection of research participants, ensuring they are not exploited in the search for new knowledge.

4.7.1 Seeking Access

Gaining access to Institutions is not always easy thing especially with the intention of carrying out a research study. This is because many institutions would not like to 'expose' their inner story to outsiders. Yet Cohen et al has asserted that

> *Cohen et al. (2007, p. 55) emphasizes the need to gain official permission to undertake one's research in the target community. This will mean contacting, in person or in writing, an appropriate official or the head teacher or principal.*

I sought official permission from the coordinator of MVP program at Kyambogo University. He wrote a letter introducing me to UHTTI and my intended interest to carry out my project at that Institute. I took the letter to the Principal, who gave me an acceptance letter. And then access was officially granted.

Norton (2009, p. 179) mentioned that researching into learning and teaching practice within your own institution raises a number of ethical dilemmas. I was bound by this because I was also

researching into teaching and learning at my own institution. Norton (2009, p. 181) mentions that there are basically three important issues about ethics in research. These are informed consent, privacy and confidentiality; protection from harm.

4.7.2 Informed Consent

Diener and Crandall (1978) in Cohen et al. (2007, p. 52) defined informed consent as 'the procedures in which individuals choose whether to participate in an investigation after being informed of facts that would be likely to influence their decisions'.

In my own understanding, informed consent refers to participants accepting to take part in a given research basing on the information given to them earlier by the researcher. I conducted a briefing for my students and colleagues and I informed the potential participants what the research was about and all things relating to it. This is also supported by Flick (2009, p. 41) who mentioned that the person giving the consent should be adequately informed. This means that their consent should be based on information given by the researcher.

I was able to write out informed consent forms for my participants which they filled before taking part. Some staff members declined the consent on grounds that I did not pay them during the research for my project three. Norton (2009, p. 183) noted that involving colleagues in your pedagogical research is not always easy. It is in agreement with (Allmark 2002) in Flick (2009, p. 40) who said that consent is given voluntarily. Therefore, as a researcher I ensured that no one was coerced to participate in my project. I tried to explain the purpose of the research and some later joined the project, for example, participant D.

4.7.3 Anonymity and confidentiality

Norton (2009, p. 185) defined these two terms. 'Anonymity' means that the researcher(s) will conceal the identity of the participants in all research findings. It was not easy making my students anonymous since everyone at the institute knew the group I worked with. However, for the readers outside my institution, I have all my participants anonymous to a large extent. I allocated identification numbers to my students from 1 to 25 in their groups. The groups were as follows; first group, 1-5, second group 6-10, third group 11-15, fourth group 16-20 and the fifth group 21-25. Since my colleagues were also doing the observations, this meant that the identity of the students remained only known to me. This is because even at the Institute, not all the

teachers know the names of students in this class. I also allocated letter codes to the administrators A – B, and also to my colleague C – E. This is illustrated more when I present the findings. This coincides with Cohen et al. (2007, p. 64) who noted that the principal means of ensuring anonymity, then, is not using the names of the participants or any other personal means of identification.

The term 'confidentiality' means making clear who has the right of access to the data provided by the participants. The data was only accessible to me. Flick (2009, p. 42) asserts that it is very important that you store your data in a safe, completely secure container, so that no one will be able to access these data who is not meant to. Every after collecting my data such as the forms from the secretaries of the focus groups, this was kept in my bag and kept in a safe place at my home.

4.7.4 Protection from harm

Norton (2009, p. 187) emphasizes that students may suffer psychological harm. He notes that:

> *'We must acknowledge that pedagogical research on students could potentially harm their learning and academic performance, although this is likely to be relatively minor. Is it appropriate, for example, to use class time for research, which has no direct pedagogical benefits to the students themselves? What about the instances when we might ask them to give up to an hour of their time, which they might have set aside for study, to take part in focus groups, which again, are unlikely to benefit them directly?'*

Actually, I used students' time when I engaged them in focus group discussions but I was convinced that my improvement would translate into better learning outcomes for my students. Also, towards the last days of the project, students worked long hours in the kitchen laboratory and many missed food. To save them from this harm, I usually bought food and they cooked for themselves in the kitchen. And as a motivator, sometimes we ate together.

4.7.5 Power Relations

I was aware of the power relations that existed between me, my students, colleagues and administrators. (Norton, 2009, p. 179) raises a very important question relating to teacher research - How do we know we are not abusing our power as a teacher by researching the very people we are supposed to be teaching?

(Bravo-Moreno, 2003) in (Karnieli-Miller, Strier, & Pessach, 2009, p. 282) mentioned that at the initial stages of the research, the amount and quality of the information offered regarding the research are entirely at the researcher's discretion. Therefore, during these stages I tried to balance the power by giving participants all the relevant information concerning my research so that they would make an informed decision to participate or not.

I tried not to influence my students into doing what was against their wish. Of course, some of them participated because they would not like to 'annoy' their teacher who has the power of the pen to influence their future in form of awarding marks. Norton (2009, p. 181) warned teachers who conduct research on their students to be careful of undue influence or coercion, given their power and authority as the person closely involved with supporting the students' learning. When i conducted focus group discussions with students, it was evident that my being their teacher and also researcher, I enjoyed more power than my students. I balanced the power by giving the students some roles to play. For example, in each focus group there was a general secretary. I also did not interfere in their discussions. Though I acted as their facilitator, I appointed one student that looked to be conversant with the program in each group, to act as my assistant facilitator.

The notion of power is significant in the interview situation, for the interview is not simply a data collection situation but a social and frequently a political situation (Cohen et al., 2007, p. 151). However, I was aware of my power position when I interviewed participant B. He is my boss and during the interview, much as he made it clear using his tone of voice that I was his subordinate, I remained stuck to the interview guide as it was designed. Working in an elite field poses major difficulties which stem from the challenges of researching up (Desmond, 2004) in (Smith, 2006, p. 643).

As a person coming from abroad, I knew that not only my students but also colleagues considered me powerful. This is because studying in Europe is considered prestigious, and there is a general thinking that the European epistemology is more superior than the African. Some people wanted to take part in my project because they thought that I had come with a lot of money from Europe

and so they would also share. I was conscious of this because I did not want to exert a lot of my influence on participants because this could affect my results.

4.8 Limitations during the study

Getting a research problem for action research was not easy. Refining ideas from members of UHTTI was not easy because it seemed like each participant wanted their opinion to dominate. We later agreed on Project Based Learning as teaching method. Also it was hard for me to fix appointments with the respondents I needed, especially participant A and B because their secretaries were strict gatekeepers. In addition, my phone had a small storage capacity for the data I wanted to store on it. In some instances, I had to write down notes in my book during the interview. Getting meaning out of observational data was a challenge. But I later tried to add some captions to each and every picture used so that it could be meaningful to all my readers.

I was working with the HiOA system of endnote databases for the first time. Therefore, getting used with the system interface and finding the right databases took me so long. Some members of the population took it personal when they were excluded from my purposive sample. This is because they assumed that their participation in the project would come with some rewards and yet it was not the case. Choosing an acceptable data presentation and discussion format was really hard. I found some publications on google scholar that discussed how qualitative data is presented and they were of help. This gave me insights of how to handle my information.

4.9 Summary of chapter four

In this chapter I have considered my methodological strategies. Action research was used as a main strategy but the overall design was qualitative. Purposive sampling was used to choose 30 participants out of the whole population. To collect data, participant observations, in-depth interviews and focus group discussions, log books and some photography were used. Tools like smart phones, pens, laptop computer, among others were also used. Ethical considerations were taken care of and participants filled out informed consent forms. Validity and reliability were also considered.

In chapter five, I present the descriptions of the data I generated, starting with the project lesson itself, on which almost all data were gathered.

CHAPTER FIVE: PRESENTATION OF FINDINGS

5.0 Introduction

In this chapter, I will present the findings I got from participants in the field. I have chosen to present the findings in themes. These themes have been directly generated from the objectives. These included; to improve my practice by conducting pastry and bakery practical lessons using PBL at UHTTI, to discover student learning outcomes from PBL, to identify the challenges of PBL and the way forward for UHTTI. The themes therefore are;

- **Conducting pastry and bakery practical lessons using PBL to improve my practice**
- **Student learning outcomes from PBL**
- **Challenges of PBL and the way forward for UHTTI**

Each theme as shown above will have subthemes as shall be discovered in the text. The problem statement was*; **how can I improve my practice by using PBL as a teaching method at UHTTI?*** Since my research was about improving my practice by using PBL, I had to implement some projects as lessons so that data was generated basing on the projects. In this regard I carried out two pastry and bakery projects as explained below.

5.1 Theme one: Pastry and bakery practical lessons using PBL

I had to conduct projects so that participating colleagues and later students would give areas of my improvement basing on the already conducted projects. Also, these projects were important for the teachers to observe learning activities that engaged learners during the project.

5.1.1 Planning for the PBL lesson

The projects were based on the didactical model which has already been expalined in chapter 3. My original plan was to have about five practical lessons but due to lack of enough resources, we changed our plan and we were able to carry out two practical lessons. PBL was chosen because it was suggested by Blumenfeld et al. (1991, p. 369) that it engages students in investigation of authentic problems. I informed the academics office and the principal about our activities in writing. This means that they were fully aware of all our activities.

I consulted my students about what projects they would find interesting to carry out. They had amazing ideas but we agreed on the project of making cakes in the shapes of 'U, H, T, T, I'. I grouped the students into five groups.

These groups were to work together on every project that we were to handle. This implied that the students were to have enough time together and continue to learn from one another. The students had never worked on such types of cakes before. (Boud & Feletti 1991) in Duch et al. (2001, p. 6) noted that in PBL, learning is initiated by a posed problem, query, or puzzle that the learner wants to solve. To make such types of cakes was a good puzzle for them, in the view of both of us. Each group had to choose one letter and produce a cake of that shape. This meant that one group would make a cake in the shape 'U', another in shape 'H', the other two groups each made cake in the shape 'T', and the last group made cake in the shape 'I'. Hmelo-Silver (2004, p. 236) emphasized that in PBL, students work in small collaborative groups and learn what they need to know in order to solve a problem. Their problem in this project was to produce attractive cakes in the shapes mentioned above.

5.1.2 Project implementation

The students made budgets, tracked the progress and later evaluated the projects by themselves. The students made budget estimates of how much money they thought it would cost to have the project completed. These budgets were handed over to me. I read through the budgets and later I called them for a meeting to give them some challenging questions. After the meeting, all groups realized that they had to repeat the budgeting process. They also made some adjustments regarding equipment, and materials. For example, they added cake preservatives on to the budget because the cakes had to stay on shelf for some days before the exhibition. I later made a general requisition to ask for money from the administration since they were already aware of our project. This was in line with Zeni (1998, p. 13) who asserted that academic institutions should support reflective teaching and to minimize the bureaucratic hurdles that discourage research by teachers to improve their own practice.

The project was carried out from the demonstration kitchen with little equipment related to pastry and bakery. Therefore, I encouraged students to improvise where possible. However, we

requisitioned for the baking tins to be used in the first project. The projects took place as scheduled on the Institute's time table, during the time for pastry and bakery practical. But sometimes we went into time meant for other subjects. Therefore, we sometimes worked at night when the scheduled activities of the day were all finished.

Some of the materials used included wheat flour, sugar, salt, eggs, icing sugar, margarine, butter, food color, dried fruits, baking powder, flavorings such as vanilla and strawberry, preservatives such as sodium sorbate among others. The equipment used by most groups included but not limited to ovens, mixing bowls, wooden spoons, metallic spoons, sieves, cooling racks, cake sprays, cake turntables, baking tins, skewers, cake decoration mats, baking paper, icing bags among others. For cleaning the kitchen during and after work, some detergent soap and hot water was mainly used.

We set out the goals and objectives of the project with the students. These included to have students fully involved in the teaching learning process. Among other objectives agreed upon was; to make students more responsible for their learning, to be more creative, to engage in critical thinking and discussions, to complete the project on time, to choose group leaders especially the group chairperson, secretary and treasurer, to learn collaboratively and cooperatively among others.

Logbooks were used to record events as they happened. Students also had logs of the daily things they did from the start of the project up to the end. They constructed their own knowledge from the activities that they underwent. This was documented in the logs. The educational content was in line with the curriculum at the institute. The subject matter of the project was designed so that it could connect to various subjects. This would help students to integrate various knowledge disciplines. For example, it was planned that students had to go to the market but due to the rules of procurement at the institute, this was not possible. The procurement officer and the purchasing manager collaborated with the supplier to deliver items for our project. We received the items with Students.

My participant colleagues and I had a meeting and decided that we would play the role of facilitators. Since previously we were actually doing so much for the students, this is what

(Freire, 1993) called depositing knowledge into students. In our view, this time round, the students had to construct their own knowledge. As teachers we wanted to ensure maximum student involvement in the activities of teaching and learning. We aimed at making students responsible for their learning by having them engaged in teaching learning activities as it was noted by (Dowling, 1995, p. 2).

The students worked in their various groups, helping each other through discussions, creative thinking, trial and error, self- directed learning among other methods. As teachers we tried to offer our opinion whenever it was sought by the students.

5.1.3 The project work in the various student groups

The pictures shown below show how the process of teaching and learning took place in the various groups of the students. It will be remembered that their task was to make cakes in the shape of 'U, H, T, T, I'. Each group had to choose one letter from these and produce a cake. The pictures below show the processes undergone by the various groups in the execution of their project work.

Group one members and the 'U' shaped cake

Picture 2: Project work for group one

Picture two shows some of the members of group one. In this picture, the students had just finished baking the cake. Therefore, they placed it on a wire rack for cooling. It was decorated after cooling and the final product is also shown.

They faced a challenge of how to decorate the middle column in the ‘U’ and to smoothen the corners. One of their members did not adhere to the professional dress code of cooks.

Group two members making ‘H’ shaped cake

Picture 3: Project work for group two

In the picture above, members of group two were cutting the cake board ready to place the cake in preparation for the decoration process. This group was tasked to make the ‘H’ shaped cake. Their cake was burn and as they tried to trim off the burn part, it was cut almost half way and probably I thought they needed to bake another one but due to shortage of ingredients, they became more creative and surprised me how they increased the height for the cake. Burning of cakes actually happens in the world of work in the bakery industry. Blumenfeld et al. (1991, p. 372) noted that PBL places students in realistic, contextualized problem solving environments. This was a realistic situation and the main question was actually how to solve it. After their group discussion, they found a solution.

Group three members making 'T' shaped cake

Picture 4: Project work for group three

The picture above shows some of the students who belonged to group three. In this picture, they were putting the cake mixture in the baking tin ready to be baked. And then their final product after they did the decorations.

Group 4 also made the 'T' shaped cake

Picture 5: Project work for group four

The picture shows the preparation of baking tins and cake boards by group members. Also, the cake mixture after putting it in the baking tin is shown, and decoration of the second ‘T’ shaped cake. Since the task given had two cakes in the shape of ‘T’, it meant that this type of cake had to be made by two groups.

Group five made the ‘I’ shaped cake

Picture 6: Project work for group five

The picture above shows the weighing and mixing of the ‘I’ shaped cake by some members of group five. In this picture, they had just started to make the cake. They mainly used the creaming method of cake making and it was done manually since there was not mixing machines in the kitchen.

5.1.4 Evaluating the project

The final stage of the project was evaluation and this was achieved by organizing an exhibition. Students displayed their works for the rest of the school to view, appreciate and possibly buy. The products of the project had to be displayed outside for the rest of the institute community to see, judge and make their various comments. We had several roles to play.

We needed tables, tablecloths, making invitations for people to come for the exhibition, among others. I used the group WhatsApp to communicate to colleagues about our exhibition, however I could not invite the administrators via this media. The students used their IT (Information Technology) skills to design out simple invitation cards for the administrators.

Łuszczyńska (2011, p. 91) emphasizes that self-assessment is more natural and favorable system in evaluating active learning. She has suggested that 50% self-assessment 30% assessment by colleagues 20% assessment by the teacher. In line with this, I had to ensure that we tried this mode of assessment. The students, my participant colleagues and myself evaluated the projects.

B. Barron and Darling-Hammond (2008, p. 4) also noted the following about assessment of learners in inquiry based learning;

> *'There are many ways in which performance assessments contribute to learning. For example, exhibitions, projects, and portfolios provide multiple occasions for review and revision toward a polished performance. These opportunities help students examine both how they learn and how to improve their performance. Students are often expected to present their work to an audience, such as groups of faculty, visitors, parents, or other students, to ensure that their mastery is genuine. These public presentations signal to students that their work is valued and reinforce the significance of their tasks in a real-world context.'*

Therefore, we found it important to organize an exhibition for students to show their work to the public. I aimed at making my students to improve their learning by giving them an opportunity to interact with other community members about issues of real-life baking. The audience included fellow teachers, administrators and students. In line with the above quotation, my participant colleagues and I also wanted students to feel that their work was valued, after all they had put in. The students had to explain to staff members how they managed to make the products. This was real life learning because questions were raised by none technical people who came from the viewers.

Picture 7: Exhibition of project one works

The students did their evaluation of the project. They did peer evaluation and also group evaluation. In peer evaluation, the group leaders had reports about the performance of each individual member in relation to the group's task. In group evaluation, each group assessed the other basing on the quality of the product displayed, especially the appearance. In these evaluations, each group had something to appreciate from the other, but there was also group critic. This involved mentioning what they felt the other group could have done better in their project. Individual groups also had time to evaluate their teachers and then the whole class did the same. The evaluation of the learners by their peers or in groups was taken to be of utmost importance because most of their learning actually happened with very minimal teacher influence. This meant that they were better assessors of themselves

The assessment by teachers was done by the three of us who were involved in the project. Each of the teachers went round the exhibition table asking the learners some questions while noting down. Most of the questions required the student to know the process rather than the product. Also, teachers wanted to know whether the learners were able to link the project to other subject areas.

Picture 8: Evaluation of project by teachers

In the picture above, myself and two other participant colleagues evaluate the students' products. These were part of the main cycle of project one, which has been exhibited above.

5.1.5 The second cycle of the project

Since the study was an action research, and as already noted by the model I used, the process was cyclic. The purpose was to improve my practice and that of willing colleagues. Improvement is brought about by a series of cycles, each incorporating lessons from previous cycles (Kember, 2000, p. 25). Therefore, there was need to conduct a second cycle of the project. This would help us to incorporate lessons from the first project, and also to measure my personal improvement and that for of my colleagues.

After conducting the first project, and realising the various observations not only about learners but also about ourselves; there was a need to organize a few other projects for some reasons. First to see if the learners were getting used to the new method of teaching by using PBL. Second was that I also needed to know whether I had made some slight improvement in the practice I had adopted. This was not easy because it was not in the original plan and budget submitted to the administrators. The original plan had to be changed. This also meant that there was no money allocated for it. And yet I needed it so soon. When I approached the Principal, she told me to write a simple bugdet. I wrote the bugdet, half of the one in the original plan. She fully facilitated the bugdet. This time round, they worked in three groups and each of them worked on a different

project but with a general theme. I tried to put the problem at high order thinking. I considered comments given to me by colleagues who observed me in the earlier project. They had noted that the task in the first project was not complex enough.

The theme was to make cakes showing the the buildings or buillding structures at the institute. These included the reception area of the hotel, the main lecture building and the registrar's building. The project was to take two weeks.

My plan was to make a model of what I expected the students to do. This was not possible because I was already limited by the available resources. However, the learners were able to make sketches of what their project was to look like and they were assesed based on that. The groups made the following three different projects.

Group one: Cake showing the Registrar's Block at UHTTI

Picture 9: Project two work done by group one

The above picture shows the work done in the second cycle by group one menbers. This is the building representation of where the academic registar sits. He was happy to see such a cake and he bought it after the exhibition. This group became so creative while doing activities through trial and error. These included; showing the windows on the cake, making a durable roof and elevating on top, making the varander of the cake building. Dreyfus (2004, p. 178) noted that students must decide for themselves in each situation what plan or perspective to adopt without being sure that it will turn out to be appropriate. They therefore tried out all possible ways until they found the most appropriate.

Group two: The main lecture block of UHTTI

Picture 10: Project two work done by group two

The picture above shows the work done in the second cycle by group two members. This cake represents the main lecture block where most of the teaching and learning occurs. The picture also shows group members with other products accompanying the main product.

Group three: The reception area at Crested Crane Hotel

Picture 11: Project two work done by group three

The picture above shows the work done in the second cycle by group three members. This cake represents the reception area at the Crested Crane hotel. The picture also shows the class during one of the late sessions of the project that we had.

5.1.6 Observations made by participant colleagues about my practice

The three colleagues I collaborated with made the following observations about my role and I find this important because they help me improve.

Two of the participants I collaborated with were all concerned about the nature of the first project done by the students. They claimed that the problem was not complex enough to motivate the students. In their view, the project was too simplistic.

However, Participant E, was more concerned about the amount of time I had injected into the project and he noted;

> *'The project missed you. This affected the students' motivation and the general organisation of the project. Some of your students really needed your personal presence all the time, for such things as necessary materials and equipment that they continuously asked for.'*

As already noted, all the tasks done in the various projects were agreed between me and the students. Being my first time to conduct such PBL, it may not be surprising that I could not tell what a complex task looked like. All I needed was a project for the students to excute. I concur with participant E as regards the issue of my presence but since PBL is more learner centered, I feel that learners needed enough time to explore knowledge for themselves. This was also obsereved by (Jones, Rasmussen, & Moffitt, 1997) in (Thomas, 2000, p. 1) when they noted that PBL gives students the opportunity to work relatively autonomously over extended periods of time; and culminate in realistic products or presentations. This autonomy can only be achieved by learners if there is less interference from the teachers, who should actually act as facilitators.

Colleague D however, observed that I did not respond well to the students unanswered queries during the course of the project. She noted that;

> *'you did not clear the doubts of the students during the most contentious moments they experienced beyond their creativity. Personally I feel that this left the students wondering whether the teacher had enough subject matter.' Participant D.*

Participant C observed that it was clearly evident I had not rehersed the project before rolling it down to the students. He thus stated;

> *' It was evident that you had not the project before. Doing the project before giving it out to the students helps the teacher to discover the difficulty situations of the project and find answers to them before students start the project. He added that it also helps the teacher to give a sealing limit for the students bugdets basing on what he might have used'.*

As you see here, the observations of participant C and D above are both linked to teacher preparation before the PBL activities. For example, the issue of clearing students' doubts during project work requires that the teacher should have practiced the project themselves. All this requires time on the part of the teacher. This issue also has a bearing to resources available, for example if the teacher is to make a model. This requires extra materials in addition to what the students require. These resources where not always available. I may not differ from my colleagues; however, I also observe that the students should be willing to tell the teacher whenever they think that his intervention is required.

Colleagues also observed that I did not manage the students discipline well during the activities of project based learning. For example, one of the students was arrested smuggling out personal cakes from the kitchen at night by participant E. In my opinion, this could have been caused by the lack of time already noted from the teacher, and also because some activities of the project were done at night in order to meet the set deadlines. Working at night was not in the original plan but changes were made after realizing that there was little time and some teachers had started to complain that our projects stretched into their time for teaching other subjects.

5.1.7 Information from student focus groups about teacher's practice

I gathered the minutes from each of the student secretaries in the focus groups and below is the summary of the three focus groups. I was able to get some excerpts from at least one student of each group. When asked about where they thought the teachers needed improvement role in PBL, the students noted the following;

Most students in the focus groups seemed to note that they need the teacher's help before and during the project work. This help seemed to focus on the teacher giving direction to the students as to how the final project would look like. This would act as their guiding model to follow. Also, some students indicated that such help could be given in form of teacher motivation to the students. All students seemed to agree that any help from the teacher during PBL ought to be given in a friendly way.

However, participant 23 from focus group three seemed to deviate from the general view of his friends when he noted that;

> *'Some teachers took over our groups during the project. We want the teacher to join our group on invitation, during such a time when we need some expert opinion to align our ideas.' Student No. 3*

From my point of view, it was clear that most students preferred to have the assistance of their teachers throughout the activities of PBL. They talked about the teacher's level of preparation before the lesson; such things as construction of models. Due to the time that PBL activities take, it is not surprising that students seemed to lose morale along the way and they needed the teacher's encouragement. The students' need for a friendly teacher may be understood. However, the teacher may need to know the limit of their friendliness with students because some learners may take it for granted. Participant 23 seems to want more independence from the teacher. Maudsley (1999, p. 658) noted that most new tutors in problem based learning are challenged by the "where necessary" (deciding when and how) part of their intervention into students' projects. In my opinion, it would be a good idea for the students to approach the teacher when that need arises during PBL.

Alternatively, participant number 3 from focus group one noted that;

> *'The teacher needs to order for enough practical materials such as flour and sugar so that we do not standstill midway the project like the case it was during the second project. It seems like, the problem of lack of enough ingredients will remain the same as it has always been.' Student No.3*

This participant wanted the teacher to improve on the way he organized teaching materials and other resources for PBL. Of course, even when we were using the traditional methods, the problem had been there and I want to believe that it also included insufficient equipment, utensils and machines among others.

Participant 12 from focus group two also noted that;

> *'The teacher should take a stand when the group reports a discipline case because usually, the group has failed to handle and many of these members are either so passive or they over dominate the group.' Student No.12*

This student observed that the teacher was not decisive about discipline cases reported to him. It seems that some group members did not perform as expected. Some over performed while others under performed. And of course, there are those that were playful. (Evans & Taylor, 1996) in Azer (2005, p. 676) emphasized that the facilitator should keep the group focused on their tasks and guides them to achieve their goals. As you can see, the issue of students' indiscipline is usual in study groups. I concur with (Azer, 2005) that the teacher does his best to ensure that the group remains focused. In my view, the teacher must avoid standing on the fence during such situations so that the rest of the group feel that justice was delivered.

5.1.8 Conclusion of theme one data presentation

In theme one, I have presented that which answers my research question one. It focused on the improvement of my practice by conducting pastry and bakery practical lessons using PBL as a teaching method. I started the theme by conducting project based lessons of pastry and bakery. The stages of how these projects were planned up to evaluation have been explained. This information concerning my improvement areas was generated from colleagues and students during the two project cycles that we conducted. The students wanted me to improve in the way I responded to their learning problems in PBL, how I motivated them in PBL, less teacher interference, enough materials and equipment. They also needed me to improve on the way I handled discipline cases so that no student dominates the PBL activities. My participant colleagues observed that I had to improve on: the type of problems to be handled in PBL, the

time I put in PBL, how I scaffold learning, my preparation before PBL, classroom control and discipline.

5.2 Theme two: Students learning outcomes from PBL

The information about student learning outcomes from PBL was got from the discussions with colleagues after the project was delivered and also from the students' focus group discussions. Also, some information was got from the daily logs of the students while some was got from the interview I had with participant B.

5.2.1 Information from student focus groups about their learning outcomes from PBL

The students in their various focus groups commented about the learning outcomes they had achieved after the two projects successfully carried out. The students' suggestions were really many but below I give the most general views, including those that seemed to deviate from the general thinking.

Most students confirmed that they gained creative and innovative skills from the two projects that they engaged in. They also added that they enjoyed the critical thinking sessions within their groups and the various discussions that they held. This was common for all the groups. In one of my observations, a certain student noted that;

> *'We have really tried our best to work on the roof but it has remained unstable. I think we have done our best. Our greatest challenge remains how to carry this cake to the exhibition grounds.' Student No. 9*

In my understanding, the above statement from student No. 9 illustrates how they engaged each other to see that they completed the task. The quotation also demonstrates how the student and his group members ignited their creative and innovative skills to work on the roof of the cake. This must have happened in the second cycle of the project in which learners worked on cake structures to represent buildings at UHTTI.

However, another student seemed to suggest that she had gained negotiation skills. When asked about the learning outcomes gained, she commented that;

'In the first project, I was more silent about my opinion because I felt that others knew better than me. However, during the second project, I was in a better position to defend my point of view during group discussions.' Student No. 16

Another student suggested that she had gained leadership skills, and this is how she responded to the question of what learning outcomes she had gained from PBL.

'Personally, I had never been a leader before in all my schooling years. I was so shocked that my group members appointed me to lead them. Actually I refused but they also insisted. Surprisingly I have gained listening skills, organization and coordination skills because I had put stuff for the group together.' Student No. 14

It is clear that student No. 16 and 14 had similar learning outcomes. Negotiation is one of the modern leadership skills that most managers must possess. In addition to coordination and organization skills that student No.14 got I can assert that she also became more confident after the project exercise since she was doing it for the first time. Her groupmates were able to identify her qualities and talent that she had not discovered before. It may therefore not be surprising to argue that in PBL, there can be talent identification which traditional methods of teaching may not be able to discover. Duch et al. (2001, p. 6) noted that students who engage in PBL demonstrate versatile and effective communication skills. In my opinion, leadership skills also include communication skills which also involve listening. Am also meant to believe that a good leader should be versatile, in which case they should be able to do a number of things without getting easily tired.

When student No. 20 and No. 5 were asked to comment about the tasks they underwent during PBL activities, this is what they had to say;

'The task was so challenging but interesting. I have learnt that the answers to most of our questions may not always lie with the teacher; we have been able to include locally available materials in our project without the teacher telling us. We were driven by the need to solve the problems in the project and we feel more independent and good about ourselves.' Student No. 20

'Personally, I recall the time I had to visit the store to find out about materials. The store man told me that the eggs would arrive in an hour's time. After one hour, there was

nothing yet. My tempers were rising but I still had to talk to him. When I recall that, I am a more patient person than before.' Student No. 5

Students No. 20 was able to improvise materials when the need arose while students No. 5 had to rush to the store. In both cases, I think that there was something learnt by both students. The former gained more independence and took initiative while the latter also learnt that sometimes there is a reason to be patient in life. Personally, I believe that improvisation goes hand in hand with creativity. It therefore follows that it may be difficult for students to improvise without being creative.

5.2.2 Information from student logs

Most of the information gathered from student focus groups was not so different from what they had written in their logs. However, some two students indicated that they had gained skills related to time management, decision making, budgeting, and how to reflect. I was able to ask student No. 1 and No. 11 what they had learnt from the projects.

'Since this project started, it has been your slogan that we should become reflective cooks, and this is not a simple term to understand. I think am not clear about what to say but in summary I was able to try and recall what I thought was the bad action of the day and try to change it the next day, for example time management has been my major problem but through reflection, I think I can become a better time keeper.' Student No. 1

This student has confirmed achieving time management skills. In addition, he also gained skills of reflective learning and I think with continuous practice, he will be able to use such skills in other dimensions of life. (Schon, 1983) in Ayas and Zeniuk (2001, p. 64) commented that project-based learning lays the foundation for communities of reflective practitioners. In my view, it is important to train reflective cooks so that there is continuous improvement of their practice by themselves.

'When we presented our budgets, it was so disappointing for you to adjust them and make us to write new ones. First of all, it was my first time to engage in cookery budgeting process and it had really taken my group so long. I have learnt that budgets have to be realistic and should contain every detail.' Student No.11

Despite the fact that student No. 11 and her group members were disappointed by instructing them to repeat the budgets, they also learnt that budgeting in itself is not easy. By budgets being realistic we mean that they have to fit into the available resources. By confirming this learning outcome, it is also equally important to note students indirectly linked the knowledge learnt from accounts and entrepreneurship subjects to pastry and bakery. This is also in line with (Blumenfeld et al., 1991, p. 372) who noted that PBL also promotes links amongst subject matter disciplines and presents an expanded, rather than narrow, view of subject matter.

5.2.3 Information from interview

When participant B, was asked about the possible learning outcomes that students could have gained from PBL activities, this is what he had to say

> *'I have seen them work in groups as a team. I believe that they have shared each other's talents for betterment of their group tasks. They have also been able to interact with different people other than their usual teacher and I credit this collaboration.' Participant B.*

Participant B seems to suggest that students gained skills of cooperative learning. He is emphasizing sharing of talents and sound to support the idea of teacher collaboration. In my opinion, learners collaborated more after witnessing the collaboration between their teachers during the project.

Asked about the learning outcomes gained by the students, participant B said that;

> *'The students seem to be more confident and responsible than ever before, especially after the exhibition they held.'*

In my understanding, the students displayed a mature sense of responsibility because they were left to manage their teaching and learning activities through PBL.

5.2.4 Information from participant colleagues about students learning outcomes from PBL

The teachers noted the following about learning outcomes for students during the activities of PBL. These outcomes were observed by the teachers during the project sessions.

Most of the responses from colleagues about learning outcomes seem to be the same as from other participants. For example, all participating colleagues and myself observed that students

worked cooperatively and collaboratively. In the various groups where they were attached. They shared roles and also tried to support each other. On several occassions, they held group discussions to agree on a position or take a decision. This was the general observation. However, the following observations seemed to suggest new ideas;

Participant C, had something to say about the students learning outcomes;

> *'Despite the fact that misunderstandings came up in the various groups, I liked the manner in which some groups overcame this by negotiating and listening to each with little input from our side. And the world obviously needs these skills too'. Participant C.*

This acknowledged the fact that group misunderstandings happen. He was however amused by the manner in which some groups (but not all) handled such misunderstandings. The students employed negotiation and listening skills in most of the dynamics faced in the groups.

Participant D, commented that

> *'If we embrace PBL in our daily teaching methods, am confident that our students will have less tasks to undermine their sense of autonomy at work especially the execution of routine work tasks in the bakery such budgeting, measuring and weighing.' Participant D.*

Participant D, notes that students gained more autonomy at work. Trainees usually face the problem of getting used to routine work tasks so that they can predict them and execute them. PBL seems to bridge this gap. Students made their group budgets and even had time to adjust them basing on my advice.

Participant E noted that;

> *'It was clearly evident that the idea of displaying project products to the rest of the school made students to become more confident especially during the explanations that delivered to the people who came to view their work.' Participant E.*

In most cases, the more times a person explains something to another person, the he tends to understand it also. Therefore, it can be argued that students concretized the already gained knowledge as they exhibited the work. Students should engage in PBL knowing that their

products will face public opinion. This may even help them to become more creative and make more attractive products so that they fly high in the eyes of the public.

5.2.5 Conclusion of theme two data presentation

In theme two above, I presented data which answers my research question two. This was about discovering the learning outcomes students get from PBL. These included learners gaining the following skills; creativity and innovation, negotiation, leadership, communication, coordination, organization, improvisation, budgeting. In addition, they also learnt the need for patience, confidence, collaboration, reflection and autonomy in life and in their trade of pastry and bakery.

5.3 The challenges of PBL and the way forward for UHTTI

The information about challenges of PBL and the way forward for UHTTI was got from focus group discussion with participant colleagues, and interview with the participant 'B'.

5.3.1 Information from focus groups of participant colleagues

Participating colleagues were particularly concerned about how tedious the project work was for them, yet they did not even receive any extra facilitation from the administration. They also mentioned that PBL takes up a lot of teacher's time. However, one of the teachers also looked at time put into PBL from the students' perspective, and he had this to say;

> *'In some groups, students had to work long hours, even sometimes at night. I feel that PBL consumes a lot of precious time especially for the student.' Participant E.*

I think that the issue of time used in PBL activities affects both the teacher and the student. I was my hope that our activities had to be conducted within the official time allocated on the time table for pastry and bakery practical lessons. This was not the case because some activities could just not be rushed at, for example baking of large cakes.

Also, generally, participating colleagues noted that getting a challenging task to give the students is not an easy job. Also, the issue of difficulty in managing classroom discipline was identified by all colleagues as a problem of project based learning. However, participant C noted the following;

'The fact that assessment is done by several people in PBL means that evaluation of students' learning is not. For example, when do we tell whether student evaluation of themselves or their peers was objective enough?' Asked participant C

Since teaching in PBL is more learner centered than teacher centered, this means that students have a lot of time without the teacher's interference and this makes classroom control hard. Evaluation remains a problem in PBL because of course different people will have different points of view and learners' objectivity in judgement of their peers may not be trusted.

In addition, colleagues also believed that PBL is expensive method of teaching. They asserted that whenever learners are alone in groups, they tend to waste materials by baking personal items. In other words, they take advantage of the groups. Not only that but also, colleagues mentioned that adjusting from the old methods of teaching to PBL is in itself a problem because some people are deep rooted into their practice by doing the wrong thing every day. Alternatively, participant D was concerned about the motivation of students;

'Personally, I found it difficult to motivate students in their project groups' Participant D

Since students are involved in trial and error, then materials may be wasted. In Uganda, we a saying that *'if you try to shape some body in old age, you are likely to break their bones'*. Implying that in most cases people do not want to change things they have been doing for a long time. Therefore, adjusting from old methods of teaching such as demonstration to PBL is also an upheaval task.

There were also concerns of the increasing numbers of students. Most colleagues felt that they had more work to do with large numbers if they implemented PBL. They were also concerned about student learning, claiming that some students may end up being just 'escorting' others. Also colleagues hinted on the available resources in relation to using PBL with such large numbers of learners. For example, as already noted, the pastry and bakery class I worked with was of 25 students. However, the demonstration kitchen we used for our project was originally meant for only 15 students. This is the kitchen used for all culinary related practical lessons.

About the way forward for UHTTI, teachers noted that the institute should embrace PBL where by all the subject teachers use PBL in their teaching and learning activities. They emphasized that teachers should be trained in PBL so that they can implement PBL activities with ease. This will also help them deal with challenges of PBL in a more effective way. Funding for practical lessons should be increased so that things like extra equipment can be bought, enough materials for students to experiment their projects, and for teachers to do enough trials before the project is given to the students. Also, this could cater for the teacher's extra allowance. Projects must be portraying the image of the institute in order to promote corporate image of UHTTI.

5.3.2 Information from my interview with administration

I carried out interviews with the administrators. My original plan was to interview the Participant 'A' and 'B' but this was not possible. Participant 'A' delegated to participant 'B' because she was upcountry.

Participant 'B' confirmed being aware of the activities of PBL. Concerning the main challenges as per his observations, this is what he had to say;

> *'I have observed that the activities of PBL go deep into the time of other elective subjects. I am tempted to think that students may not find enough time to reflect on other subject materials if we embraced PBL throughout our programs, but it is a wonderful method for engaging students' Participant B.*

Actually, some teachers of other subjects complained to the academics' office about the long time pastry and bakery practical lessons took. Among them was the teacher for computer studies said that students always arrived into her lesson ten minutes late.

Participant 'B' was also asked to comment about the quality of the teachers at the institute. The response below was given.

> *'We have always tried to hire capable teachers to conduct our lessons. The biggest problem has remained getting that person who is not too theoretical and with enough teacher training' this has remained a problem.' Participant B*

This is the lack of double quality teachers which has been elaborated in chapter one and three. Teachers lack of experience in the trades they teach coupled with lack of pedagogy training. This

impacts on the students learning outcomes due to the teacher's poor choice of the teaching method.

Asked about the way forward for UHTTI, participant B, had the following to say;

> *'The idea is very good especially for the active involvement of our students but from the reports I have, the two projects they did were costly for the institute. I think that you as their teacher you might need to find ways of making it cost friendly so that we can sustain it.' Participant B*

The issue of PBL being expensive was also noted by the teachers and now it is being repeated by participant B. in my view, the teachers need to find the most appropriate ways of controlling materials during PBL

Teachers involved in PBL have commented that they need extra motivation, what's your take on that? This was the reply;

> *'I have really seen that they put in extra efforts into this way of teaching. However, our current budget does not provide for extra motivation. Also, we as administrators cannot give extra motivation to only a section of our teachers because we believe that all our teachers deserve the same treatment. Recently I bought one of their projects, if students sell more projects, this can be a good starting point to facilitate not only the teacher but also more projects.' Participant B*

5.3.3 Conclusion of theme three data presentation

In theme three, I have presented the data answering my research question three. It was about the challenges and way-forward of PBL at UHTTI. Some of the challenges identified include difficulty in choosing the task for PBL, projects being time consuming, assessment of learners being hard, PBL being expensive, people not easily adjusting to PBL, difficulty in motivating students, students having less time for other subjects. About the way forward for PBL at UHTTI, participants suggested increased funding for practical subjects, selling of project products to raise money, embracing of PBL by all teachers who teacher practical subjects and training of teachers in execution of PBL activities.

5.4 Summary of chapter five

In this chapter, I have presented the findings in themes got from the research objectives. Students did two projects, and their processes provided ground for data to be generated using data collections methods. The students liked the idea of independence at work and they gain negotiation plus leadership skills. The teacher was to improve in how he scaffolds learning during PBL. Also improvement was needed in the way the teacher prepared for project work. PBL has been found to be time consuming and also controlling student discipline is not easy. In chapter six, I discuss these findings and the bearing they have on the existing literature.

CHAPTER SIX: DISCUSSION OF FINDING

6.0 Introduction

My problem statement was: ***How do I improve my practice by using Project Based Learning as a teaching method at UHTTI?*** The data collected to answer the main problem was based on three research objectives. These included: to improve my practice by conducting pastry and bakery practical lessons using PBL, to discover students' learning outcomes from PBL, to find out the challenges of PBL and the way forward for UHTTI. Themes were generated from these objectives and most of the categories of data gathered are discussed as subthemes.

The discussion has been based on some theories, already given in chapter three. Similar findings got from different sources have been discussed as a block. The chapter starts with the improvement of my practice. This includes what my participants felt that I had to improve upon after conducting the two pastry projects. It also includes the students' learning outcomes from PBL and the challenges and way forward of PBL at UHTTI.

6.1 Improvement of my practice through PBL

Two pastry and bakery practical lessons were conducted using PBL. All of them were meant to enhance the teacher's improvement in the use of PBL. In the first project, students baked cakes in the shapes of 'U, H, T, T, I' while in the second project, they made cake structures representing some buildings at the institute. From the data presented, the opinion of both, the students and the participating colleagues I worked with was that as a reflective practitioner, I must reflect on the following for the betterment and improvement of my practice.

6.1.1 Teacher's time in PBL activities

All participants felt that I needed to put in more time during PBL. This is because such type of student centered learning can become chaotic without the teacher's presence. As already noted, sometimes I would be away or leave a bit early partly because I was not yet used with PBL. But also it was because I stay far away from the institute in which case transport costs seem to be much on my side. Dahlgren, Castensson, and Dahlgren (1998, p. 442) noted PBL activities are very time consuming, and demand a large effort from the teachers. And they added that teachers

may not have that time. From my observation, students sometimes had to work at night in order to complete the deadline set to have the projects exhibited. Practically, most of the night sessions were observed by my participant colleagues. I agree with (Dahlgren et al., 1998) that teachers may not have that much time to be with students for the long hours of PBL. This is particularly important in my own setting where the efforts for extra work done during practical sessions with students may not be duly rewarded. However, I cannot underestimate the importance of the teacher's presence during PBL. Outstanding among them is ensuring that safety rules are adhered to during practical sessions.

6.1.2 Scaffolded learning

(Wood, Bruner, & Ross, 1976) in B. J. Barron et al. (1998, p. 276) scaffolding as process that helps a child or a novice to solve a problem, carry out a task, or achieve a goal which would be beyond his unassisted efforts. Scaffolded learning in my own understanding means the ability to attend to students queries during PBL or during any other student centered method of teaching. Learners are able to better refine their ideas with the teachers' guidance. (Dreyfus, 1991) in (Hiim, 2011, p. 24) noted that teachers in practical performance do what the situation needs, which is expressed through showing, rather than explaining. I therefore agree that it is important for practical vocational teachers to demonstrate to students even in PBL, where the need arises. Savery and Duffy (1995, p. 13) also commented that in PBL, a facilitator models higher order thinking by asking questions which probe students' knowledge deeply. In line with this, Maudsley (1999, p. 658) noted that teachers should challenge students' assumptions, to ensure that they reflect on and justify their assertions. As already noted, the students did the reflections in their groups using the daily logs that they generated. It also follows that the teacher's questioning skills may help in challenging the students' thinking thereby helping them to achieve high order thinking.

From my point of view, the teacher needs to judge when to intervene in the students' project. Maudsley (1999, p. 658) noted that most new tutors in problem based learning are challenged by the "where necessary" (deciding when and how) part of their intervention into students' projects. As already observed in the presentation chapter, some students indicated that some teachers over dominated their groups and they seemed not to be comfortable with. In my opinion, we as

teachers need to leave enough time for students to construct their knowledge. Dolmans et al. (2005, p. 732) noted that in constructive learning, students actively construct or reconstruct their knowledge networks. In my understanding, this process could be more meaningful with less teacher input. The students ought to invite the teacher to their group as and when they realize that they need help. I think, this is a very important area for me and my participant colleagues to improve upon.

6.1.3 Classroom management PBL

A colleague told me that on one day some student baked personal muffins using the ingredients for the project. It is a common phenomenon for learners to lose direction and take advantage of the PBL activities in the classroom or laboratory area. This is practiced by naughty students who engage in personal works instead of working with the group. Usually, I left learners to discover knowledge by themselves and write notes in their logs. This was also emphasized by (Dahlgren et al., 1998, p. 438) who noted that learning in PBL is self-directed and that the students themselves take responsibility for their learning. In my opinion, whenever students take responsibility for their learning, this may come along with other learning outcomes that might not have been intended.

Such periods when I or my participant colleagues were away, some groups in the class might have become chaotic. This chaos might have disrupted the learning of others. (Doyle, 1986) in Thomas and Mergendoller (2000, p. 2) mentioned that teachers will have to assert more control and direct management of classroom transactions. This is especially important especially in PBL where students are left to take care of their learning processes. I believe that in future PBL activities, I might be better equipped to manage the classroom or laboratory activities. However, I also understand that my control of the class must be exercised in acceptable democratic ways, without being authoritarian. Stronge (2007, p. 47) noted that effective teachers create warm and cooperative classroom climates by developing rules. As you see here, (Stronge, 2007) has advocated for warm classrooms run by rules. I strongly believe that if teachers and students agree on the rules of their project before it kicks off, this may be of help to the teacher in mitigating indiscipline case. Personally, I find this pertinent to my improvement process.

6.1.4 Group dynamics

Most of my participants felt that it was important to explain group dynamics to the learners before they started working together. So that learners were better prepared to handle the tension that came with working in groups for the first time. There were misunderstandings in some groups especially concerning varying innovative opinions and some students seemed to have less negotiating power while others dominated. Hendry, Ryan, and Harris (2003, p. 609) mentioned that the tutor's role in PBL includes creating a supportive group climate, encouraging the involvement of all students and addressing group problems when they arise. This is something I find important to improve upon so that learners get the feel of PBL before actually they become involved. In my opinion, learners can be informed of what to expect in the group, how to schedule work, how to handle emergencies, among others. (Koschmann *et al.*, 1994) in Hmelo-Silver (2004, p. 245) also noted that teachers in PBL should monitor the group process so that all students are involved and encouraged to externalize their own thinking comment on each other's thinking.

6.1.5 The 'problem' in Project Based Learning

It is important to note that the word 'problem' in this context is used to mean the main question that learners undertake to achieve or solve during PBL. (Dolmans et al., 2005, p. 734) noted that;

> *'Designing effective problems is not an easy task. In some PBL curricula, students are confronted with problems that are too well-structured, too close ended and too simple, due to which students are not challenged to construct knowledge actively.'*

The two colleagues I collaborated with felt that the first project problem I gave to the students did not give them enough challenge to think creatively. I thought of the project and imposed it on the students. In my view, I thought that it was challenging enough for learners to critically think

Savery and Duffy (1995, p. 12) noted that if the students are to engage in authentic problem solving, then they must own the problem. In the second project I tried to engage students in problem identification and we agreed. I realized more learning and cohesiveness in the various groups. (Dahlgren et al., 1998, p. 438) also noted that in PBL, problem-solving is integrated with the learning process to enhance self-directed learning and problem-solving skills. As you see

here, it follows that teachers of PBL must choose the task[10] with the students. This is likely to increase student morale and ownership of the project. This being one of the cores of PBL, I find it fitting for me to consider improvement in this area.

6.1.6 Teacher preparation before PBL

The students and the participant colleagues observed that I have to prepare well before rolling down the project. This preparation may include but not limited to constructing models for students, drawing the sketches for products needed, and general rehearsal of the project. This preparation in my view should also include making budgets estimates based on the models made. The teacher must think through the project and find out which equipment might be needed and is not available at the moment, which skill might need a guest teacher to come and work with the students may be for a day? how about student meals? Will they be able to catch up with the meal times already set by the institute?

Some of these questions and more relate to lesson planning. During such periods, the teacher thinks through his lesson and prepares the teaching tools, equipment and materials. In case it is practical lesson, it would also be a good idea to do the practical first with colleagues before the learners embark on it. This would help the teacher to gain greater insight into the lesson before it actually begins. The teachers would also identify the difficult areas of the practical lesson so that if learners encounter the same problem, the teacher will be better prepared to scaffold it for the learners.

6.1.7 Teacher conduct and behavior

Aðalsteinsdóttir (2004, p. 106) noted that

> *'Empathetic teachers created harmony in their classrooms and they organized their teaching methods according to the diverse needs of each pupil. They demonstrated continuous awareness of pupils' conditions and they were attentive to their verbal and non-verbal behavior.'*

In my understanding, empathy in this sense refers to the teacher who puts himself in the position of the student. This can help him to understand the students' point of view and this will lead to harmony. This can create a feeling of togetherness especially in PBL activities which tend to

[10] Task in this case also refers to the problem in PBL

stretch for a long time. One of my participant colleagues seemed to be rude to the students especially when they became chaotic.

Personally, I find it important to empathize with my students. Maudsley (1999, p. 658) also commented that the relation-ship between the tutor and student should develop as one between colleagues. The learners should feel that they have a parent figure in their teacher so that they are more encouraged to consult him whenever the need arises. My participant colleagues and I find this useful information for our improvement because we had never known that sometimes our students perceive us as rude.

6.1.8 Communication during PBL

This came up because some participants felt that I had not done enough to inform all parties concerned about our PBL activities. Student number 16 had something to lament about;

> *'The security of the institute has continuously questioned our prolonged stay in the demonstration kitchen claiming that they were not informed. One day they arrested one of our groupmates and confiscated our improvised materials and equipment.' Student No. 16.*

> *'I was chased away from the computer lesson because I delayed in the demonstration kitchen about 10 minutes trying to stored our 'project in progress' safely. The computer teacher said she was not aware of the project.' Student No. 11.*

Actually, this was an oversight. I concentrated on informing only my participants and ignored the rest of the institute. My participants also included administrators and they were fully informed. My assumption was that the administrators would inform all other departments in the institute. This may have contradicted Bovill, Jordan, and Watters (2015, p. 15) who noted that in project-based work, more informal negotiation with a wider range of staff and students about how to work together and to discuss the content and processes of planned joint work can be extremely beneficial. In my opinion, all parties directly or indirectly affected by the project should be informed. I find this important for the improvement of my practice.

6.1.9 Conclusion of theme one discussions

In the above theme, I have discussed the subthemes related to improvement of my practice as was suggested by the participants. These have been: the teacher's time in PBL activities, scaffolded learning, classroom management in PBL, management of group dynamics, the problem in PBL, teacher preparation and conduct, and communication during PBL. The subthemes were generalized basing on the data presented under theme one in chapter five.

6.2 Students learning outcomes

(Thomas, 2000) in (B. Barron & Darling-Hammond, 2008, p. 3) mentioned that students who engage in PBL benefit from gains in factual learning that are equivalent or superior to those of students who engage in traditional forms of instruction. Duch et al. (2001, p. 6) noted that;

> *'PBL students work in small learning teams, bringing together collective skill at acquiring, communicating, and integrating information. They add that PBL addresses the following outcomes in a student who will be able to; think critically and be able to analyze and solve complex, real-world problems; work cooperatively in teams and small groups; demonstrate versatile and effective communication skills, both verbal and written; use content knowledge and intellectual skills acquired at the university or college to become continual learners.'*

The subthemes discussed below were generated from the data presented under theme two of chapter five already explained above. The discussion given below is a combination of contributions from participating colleagues and the students themselves about their learning benefits from PBL and there are also contributions from participant B.

6.2.1 Cooperative learning

During the project, learners worked in groups. This is a fundamental principle of constructivism as suggested by (Dowling, 1995, p. 2). I did not tell them how to go about their project. On the whole, students shared roles after realizing the load of work they had to do in the specified time limit. And cooperatively, we observed that they used to consult one another within the same group. Also witnessed one group consulting from another. It became clear to me that each of them was working for the good of the other.

(Land & Greene, 2000) in Grant (2002, p. 10) noted that project-based learning attempt to capitalize on the successes of cooperative or collaborative learning in some manner. From my point of view, PBL builds on cooperative learning. This may imply that a cooperative group is most likely to benefit from PBL activities. It therefore follows that teachers engage in PBL should try their best to see that all students in their groups learn cooperatively. In my understanding, there should be collaboration than competition in a group that learns cooperatively. This means they will be more prepared to share their successes and failures as a group but not individuals. Most students seemed to have achieved this.

6.2.2 Creativity and innovation

Most groups engaged in creative and innovative activities throughout the project. They were able to construct their own knowledge without any fear of making mistakes. This has also been supported by (Dreyfus, 2004). For example, the group that made the 'U' shaped cake faced challenges with making a good icing. It would break whenever they would lift it, and yet they had to lift it and put it on the cake. They discussed and failed to agree. They called me so that I could give them the correct formula of the icing. I provided them with more ingredients for icing and advised them to experiment individually in their group. This was supported by Strand, Nåden, and Slettebø (2009, p. 19) who noted that possibilities for trial and error without the risk of negative sanctions increase the will to accept challenges and to enhance development. Their creativity was very expensive because materials were severly wasted.

In our ordinary practical lessons, I would 'shout' at students whenever I realize that they are wasting ingredients. This time I used another approach and they indeed found the correct formula for the icing. Strand et al. (2009, p. 18) also noted that the ability to think critically, reflect, repeat performance and solve problems can aid students in becoming more adept and allow them to increase understanding and insight. As you see here, students were able to find a solution innovatively because they were given a second chance. However, teachers need to monitor the usage of ingredients by students because in the world of work, no one would like to hire a wasteful cook. Creativity should therefore be in line with the operating budgets.

6.2.3 Collaboration

Dolmans et al. (2005) mentioned about collaboration in a constructivist class. Dolmans et al. (2005, p. 733) commented that;

> *'Collaboration as a very vital aspect in constructivism. He adds that it is not a matter of division of tasks among learners, but involves mutual interaction and a shared understanding of a problem. Collaborative learning takes place when the following conditions are met: participants have a common goal, share responsibilities, are mutually dependent and need to reach agreement through open interaction.'*

In line with this group members agreed on the group goals. Memebers in the various groups shared responsibilities in order to finish their tasks in the set deadline. For example some people creamed the cakes while others prepared the tins. They actively interacted with each other through consultations and discussion. It was evident that each member of the group was there for the good of the other. In their bakery business, the knowledge of collaboration will be useful because they have liaise with suppliers in execution of routine tasks. In my view, collaboration made even more sense to the students because they witnessed their teachers working all together for the good of the project.

6.2.4 Negotiation skills

Like any other grouping, some groups in this project developed misunderstandings. But the good news was that these were not personal in my judgement. They were about the different methods of work. In group four that made the second 'T' shaped cake there was an arguement about how they could get the 'T' shape. This is because there was only one 'T' shaped baking tin and this group could not wait for the other to finish because they both had the same targets to meet within the same time. They finally resolved to combine two bread tins to come up with the 'T'. Whenever peoples ideas were dropped in favor of others in a group, some people did not feel good at first. (Johnson &Johnson, 1989) in Grant (2002, p. 10) commented that students who are inexperienced with working in groups may have difficulties negotiating compromise. If these methods have not been used before, then it may be necessary to teach learners how to interact within groups and manage conflict.

During the second cycle of the project, with in the group that made the registrar's building, there arose an argument. Some of it went as shown in the excerpt below. Student number 2 had this to say during their project;

> *'Chef, am telling the girls that we must make the roof hard and strong enough, I spent the whole night looking for the plywood and cutting it, but they are refusing my idea and they just want to place the icing sugar directly.' Student No. 2.*

When I called one of the girls, one of them, participant umber 6 had this to say;

> *'Chef, this guy does not listen to us because we are girls. Since we are making a cake in the shape of a building and he has worked on construction sites before, he thinks that he has to dominate the whole group.' Student No. 6.*

After some discussions with this group, they all realized that they had to respect the views of others. In addition, we as teachers made it clear to them that they had many ways of making their point clear without offending others. Later on, the boy's idea took the day after they agreed within themselves.

6.2.5 Time management and leadership skills

In every group there were about two members who always came late and missed out on the learning done in their absence. This was because most of the learning in groups was irreversible. Most groups however became more time conscious and it was evident that they were chasing time to meet a certain target, but not time chasing for them. Time management skills are vital in everyday life especially where production is involved such as in a bakery establishment.

In my view, students started to realize that the common saying of *'African time'* which is usually used to justify late coming in most African countries, was no longer valued. The group leaders especially made it a point to arrive early enough before their members. Once in awhile you would hear a group leader trying to question why some members had come late.

The leaders in student groups showed skills of organising, coordinating and communication. The group leaders made several communications calling their group members for work, making inquiries from friends, asking for clarifications from the teachers. One day, I found members of

group one in a briefing chaired by their group leader. Students demonstrated skills for both verbal and non verbal communication as was also suggested by (Duch et al., 2001, p. 6).

In my opinion, during PBL, students are exposed to various centers in their fields which require them to communicate. For example, comminucate to each other within a group, or to the teacher or the store man. During the exhibitions, students explained to the viewers what their project was all about and this also increased their confidence. On many occassions students had to organise and coordinate their own activities. Such activities included requisitioning for exhibition display tables and table cloths. These activities increased the students' leadership skills.

6.2.6 Improvisation skills

The students who had previous experience from the world of work seemed to have more autonomy at work and few tasks undermined their sense of indepedence. Such students were able to think fast and locate possible local resources even without the teacher. Duch et al. (2001, p. 6) commented that students in PBL can be able to find, evaluate and use appropriate learning resources. Students were able to improvise things such as decorations, plywoods for roofing the building, soft sticks to act as pillars in the cake buildings, crashed coconut mixed with green color to act as the grass infront of the main lecture block. Null (2004, p. 181) adds that knowledge construction occurs in the process of teaching and learning and that teachers should strive to understand students' points of view. Sometimes it was hard to tell their destination when they just start their project journey.

As you can see, the students were able to make use of indigenous knowledge to have their project completed. (Dei, 2000, p. 114) emphasized that indigenous knowledge includes cultural knowledge of local people concerning the everyday realities of living. In my opinion, by using soft sticks, plywood and crashed coconut to depict a building using a cake, the students did not only display awareness of local knowledge but also showed competence in applying it. Dei (2000, p. 121) emphasized that indigenous knowledge can be a basis for contributing to a universal knowledge system. In my view these students helped to demonstrate to others that these resources could be used. This contributed to local knowledge.

6.2.7 Learning through reflection

Students maintained a log of their daily activiites throughout the project. Later, they sat in their groups and shared their personal experiences with peers, and how it felt recording events. These personal logs were used by the students as tools for self reflection. As noted by Amulya (2004, p. 1), students should take perspective for their actions. In my view, reflection can be part of this perspective. Amulya continues to note that reflection can be done everyday or weekly. The students carried out daily reflection so that they could have an account of their activites; what they did, what they learnt and how they learnt it. As a reflective teacher, I was also interested in making my students reflective practitioner cooks. (Schon, 1983) in (Ayas & Zeniuk, 2001) also emphasized that PBL lays a foundation for reflective practitioner. My point of view is that through reflection, students of pastry and bakery can make better cooks. This is because they would be in a better position to manage their own improvement.

Maudsley (1999, p. 658) mentioned that one of the goals of PBL is to reflect and evaluate by discussing the group process and learning, and personal contributions and achievements. I think that by engaging in group discussions and latter personal reflection, each group member would evaluate his personal contribution to the group, and see how to better it the next time.

6.2.8 Integration of multiple subject areas

The two projects done by the students saw them make use of the various knowledge they had acquired in other domains of the curriculum. As already noted, they made budgets for their individual projects in groups which I later on merged into one. This activity made the students able to link knowledge gained from their study of accounts and entrepreneurship subjects to the core study of pastry and bakery. This was mentioned by Blumenfeld et al. (1991, p. 372) when he commented that PBL also promotes links among subject matter disciplines and presents an expanded rather than narrow, view of subject matter.

In addition, students had a great opportunity of integrating knowledge of hygiene and safety in a routine working situation. Our observations also focussed on the hygienic practices of our students because it is of utmost importance to the culinary industry. My participant colleagues and I noted that our students were not so much hygiene sensitive. They mainly aimed at production while paying little attention to hygiene. Some learners wanted to extend their improvisional skills to hygiene. We discouraged learners from ignoring hygiene aspects because

this could risk customers life. It is therefore clear classes conducted on the theory of constructivism involve tasks that are often multidisciplinary (Dowling, 1995, p. 2). In my understanding this means that they relate to various subject disciplines and the learner may hit two birds using one stone.

6.2.9 Conclusion of Theme two discussions

In the above theme, I have discussed the learning outcomes gained by students from PBL. They were really many but the subthemes shown represent the generalization of others. These learning outcomes gained included cooperative learning, creativity and innovation, collaboration skills, negotiation skills, time management and leadership skills, improvisation skills, learning through reflection, and integration of multiple subject matter.

6.3 The challenges of Project Based Learning

The information was generated from focus group discussions conducted with participating colleagues and the interview conducted with participant 'B'.

6.3.1 Time consumimg and tedious

The students and participating teachers both commented that the project took much time than was actually expected. Even me I felt that the project was lagging on for a long time yet I was used with the depositing of knowledge into learners as it was suggested (Freire, 1993, p. 72). Despite its disadvantages on the side of killing the learners' creativity, this mode of teaching helped me to save time. As a reflective teacher, I am trying to change from my old methods to the new method of PBL. This would help in making my learners more creative through the investigations carried out during PBL. Grant (2002, p. 10) noted that the in-depth investigations in PBL require more time, so less time may be spent on other content in the curriculum. One of the teachers had a comment to give;

> *'PBL is too tiring on the part of the teacher, from planning up to evaluation. Even if you claim that it is learner centered, students always need guidance from the teacher who must be around all the time throughout the project activities.' Participant E.*

In my opinion, this particular teacher was not only concerned about the time PBL activities took but also the degree of how tiring PBL was on the part of the teacher. This is more pronounced in

our situation at UHTTI where teachers have persistently complained about under motivation as was reported by (Kaweesi et al., 2015). As you can see, participant E, was more concerned about time teachers spend in PBL activities. However, even students took a lot of time executing PBL activities. They even encroached on time meant for other subjects. I believe that both students and teachers were therefore affected by the problem of time.

6.3.2 Wasteful in terms of materials

In my old method of teaching which concentrated more on demonstrating to the students, it was slightly easy for me to control the materials such as flour, sugar, eggs, among others that we commonly use in our pastry and bakery production. However during PBL, where I had to leave the learners alone most of the time, the situation was different. Strand et al. (2009, p. 21) noted spending one day practicing none particular skill should be considered only as a starting point for developing adequate competence. They added that further personal participation and involvement is required. This personal participation and involvement was done by members in the groups on the basis of shared roles. During such times there was severe waste of materials, yet the projects were not so well funded especially the second one. On many occasions, I had to cover up from my personal resources to push the project. In one of my interactions with teachers I collaborated with, one of them noted the following;

> *'I arrested two students smuggling out two birthday cakes and muffins when I bumped into the demonstration kitchen without them expecting me at night. It is likely that the projects ingredients were used to bake the personal cakes.' Participant C*

This probably means that much as it is a student centered method of teaching, it may be helpful for the teacher to continously do spot checks in order to control resources. However, I also noted such kind of behaviour has a bearing to discipline of students and class room management during PBL activities.

6.3.3 Adjusting from old methods to PBL

Having been through a teacher authoritative system, I was not to be an exception. The system that mentored me impacted heavily on the way I also taught. And having been through such a teacher dominated style which I considered right at that time, it would not be easy to have a quick transition from old to new. (Duch et al., 2001, p. 4) noted that we simply teach as we were taught.

On my side, this effect of teacher centeredness was enormous because I got it from primary to university.

According to Null (2004, p. 181), teachers should reject "traditional" modes of teaching and learning and, instead, embrace "new" ideas that are based on current constructivist principles. In this regard my participant colleagues and I considered dropping teaching methods such as lecture, chalk and talk, among others so that we can adopt experiential methods of teaching. These methods put the learner at the center and they include but not limited to PBL.

Changing from such kind of teaching to PBL could take long because usually people do not want to leave their old ways of doing things. Ayas and Zeniuk (2001, p. 64) also noted that enhancing the collective capacity to reflect, to (un) learn and to 'learn to learn' over time is a big challenge in PBL. Teachers who use Freire's banking theory usually do not think that they should continue to learn yet in PBL, we as teachers can also learn from our students. And we must un learn what we originally thought was right.

6.3.4 Structuring the problem in PBL

The core of PBL is the problem to be handled by the students. Duch et al. (2001, p. 6) mentioned that real world problems should be used to motivate students in PBL. In my first project, I chose the project for the students which I thought represented the real world. My colleagues however had a different view; that it was too simple to ignite creativity for the students. When students were involved in problem identification during the second project, they chose the projects I least expected them to choose. They were really interested in challenging themselves. What may mean real world to the teacher may not be the case for the students.

According to Dolmans et al. (2005, p. 734) designing effective problems is not an easy task. They add that in some PBL curricula, students are confronted with problems that are too well-structured, too close ended and too simple, due to which students are not challenged to construct knowledge actively. As you can see here, the problem handled by students in PBL should not be too well structured or too simple, and must be in position to challenge the students' thinking. From my experience, the best problem in PBL can best be reached at if learners are fully involved in the processes of deciding such as problem.

6.3.5 Classroom order and student discipline

(Doyle, 1986) in Thomas and Mergendoller (2000, p. 2) commented that the most problematic issue in PBL is the maintenance of classroom order especially for activities that allow student mobility and choice. The problem of indiscipline arose. This is something that is really challenging because in the old methods, enforcing discipline was by the teacher exerting his authority over the students which cannot be the case in PBL because it is more student centered.

Also, there is some degree of democracy and choice in constructivist classes. Consequently, there were so many movements in which students were involved in; looking for one thing or the other. I use the example of the student who was smuggling out personal cakes made from the project's resources at night. Okumus and Wong (2004, p. 25) also commented about the problem of dealing with students in PBL activities.

According to Kyriacou (2007, p. 90) careful monitoring of pupils' behavior and progress during a lesson can ensure that most misbehavior is nipped in the bud. In my opinion, we as PBL teachers need to try our best and monitor the students in their various. This can be beneficial in preventing indiscipline cases.

6.3.6 Motivation of learners

During PBL, the problem is the main motivator of students. It therefore becomes hard for the teacher to use any reinforcement mechanisms of motivation because usually students might ignore it and concentrtate on their work. From my experience, it would be a good idea to motivate learners in PBL by continous encouragement from the teacher, and by showing interest in whatever milestone is reached by the students in the project. Knight and Yorke (2003, p. 10) comments that the teacher can encourage learning by giving people new tools with which to work. During the first cycle of the project, we bought new baking tins for the learners and somehow they become more excited.

According to Strand et al. (2009, p. 18) humor and creativity increase the motivation for learning, strengthen relationships and improve memorizing. In my opinion, PBL teachers may consider using their humor during projects. This may include but not limited to making constructive academic jokes, among others.

6.3.7 Evaluation of students is not easy

During the whole project there was continous evaluation. Participant colleagues, myself and the learners were all engaged in the evaluation process. It was a big challenge because in the old method I was using, I managed the evalution process alone and it was only at the end. And as noted by Duch et al. (2001, p. 4), my assessment techniques focused on recalling of information and facts. Unfortunately, the case was to be different in PBL. Burbank (2003, p. 31) emphasizes that when teaching is reflective, judgements become skilled and thoughtful. In my understanding, we had had to judge the whole process of PBL that learners had undergone in more reflective, thoughtful and skillful way. It was a not easy.

However, as already noted we considered making the evaluation process democratic, just like all the other stages of the project. The students evaluated themselves and their peers, we evaluated them and also considered the comments from the audience during the exhibition. The we generated an average of all the evaluations done. The results got agreed with (B. Barron & Darling-Hammond, 2008, p. 5) who observed that students who may struggle in traditional instructional settings have often been found to excel when they have the opportunity to work in a PBL context.

6.3.8 Large student numbers at UHTTI

Teachers also suggested that the large student numbers at UHTTI may not favor PBL at the moment. They argued that compared to the current resources at the institute, it may be difficult to achieve the student involvement needed in practical lessons. One of my participant colleagues noted that;

> *'With the ever increasing number of student at this institute, available resources may not support PBL activities. Our students worked in groups of fives, but I thought to myself that probably they need to have worked in groups of threes. Of course this could have come with extra work on our part.' Participant D.*

In my understanding the large numbers of students hinder their active participation in the process of knowledge construction already talked about. This may imply that some students may end up just following the group without taking part. In a much small group, activities and roles for each member will be definite and it will be that each one must play their part.

6.3.9 Conclusion of challenges facing PBL at UHTTI

In the above section, the challenges of PBL at UHTTI have been explained as were suggested by several participants. These include; the method being time consuming, PBL is wasteful in terms of material, adjusting to it from old methods, difficulty in structuring the tasks of PBL, classroom order and management, motivation of students, evaluation of students and the problem of having large classes.

6.4 The way forward of PBL at UHTTI

Below are some of the suggestions about how UHTTI should treat PBL if it is to be successfully implemented and embraced by everyone. These suggestions were mainly generated from interview with participant B, and from focus groups of my participating colleagues.

6.4.1 Embrace PBL in all practical subjects

PBL was basically introduced to improve my practice as a pastry and bakery teacher. However, my three participant teachers also showed interest of improving their individual practices. Pastry and bakery is not the only practical subject at UHTTI. Others are food and beverages service, food production, house keeping, computer studies, among others. The view of the respondents was that all practical subjects at UHTTI should be taught in the style of PBL so that it doesnot seem like it is a pastry and bakery method of teaching only. In my view, this is good and can help to look at the whole idea in totality

6.4 2 Sale of Project products

As he respondend to how to motivate teachers involved in PBL, participant 'B' mentioned that;

> *'Recently I bought one of their projects, if students sell more projects, this can be a good starting point to facilitate not only the teacher but also more projects.' Participant B.*

The idea is that students' projects should be attractive so that the viewers can be interested to buy them. During the exhibition, participant 'B' bought the cake that was shaped in the form of the building where he sits and this was of interest to him. In his view, he thought that if more people could buy the products, this can be a financial relief on the side of the institute because this money can be used to facilitate the teacher's extra time and also to buy ingredients for the next projects. In my view, this requires that we emphasize to our students to integrate the knowledge

they get from studying sales and marketing in to pastry and bakery. My previous interactions with Participant ‘A’in the ordinary practical lessons before introduction of PBL, she has always discouraged the idea of students eating their products and suggesting that they should be sold at the the hotel so that we could generate out some money.

6.4.3 Teachers need training about PBL

If all practical subjects as mentioned above should be taught by PBL, then probably, all teachers need extra in-service training about how to implement PBL. In my view the training should cover specific areas customized for UHTTI. Such areas can include but not limited to the historic challenges of PBL, benefits of PBL, the teachers’ role in PBL, characterics of PBL.

6.4.4 Projects done should reflect UHTTI

Participant ‘B’ was of the view that all the projects to be conducted should reflect the coorpearte identity of UHTTI. Such things could include the logo, the buildings, the vehicles, amomg others.

6.5 Summary of chapter six

In this chapter, I have discussed the findings I presented in chapter five. The discussion was mainly descriptive and narrative. It was done majorly with the already cited literature in chapter three. The themes indicated were wholly or partially generated from the objectives. Most of the existing literature seem to suggest that students gain creative and innovative skills from PBL, and other things like negotiation skills. Discipline of students is a big problem in PBL, and despite the fact that it is a learner centered approach to teaching, it would be a good idea for the teacher’s presence during PBL to be felt in regards to class room control and management. The wayforward includes embracing PBL in all practical lessons at UHTTI, increasing training of instructors and more funding for practical subjects.

CHAPTER SEVEN: EVALUATION, REFLECTIONS & CONCLUDING REMARKS

7.0 Introduction

In this chapter, I will give my evaluation and reflection of the action research process and the activities of the PBL. Maudsley (1999, p. 658) one of the goals of PBL is to Reflect and evaluate. He adds that this can be done by discussing the group process and learning, and personal contributions and achievements. I also give my recommendations and conclusions majorly based on my finding.

7.1 Evaluation of the process

To teach using PBL was not a common thing at UHTTI. Therefore, an evaluation is important for checks and balances. And for laying a foundation for future projects of this nature.

Due to procurement rules, the students could not be allowed to go and purchase ingredients directly from the market using the institute's money. I believe that this made them to miss out some learning experiences especially relating to knowing the market as a professional cook. In future projects to be conducted, I realize the need to collaborate with the purchasing department so that learners do not miss out on planned outcomes.

The project was implemented successfully. However, some equipment particularly related to pastry and bakery were severely missing. This could have probably caused some delays during project implementation. Some learners were able to improvise equipment and successfully used them in their project. This ended up becoming a learning achievement for the learners.

Kyriacou (2007, p. 129) noted that one interesting development in schools has been an increase in the sharing of ideas and data about one's own teaching with colleagues, as part of a collaborative scheme in which teachers try to explore aspects of their own practice. It was so energizing to collaborate with colleagues because we shared ideas and assisted each other in all possible ways. In my situation where most of my colleagues were also my former teachers when I attended UHTTI, some of them felt that they had no reason of collaborating with me. Locke et al. (2013, p. 114) noted that young teachers may find it difficult to interest more senior colleagues to take part in their project.

The Administration and staff at UHTTI was so responsive to our activities. They provided the research site and all other resources to facilitate the project. At the exhibitions, people honored our invitations and students were excited about the audience given to their work. They became more confident when they explained to audience what they did and how they did it. I feel that our invitations should have included people from the local community and possibly, those in the field of pastry and bakery.

PBL is basically one of the student centered approaches to teaching. Students work in small groups while the teacher becomes more of a facilitator. Students are responsible for their learning through collaboration, cooperative learning, discussions, among others. Most of the learning is self-directed. For more learning to be achieved however, I think that the student groups for our case can be made much small. May be a group of three students would be adequate enough. This can also help to reduce student indiscipline cases because each will be fully involved with tasks of the project.

Despite the fact that we chose to move away from the old methods of teaching, PBL is not sufficient enough on its own. In my view, PBL should be combined with some teacher centered approaches in order for it to be fully beneficial to the students. For example, if a problem is identified, the teacher could give an introductory lecture to the problem before the students actually embark on their group research about the problem. Such a lecture can help to provide a general overview of the problem. This can be very important in our settings were some of the learning facilities are limited.

The teacher needs to put a mechanism of roll call to monitor students' presence in group activities and to ensure that students achieve from their learning. There are students who tend to take advantage of the whole process of group work by moving under the shoulders of the more experienced students. They therefore tend to absent themselves. If the given task is not so challenging, even the experienced learners feel bored and may miss consecutive lessons where he or she expects less achievements. In the same vein, it is vital for the teacher to ensure that in every PBL activity, roles and responsibilities of group members are clearly defined. Learners achieve more when they are left to work alone. However, there are those that tend to dominate the group activity while others remain inactive. PBL teachers need to check on this.

At the start of PBL activities, it would be a good idea to give learners your expectations as their tecaher and they also give you their expectations as students. This can help because at the end of the project there will be a parameter for measuring output. Stronge (2007, p. 47) noted that effective teachers create warm and cooperative classroom climates by developing rules. During such meeting, the rules for that particular project can be agreed upon by both the students and the teachers. This strategy can help a great deal in controling discipline because students will be obliged to follow the rules they set. In case of any indiscipline the teacher will use the same rules to take corrective measures.

In PBL, it is very possible for the teacher to consider the group and ignore learners' individual differences. This is because of the emphasis given to group learning and yet as seen in the theory chapter, some students tend to dominate over the others. This implies that teachers may not also consider the individual needs of learners. If they do, they are most likely to be tempted to refer such cases to other students who seem to dominate the groups due to their previous learning experiences.

It is important for the teacher to always question the students why they do what they do. This helps the students to gain more insight into what they are doing and reflect on all the possible available outcomes. Questioning help to challenge students in PBL so that they become more innovative in solving the problem. (Good and Brophy, 2003) in Kyriacou (1997, p. 12) emphasized the need for teachers to make good use of questioning techniques, arguing that this helps to enrich the teacher's knowledge and also challenge the student to do more self-discovery.

7.2 Reflections

The fact that I employed action research methodology meant that the process the process of my improvement has to continue, even after this thesis. We have seen that action research is cyclic, and in this study two cycles were conducted but the cycle continues. These reflections will help not to repeat any mistakes done in the previous cycles. (Parker, 1997) in Norton (2009, p. 23) mentions that action research enables us to reflect on our teaching in a systematic way. Mertler (2008, p. 21) also added that the truly successful teachers are those who constantly and systematically reflect on their actions and the consequences of those actions.

Also, Lappen (2011, p. 62) mentioned that the importance of reflecting on what you are doing – reflected practical training – as part of the learning process, has been emphasized by many investigators. Since I chose to improve on my practice as a pastry and bakery vocational teacher, reflection of my actions was key in the process as already mentioned. In this section, I bring out the key reflections which I found to be of particular interest to me. In addition (Parsons &Brown, 2002) in Mertler (2008, p. 21) mentioned that when teachers are reflective and critical of their own practice, they use the information they collect and phenomena they observe as a means of facilitating informed , practical decision making.

As teachers, it is important for us to consult one another in our daily routines. Many times we may not be sure of some aspects within our areas but we fail to consult colleagues who are good at it because of fear to lose 'respect' and may be the job. In our cultural setting back home, one can easily become a laughing stalk if they keep on consulting others. It is even worse if you consult you juniors. Kyriacou (2007, p. 121) has noted that working with other teachers as part of a learning community is increasingly recognized as being a powerful and effective way of enabling teachers to reflect upon and develop their classroom practice. This may imply that without collaboration there may be little or no teacher reflection, and thus no improvement in practice.

Sometimes students may even need external experts in the field to come and concretize what has already been learnt. However, because industry people are usually under-educated as compared to those in college or university setting, most vocational teachers find it demeaning for them to seek help from the less educated people in the world. Mcniff and Whitehead (2010, p. 63) emphasized that your practice is about how you are with others, and is carried out in company with others. In my understanding the definition of 'others' can depend on the teacher's interpretation to decide who is included or excluded. I strongly believe that would be beneficial not only for our students but also to us if people in the industry are included.

If students are given the chance to discover and create, they can even become more creative than the teacher. I witnessed this from the projects I conducted with them and the products they finally exhibited. This type of learning becomes more meaningful if students are divided up in groups.

Hmelo-Silver (2004, p. 236) emphasized that in PBL, students work in small collaborative groups and learn what they need to know in order to solve a problem. In such groups, they construct knowledge from brainstorming activities and discussions. Dreyfus (2004, p. 178) noted that students must decide for themselves in each situation what plan or perspective to adopt without being sure that it will turn out to be appropriate. They therefore tried out all possible ways until they found the most appropriate. It is therefore important to give learners a chance for trial and error without them expecting any punishments if they did a mistake. This increases their confidence, autonomy and innovation.

Many learners work in groups for the first time. It is a good practice for the teacher to brief learners about how groups operate and the likely challenges such that they are not taken by surprise. Such kind of briefing should be done before the project, during the project and after the project. Before the project it helps to prepare the students for the unknown whilst during the project it can help to build a spirit of cohesiveness. After the project, briefing is important for members to reconcile if any misunderstandings had occurred, to clear the exhibition room, among others.

When I reflect on the point of communication raised by the students, I realize that it is important for the teachers of PBL to ensure that they communicate to all parties concerned before, during and after the PBL activities. Bovill et al. (2015, p. 15) noted that in project-based work, more informal negotiation with a wider range of staff and students about how to work together and to discuss the content and processes of planned work can be extremely beneficial. This is because by the nature of activities in PBL, they tend to stretch in to time for other activities managed by other people. And if such people were not officially informed, this can lead to problems arising. This was the case with the security personnel and also the teacher for computer who claimed that learners had gone to here lesson late.

For PBL to be more successful, the research facilities at the school need to be available. Such things may include but not limited to a well-equipped library, internet services, among others. Majority of the students got disappointed because they could not do adequate research about their tasks in PBL before they actually executed them. Zeni (1998, p. 13) who asserted that academic

institutions should support reflective teaching. In our case this reflective teaching involved innovations such as using action research and PBL for the first time at UHTTI.

It is a good idea to generate the problem of PBL with the students because learners tend to own it more and they become interested in the learning process. If it is teacher generated, learners tend to look at it as a teacher led project. Considering the first project in which I chose the task for the learners, I realized from the comments of my participant colleagues that it was not complex enough to motivate learners. Duch et al. (2001, p. 6) commented that in the problem-based approach, complex, real-world problems are used to motivate students. In my view, if they are involved in coming up with the problem, they could opt for one that easily motivates them to do. I also realized that during second project students owned the project and some of them even went an extra mile.

As teachers we should be aware of the ethical considerations when we conduct research on our learners. This can help us not to take advantage of our learners because of the power we enjoy over them. Actually some learners may not wish to participate in our research projects and the only way of knowing this is by asking them. In our societies, most learners tend to fear their teachers so much to the extent that it is almost impossible for them to decline participation. Norton (2009, p. 181) warned teachers who conduct research on their students to be careful of undue influence or coercion of their students.

It is important for teachers to allow learners some time to evaluate them. Students feel trusted whenever they are involved in the process of evaluation. This is because in our traditional schooling system, evaluation is known to be a sole role of the teacher. Whenever learners evalaute their teachers, they become more confident of themselves and their trust in the teacher seems to increase. If learners are not given this chance as is the case in the traditional way of teaching, teachers have little or no information about whether the learners needs were met or not. As a reflective teacher, learners evaluation of my practice helps me to continuosly improve on it.

7.3 Recommendations

7.3.1 The recommendations to the institute (UHTTI)

Establishment of Research and Pedagogy (R&P) department at the institute is highly recommended to monitor teachers' professional growth and quality of teaching. Such a department would roll out several programs aimed at improving the teacher as a person. The students would also benefit from the teachers' continuous improvement.

There should be deliberate efforts from the institute's administration to encourage all teachers of to consider improving their various practices. This can be done through action research. Bell and Aldridge (2014, p. 2) noted that the use of action research has proved to be an attractive option for teacher development because it can occur over a period of time, within a school context and can be driven by the teachers themselves. This improvement may first consider teaching using student centered methods. This could make learners to own their learning process and be responsible for it. One of such methods includes but not limited to Project Based Learning.

The institute should increase funding for the practical subjects. This funding can be used partly to facilitate the teachers who work extra hours during supervision of students' projects, to buy extra pastry and bakery equipment so that students may reduce on the improvisation to produce more attractive products and may be to construct a spacious pastry and bakery kitchen where more experimentation and project based learning can occur without any interference. Such funding can be sourced from collaborating with similar willing partners around the world.

UHTTI should for lobby for partnerships and collaborations to encourage teacher development. This is enshrined within the mandate of the institute; to consult and cooperate with anybody or organization in or outside Uganda having similar functions. Bell and Aldridge (2014, p. 2) argued that accessing meaningful professional development is often difficult. Through the department of R&P, such partnerships can help to increase the research facilities at the institute and may cause teacher development from within the institute.

According to Kyriacou (2007, p. 17) schools should create a positive climate which facilitates staff developing their teaching skills. The policy of lesson observations can be adopted by the institute through the department of R&P. In this arrangement, teachers would observe the lessons of other teacher in a bid to correct them or learn from them. According to Kyriacou (2007, p. 2) increasing numbers of experienced teachers now spend some time observing colleagues as part of their own or their colleagues' program of professional development. Such observation can be immensely valuable; seeing how another teacher performs can stimulate your own ideas about your teaching.

In order to solve the issue of double quality vocational teachers, the UHTTI should consider starting hospitality educational programs aimed at training teachers of tourism and hotel studies. This was also recommended by (Kaweesi., 2016). Such programs should be in-service, targeting people who have proof of being in the industry for at least three years. The pedagogical bar course would take one year and students would undergo a vocational teaching practice of one semester. This would ensure continued supply of double quality vocational teachers in the field of hotel and tourism. As a pilot study, we would begin with the diploma in pastry and bakery education.

Also, the teachers at UHTTI should continuously be engaged in hospitality research so that they keep afloat with the recent innovations in their areas of specialization. Such kind of research would include but not limited to a compulsory annual three months' exposure in the world of work for every instructor teaching a practical subject. (Zhang, 2009, p. 77) noted that teachers should be sent to relevant production units for short-term and medium-term practice. Those lacking in practical experiences and skills should be regularly sent to corresponding production department for specialized practice and skill practice. In my understanding this can help to increase their effectiveness in implementation of practical teaching, and teaching of content relevant to the industry. The R&P department can help to monitor this.

In addition, the industry experts such as the pastry chefs in practice should continuously be invited to the institute as guest lecturers and they talk to the students and also do some few practical lessons. This can help to increase the confidence of our students because they will

confirm that the industry is interested in what they are studying. (Zhang, 2009, p. 77) emphasized that schools can invite these authoritative persons as guest professors, and invite them to give more lectures to teachers and students. In such way, their industrial experiences and advantages can be brought to fully enrich our teaching.

7.3.2 Recommendations to colleagues

I recommend that colleagues should become reflective practitioners for improvement of their practices and benefit of the students. Experience alone makes us to become static Colleagues should continue to experiment with other students centered methods of learning and teaching. Gradually, they should leave the old styles of which seem to put the learner on the periphery of the teaching and learning process. Mitchell et al. (2006, p. 23)The new VET practitioner lets go of the old certainties, like pre-set curriculum and didactic instruction, and develops attributes, attitudes, ideas and techniques that meet the needs of clients. The new practitioner looks outwards at market needs and seeks to meet those needs. This will ensure that there is a collective effort to send out students who will be relevant in the job market where they are sent.

Consider learners' individual differences during learning by Projects. The most experienced students should be encouraged to concretize knowledge to those who are less experienced. The PBL teacher should make every effort to ensure that much as PBL occurs in small groups, the individual differences of learners should be considered in order for each of them to achieve individual goals in addition to group goals.

7.3.3 Recommendations to myself

As a person who has gone through the traditional system of teaching and also got experienced student centered teaching, I feel that we need more research in the area of experiential methods of teaching. As for PBL, I hope to continue doing further research in this area in order to investigate some unanswered questions that arose during the process of my study. Such question included;

- What is the best way to manage discipline during PBL?
- What are the best ways of motivating learners during PBL and how can they be improve?
- What criteria of assessment is best suited for PBL? How should assessors for PBL be selected?

Such questions and may be more remain unclear and can be pursued at higher levels such as doctoral studies. These questions can also be taken up by other researcher who will be interested in PBL activities especially in the area of pastry and bakery.

7.4 Conclusion

The action research project was conducted appropriately. The two projects carried out helped the teacher to improve his practice by reflecting on the areas that needed improvement, as they were identified by his colleagues and the students. Most interesting among the areas of my improvement included classroom control and management, scaffolding learning, organization of resources especially materials, communication, among others.

My set research questions were answered and discussed. These questions included the following;

- How can conducting a pastry and bakery practical by using PBL help to improve my practice as a vocational teacher?
- What learning outcomes do students gain from PBL?
- What are the challenges of PBL and what is the way forward for UHTTI?

Students need teacher help before, during and after the pastry and bakery practical lesson. It is true that they work in groups but it is also true that students never cease to need help from their teachers. This is what I have describe as scaffolded learning. In addition, the improvement of practice by using PBL will continue to involve communicating to all concerned, organizing all necessary resources, putting more time in PBL activities, managing classroom discipline, communicating group dynamics and making thorough preparations before the project, including rehearsing the project.

Students gain several learning outcomes from Project Based Learning. it has been suggested that they gain more negotiating power in addition to leadership and communication skills. Students also confirmed acquisition of patience skills through activities of PBL. Other learning outcomes gained include time management skills, skills of cooperative learning and collaboration, creativity and innovation, improvisation skills, skills of reflection. Also, through PBL, students are better placed to link the different knowledge gained from other curriculum areas by using one project.

The challenges of PBL were discovered. These included PBL being time consuming and wasteful in terms of materials. Teachers confirmed difficulty in transiting from their old modes of teaching to PBL. Deciding on the task to be done in PBL was found to be difficult and it has been suggested that students ought to be included in this process. In addition, maintaining classroom order and motivating learners in PBL was found to be a great challenge. Evaluation and assessment of learners in PBL was so challenging on the part of the teachers.

7.5 Summary of chapter seven

In this chapter I have evaluated the process of action research and PBL activities in general.The reflections have been. Some of them are from my personal point of view while many are from participant colleagues and the students. Most of the reflections depict on nthe teacher's professional practice. I have also given recommendations to the school (UHTTI), to my colleagues and also to myself.

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APPENDICES

Appendix 1: The map of Uganda showing districts showing the Research area

Appendix 2: Introductory letter from Kyambogo University

KYAMBOGO UNIVERSITY
P. O. Box 1 Kyambogo University Tel: 0414 287117
Faculty of Vocational of Studies
Department of Art and Industrial Design
Masters in Vocational Pedagogy

25th February, 2016

To whom it may concern

RE: INTRODUCTION OF KAWEESI EMMANUEL

This comes to introduce to you **KAWEESI Emmanuel** a student of Masters in Vocational Pedagogy (MVP) Programme at Kyambogo University under the Quota Programme with Oslo and Akershus University. This student bears registration no. **S239217** and in his final year. As a requirement for graduation, this student is expected to carry out Action Research whose results make up his master's thesis.

Kyambogo University is running two Vocational Pedagogy programmes: the Post-Graduate Diploma in Vocational Pedagogy (PGDVP), and the Masters in Vocational Pedagogy (MVP). While the PGDVP programme is mainly concerned with production of teachers and trainers or instructors in vocational disciplines or subjects in the public and private sector, MVP is not only concerned with production of trainers of trainers (TOTs) at higher levels but also production of personnel at policy level as well as researchers in VET. The purpose of MVP programme is to strengthen the link between learning and work, and experience-based learning in work places, research projects and the masters' research constitute a big proportion of the MVP programme.

The program has produced three cohorts of with 63 graduates. As part of its achievements the themes identified in the Masters theses of the first cohort graduates include VET country cases, VET and work life, VET and persons with special needs, VET and the labour market, VET and gender, and vocational pedagogy and indigenous knowledge.

Any support rendered to him is highly appreciated.

Looking forward to your usual support.

Yours Sincerely,

KYAMBOGO UNIVERSITY
A/C No. .....
Date. .....
MASTERS IN VOCATIONAL PEDAGOGY

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

Appendix 3: Acceptance letter from UHTTI

The Hotel and Tourism Training Institute

Skills Excel

Date: **1st March, 2016**

ATTN: Mr. Chris Sserwaniko
Research Coordinator

Kyambogo University

MVP Program

KAMPALA

RE: **MR. KAWEESI EMMANUEL**

I hereby confirm that Mr. Kaweesi Emmanuel (s239217) who is a staff of HTTI and also a student at Oslo and Akershus University College of Applied Sciences pursuing a Master of Vocational Pedagogy (MVP), has been accepted to carry out his action research activities at The Hotel and Tourism Training Institute.

His research topic is ***'Project Based Learning as a Teaching Method at The Hotel and Tourism Training Institute'***

Yours Faithfully,

THE HOTEL AND TOURISM TRAINING INSTITUTE

PRINCIPAL
2016
THE HOTEL & TOURISM TRAINING INST.

Namutosi Miriam Amori (Mrs)
PRINCIPAL

"The Centre of Excellence in Hands-on Hospitality Training"
P.O. Box 444, Jinja-Uganda. Tel: 256-43-121954. Fax: 256-43-121515
Email: htticrested@gmail.com, Website: www.htti.weebly.com

Appendix 4: Informed Consent form

Consent form for participation in action research at UHTTI

1. I accept to take part in this action research project by Mr. Kaweesi Emmanuel and I know that it is about improving his practice by using Project Based Learning to teach pastry and bakery.
2. I have been briefed that my participation is voluntary in which case I will not be paid.
3. I know that I can withdraw my participation at any time without consultation with the main researcher.
4. I have been told that participation will involve being interviewed and that's alright with me.
5. I have accepted the researcher to take my photos and where necessary use them in his writings.
6. Am aware that my names will remain anonymous and the information I give will be confidential and for academic purposes only.
7. The researcher has explained the objectives. These include conducting pastry and bakery projects, getting learning outcomes of students, finding out the challenges of PBL and the way forward for UHTTI
8. I am aware of the study's significance and scope to me and I have no problem.
9. I have been told to request for this form after filling it, in case I need another one.

Signature of participant……

Date …….

Signature of researcher…….

Date …….

Appendix 5: Interview guide for the administrators

1. What is your view about teaching and learning of practical subjects at UHTTI?
2. Are you aware of the projects that were done by the pastry bakery class?
3. Comment about the possible learning outcomes of learners from PBL activities
4. In which areas do you think teachers of UHTTI need to improve
5. Do you think teachers engaged in PBL need extra financial facilitation?
6. What measures shall you make to ensure that teachers in PBL get some extra remuneration?
7. Do you think PBL has got some challenges?
8. What challenges have you noted with teaching and learning by PBL?
9. Do you think that teaching by project method is sustainable at UHTTI?
10. Suggest a way forward for UHTTI amidst all the challenges

Appendix 6: Focus group discussion guide

1. Did you like the projects we did?
2. What was interesting about learning by project based learning?
3. What learning outcomes or benefits did you get from PBL?
4. Do you think that your teacher did a good job while implementing PBL?
5. In your view, which areas would you like the teacher to improve?
6. Mention some of the challenges encountered with PBL
7. Do you think the institute administration can do something to make PBL more meaningful to u?

Appendix 7: Observation guide

The participant colleagues set out to observe the following key events and scenarios

1. Cooperative learning in the student groups
2. Degree of hygiene in the kitchen during PBL
3. Dialogue during misunderstandings in students' groups
4. Students sense of autonomy and initiative
5. Use of ingredients by students
6. Students level of creativity and innovation
7. Students' level of organization and coordination
8. Sense of responsibility and attention paid to details
9. Teacher's method of scaffolding learning
10. Teacher's presence during PBL activities
11. Teachers' ability to control indiscipline during PBL
12. Teachers control of time during PBL
13. Teacher's level of preparation for PBL
14. Level of teacher interference into pupils thinking processes
15. Teacher's sense of humor