TECHNICAL EDUCATION AND TRAINING IN HIGHER INSTITUTIONS OF LEARNING AND GRADUATE EMPLOYMENT: A CASE OF KYAMBOGO UNIVERSITY

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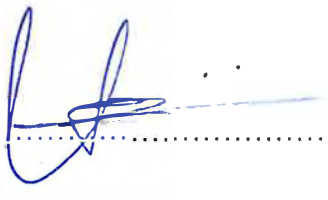
DECEMBER, 2012

Declaration

I, **James Collins Okware**, hereby affirm that this research report is my own work; was a result of my own original thinking, and to the best of my knowledge, has not been presented to any university or institution of higher learning for a higher degree award.

Signature.....  .....

Date.....15. 01. 2013.....

Candidate

Approval

We, the undersigned, were academic supervisors of the candidate in his thesis entitled "**Technical Training in Higher Institutions of Learning and Graduate Employment: A case Study of Kyambogo University.**"

We hereby affirm that the research project was developed and conducted by the candidate under our guidance and direction; and is now ready for submission to Graduate School, Kyambogo University.

Dr. Peter W. Obanda

..... Date. 17th January 2013

Principal Supervisor

Dr. Benson Okello

..... Date. 17/01/2013

Co-Supervisor/ Mentor

Dedication

To little Brenda my loving daughter for being patient with my parental neglect during the two year study period; and

To all Vocational Pedagogists; future and present, trainers and learners alike, who dare to dream and have the courage to challenge the status quo and do things differently; firmly believing that "change is the only constant in life.

Acknowledgement

To God, Almighty, the provider of all wisdom and strength. And in line with the group/ team work spirit of Vocational Pedagogy (VP), this thesis report cannot have been my individual effort. Accordingly, my gratitude goes to all colleagues of Master of Vocational Pedagogy, Cohort II. This piece of work would not have been, if it wasn't for your informed input and positive criticism. Thank you all in your respective capacities.

I am grateful to all stakeholders in the MVP programme - first, the North-South Cooperation partners: the managements of Akershus University College in Norway, Kyambogo University in Uganda and Upper Nile University in South Sudan and the administrators of the Norwegian Masters Programme (NOMA). Especially worth singling out are Emeritus Prof. Dr. Liv Mjelde, Dr. Richard Daly for their fidelity to the MVP Programme; Dr. Ronny Sannerud Borge Scaland and Esther Nyback. I am especially grateful to Prof. Dr. Lennart Nilsson for introducing me the new subjects of vocational didactics, praxis and learning by doing.

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Abbreviations and Acronyms

AfDB	African Development Bank
BAI	Book Aid International
BTVET	Business, Technical, Vocational Education and Training
CEDEFOP	European Center for the Development of Vocational Training
CHOGM	Common Wealth Heads of Governments Meeting
COMEDAF	Meeting of the Conference of Ministers of Education of the African Union
DIT	Directorate of Industrial Training
ENID (GWPE):	Education for National Integration and Development (Government White Paper on Education
HESA	Higher Education South Africa
ICTs	Information and Communication Technologies
ILO	International Labour Organization
KE (KBE)	Knowledge Economy (Knowledge Based Economy)
KYU	Kyambogo University
MDG 1	Millennium Development Goal, 1
MoGLSD	Ministry of Gender, Labour and Social Development
NCHE	National Council for Higher Education
NGO	Non Governmental Organization
NMC	National Manpower Council (of Singapore)
NOMA	Norwegian Masters Programme
OECD	Organization for Economic Cooperation and Development
PPPs	Public Private Partnerships

SAQA	South African Qualifications Authority
SDA	Skills Development Authority (Proposed)
STEM	Science, Technology, Engineering and Mathematics
TESDA	Technical Education Skills Development Authority (of the Philippines)
TVET	Technical, Vocational Education and Training
UGX	Uganda Shillings
UNESCO	United Nations Educational, Scientific and Cultural organization
UNEVOC	United Nations Center for Technical and Vocational Education and Training
UPK	Uganda Polytechnic Kyambogo (Former)
WWW	World Wide Web
YUF	Uganda Youth Forum

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Abstract

Unemployment among university graduates is a serious concern for communities and government in Uganda. I undertook this study to understand the link between technical training offered at Kyambogo University and the employment prospects of its graduates. Specific objectives of the study were to establish the state of the training tools, equipment and infrastructure; to ascertain how technical training was conducted; to examine the impact of technical training offered in Kyambogo University on the employment prospects of graduates in the job market; and to determine the skills which are on high demand in the current job market. The study was qualitative in approach; it was descriptive and triangulated the interview, focus group discussion (FGD) and documentary analysis methods for data collection. Major findings were: the training tools, equipment and physical infrastructure in Kyambogo University are outdated, insufficient and are irrelevant: and fall short of the requirements for delivering productive technical training to meet the unique competency requirements of the current job market. There was no specific policy to guide the periodic replacement and up-to-dateness of training tools, equipment and infrastructure. Training in Kyambogo University was limited to almost only teaching, it is theoretical and exam oriented. Rapid changes in science and technology, negative attitude, lack of individual creativity or enterprise, population explosion, corruption and nepotism have greatly impacted the employment prospects of Kyambogo University graduates. Employers regarded soft skills of graduates more than the hard (technical) skills when recruiting graduates. The 'hard skills' on high demand are accounting, banking and financial management; hotel & tourism, construction engineering, telecom engineering, mechanical engineering, oil & gas engineering, renewable and alternative and renewable energy engineering, agriculture, agribusiness, agro-processing and value addition, information technology, research, consultancy, professional sports and politics. Based on the study findings, I recommend that the library be accorded due recognition as the nucleus of academic activity in the university and be resourced accordingly; that policies be put in place to keep all technical training equipment and infrastructure current and up-to-date; that technical training at Kyambogo be made more practical (vocational) than is the case at present; that the curricula be developed and training be conducted in cooperation with local industry and the world of work and that Kyambogo University urgently integrates research and publishing as core aspects of its academic activity.

CHAPTER ONE

INTRODUCTION

1.1 Overview

Mankind is now said to be living in the era of the knowledge economy, KE (WBG, 2004). Korhonen (2010) refers to it as the knowledge-based economy (KBE); and to we, its current citizens as the knowledge society (UNESCO, 2005; OECD, 2004 & 1996). Lundvall (2001, in Kuhn, Tomassini & Simmons, 2007) use the phrase 'learning economy' because one must engage in life-long learning to keep up-to-date. Lakes (2006; in Mjelde & Daly, 2006), simply called it 'the new economy.' Lassnigg (2008) observes that "innovation, driven by technological change, is a core process of the current knowledge economy and society; and the primary source for its economic success. Education and training for the knowledge-based labour market is done through learning by doing (Mjelde, 2008) – i.e. learning based on the actual application of skills during work; away from what a graduate is only knowledgeable about and the paper qualifications that go with it; to what they can do practically in the world of work. This is what Gonon et al (2008) meant when they said that modern societies are labeled as 'labour societies'. Hager (2008) claims that this is the basis of vocational pedagogy (VP) and its philosophies of learning by doing; learning by practice; work based learning or learning for work.

Education and training for work (employment) are now are deeply entrenched on the culture of technology, according to (Sotoudeh, 2009). So it may not be possible to have technical, vocational education and training (TVET) without sufficient levels of

technology. Nilsson (2010) theorized that tools and equipment are the key factors of vocational education and training, when he priotizes tools and technology in his '5T' concept. The technological aspect of the knowledge economy has rendered competition among nations and individuals ever more intense. For this reason, there is need to re-invent, upscale, deploy and teach new science, technology, engineering (STE) in the major national training institutions in Uganda in order to empower citizens with the knowledge, skills, innovativeness, positive attitudes, ethics and integrity required to create jobs, conduct businesses, sustainably conquer the environment and contribute to individual, community, national and even global development agendas.

And so as one of the major institutions of higher learning in Uganda with the mandate to train engineers, technicians and technical teachers; Kyambogo University is important for this study because it is at the forefront of formal impartation of knowledge and skilling in order to develop and deploy the requisite technical, scientific, engineering and ethical human resources to ease Uganda's graduate unemployment challenge and contribute economic productivity. But for yet unknown reason(s), today's university graduates; Kyambogo or otherwise, and including even those with technical backgrounds just don't seem to be able to find jobs; or better still create their own. It is for this reason that I examine the nature of the technical training offered at Kyambogo University and the impact it is having on the employability of graduates.

1.2.0 Background to the Study Case

Kyambogo University came into being by an Act of parliament in July 2003, 11 years after the 1992 Education for National Integration and Development (ENID); commonly known as the Government White Paper on Education (GWPE) recommended

the creation of a greater polytechnic on Kyambogo Hill; with the mandate to train technologists, engineering technicians, innovators and technical teachers to provide Uganda with the relevant skilled manpower for industrialization, job creation, economic development and economic transformation. And as if to suit this purpose, Kyambogo University's motto is "Knowledge and Skills for Service." If appropriately implemented, the said knowledge and skills should translate into work competencies and jobs for its graduates; resulting into personal, societal, national and even global development.

The quality of a university's library, teaching materials, tools, infrastructure and faculty members have been found to have a direct bearing on the outcome of training – graduate attitude, knowledge and skills (BTVET Strategic Plan, 2011, Nilsson 2011, NCHE, 2010, AU; 2007 and GWPE, 1992). Indeed, the Uganda National Council for Higher Education (NCHE) uses the state of the library, laboratories, teaching space and quality of librarians, researchers and lecturers as the standards (metrics) for assessing and accrediting universities and other higher institutions of learning.

However, the high rates of unemployment among university graduates in Uganda might signify a mismatch between the knowledge and skills imparted during training at higher levels and the unique requirements of the current job market. Indeed, there is some fear that this might be the case regarding training at Kyambogo University as well, its good motto notwithstanding. The cases bellow will illustrate my reservations regarding the general quality of technical education and training in Uganda: Jobs on modern high-end businesses in Uganda such as banking, oil & gas engineering and the hotel & tourism sectors are occupied by mostly foreign nationals, according to the BTVET Strategic Plan, 2011. Skilled labour for highly technical jobs in the sciences, technology and engineering

and the new gas and oil sectors have been outsourced and are being occupied by expatriates (Kiwawulo, 2011). In 2007, Uganda's hotel and catering personnel for hosting the Common Wealth Heads of Government Meeting (CHOGM) in Kampala were taken to Kenya for three months marathon training for service provision. Ugandan constructed tarmac roads around Kampala for the same 2007 CHOGM meeting lasted barely three months, according to the Anti-Corruption Coalition Uganda (ACCU, 2008).

Might this be as a result of some of the outcomes (knowledge & skills), attitudes and ethics imparted to trainees in Ugandan universities such as Kyambogo University? (Okello, 2010; Ssekamwa, 1997 and GWPE, 1992) have all observed that technical training in Uganda which was initially meant for equipping trainees with the necessary knowledge and "*hard* skills" for employment continues to suffer complexities and contradictions. For instance funding for the much touted Business, Technical and Vocational Education and Training (BTVET) is just 4% of the total national education budget; according to the (BTVET Strategic Plan, 2011). The Plan also echoes the endemic lack of instructional materials and equipment as one of the challenges to perennially bedevil technical education and training in Uganda. And much as the library is considered nucleus for effective training in any university, there seems to be a contradiction to the extent that training materials, tools, equipment and general infrastructure in Kyambogo University remain those of the 1950 and 60's. The currency of textbooks in the university library appears to be questionable, because even in this era of e-books, it is doubted whether any such text book exists in the Kyambogo University

library collection. Training might still be rote[1] style and centered on lecturers and what they know, instead of revolving around the trainees themselves, the practical tasks to be undertaken and the output of such training. Theory and practice are not delivered concurrently as required in vocational didactics (Nilsson, 2010; Kasozi, 2009; Mjelde, 2006). It is carried out in the academic lecture rooms and not in the workshops and work places as required in the impartation of "hard skills". Assessment and evaluation is by written examinations and the expected outcomes are regurgitation and high marks rather than work-based competency testing of the trainees (GWPE, 1992). According to (NCHE, 2010; GWPE, 1992), not only has the quality of university graduates deteriorated over the years but most of the programmes and courses taught are irrelevant to the current manpower needs of Uganda.

1.2.1 Personal Background

My name is James C. Okware. I am a professional Librarian & Information Scientist with a bachelor's degree in Library and Information Science (BLIS); from Makerere University. Over the past 5 years, I have practiced the library profession in the capacity of Head of Science, Technology, Engineering and Mathematics (STEM) section of Kyambogo University library services at the West End campus (former Uganda Polytechnic, Kyambogo, UPK). And over the same period, I have practiced the teaching occupation as a part-time Lecturer in the Department of the Library and Information Science, (LIS) section of Kyambogo University. I am an independent researcher and consultant in the emerging subjects of Cybermetrics and/ or Webometrics, Information

[1] Learning whereby students only cram and regurgitate the crammed information during examinations.

Society & the Knowledge Economy, Vocational Education and Training, Youth employment and development. At the time of this writing, I am a working student (apprentice) in the Master of Vocational Pedagogy (MVP) programme in the faculty of Vocational Studies, Kyambogo University; where the main study method has been learning by doing, problem based learning. The MVP learning method has gone a long way in enriching my research and practical teaching competencies. Working as librarian, lecturer and researcher has exposed me to empirical experiences in effectively combining the delivery of theory and practice. Both I and my students have therefore enjoyed real time didactics (learning during work, and learning by working and learning for work).

1.2.2 Motivation

I was inspired to undertake this study in order to make a contribution toward solving the challenge of unemployment among university graduates in Uganda. I hoped to generate new knowledge to make university and higher education and training in Uganda more competitive than it is currently; through work-based learning and general vocationalization. This is born out of the rampant public outcry; as well as my own empirical experiences regarding the unproductive nature of education training; and especially the seeming lack of prioritization/ appreciation for Technical and Vocational Education and Training (TVET) at higher education level in Uganda; a contradiction which is widely suspected to be the major cause of the current unprecedented levels of unemployment among graduates. I am further motivated by the hope that the findings and recommendations of this study will be useful in informing Kyambogo academic staff and top management in particular of the basic but important link between the state, the

availability, adequacy, sufficiency and access to relevant and current training tools, materials and infrastructure and productive technical training for graduate employment.

1.3 Statement of the Problem

High unemployment among graduates is major concern worldwide. In Uganda, unemployment is comparatively higher (44%) for university graduates compared to 26% for the 'uneducated' or the informally educated. Graduates should normally join the labour market straight from university. But for yet unknown reason(s); the knowledge, skills and values developed during training at university, Kyambogo inclusive, appear to be out of touch with the unique requirements and expectations of employers and the ever changing needs of the world of work; a situation suspected to be resulting into high levels of unemployment among graduates. Libraries, laboratories, workshops, technology, training curricula, the training culture, training venue, academic staff and management of universities are the training variables that interact to deliver productive technical training for sustainable employment; or better still, empowering graduates to create their own jobs.

1.4 Purpose of the Study

The purpose of this study was to examine how the technical training offered in Kyambogo University has impacted the employment prospects of its graduates in the current job market and world of work in Uganda.

1.5 Objectives of the Study

- To establish the state of training tools, materials and physical infrastructure in Kyambogo University.

- To ascertain how technical training is conducted in Kyambogo University.
- To assess the impact of the technical training offered in Kyambogo University on the employment prospects of its graduates in the current job market.
- To determine the skills which are on demand in the current job market in Uganda

1.6 Research Questions

- What is the state of training tools, materials and infrastructure in Kyambogo University?
- How (in what ways or methods) is training conducted in Kyambogo University?
- What is the impact of the technical training offered at Kyambogo University on the employment prospects of its graduates in the current job market?
- Which are the marketable skills for Kyambogo University technical graduates in the current job market in Uganda?

1.7 Scope of the study

The study was defined by the geographical, content (subject) and depth scope.

1.7.1 Geographical Scope

Study was conducted in the Library and Engineering departments of Kyambogo University; and in NICE House of plastics and Megha bed mattress industries in Nakawa Industrial area, Nakawa Division, Kampala District.

1.7.2 Content Scope

The content limit of the study was defined by the objectives. As such, I evaluated the condition of training tools, materials and infrastructure and their relevance to the impartation of technical and vocational skills to the learners at Kyambogo University. I

assessed the methods technical training was conducted in Kyambogo University to ensure that graduates are competitive in the job market and the world of work. I further investigated which technical skills were most sought after or marketable in the current world of work in Uganda. The overall question of the study was: how best may the technical training offered at Kyambogo University be aligned to the unique skills requirements of the current job market and ensure employability of its graduates?

The study was conducted within a period of seven (7) months; from March to September 2012.

1.8 Justification of the Study

Cases of university graduates who cannot even write a proper job application letter are not uncommon. The Uganda Youth Forum, YUF (2012) indicated that the level of youth unemployment in Uganda currently is at 83%.

NCHE (2006) found out that steep increase in university student enrollments has created many problems, and foremost among them is the drop in quality of training in the graduates passed out. Teaching and research staff qualifications and experiences are declining (NCHE, 2011). There is but little money for educational inputs. Infrastructure (classrooms, laboratories and libraries) are overcrowded because of the mismatch between student numbers and the facilities. There are no funds for maintaining the training infrastructure and only few institutions have comprehensive internal quality assurance mechanisms. Most training institutions seem to be using outdated curricula which encourage theoretical memorization by learners instead of problem solving (ENID, 1992; NCHE, 2010). This has led to education system whose outcomes are graduates orientation towards "ready-made" civil service employment only.

1.9 Significance of the Study

I envisage that the findings of this study might be of the following useful-nesses:

- Employment and economic development. The results of this study may be useful in linking educational training in Kyambogo University and Uganda in general to graduate employment and economic productivity. Technical education stakeholders (government, development partners, tutors, learners, parents and autonomous bodies like the National Development Plan (NDP) and the proposed Skills Development Authority (SDA) may refer to this report when planning, developing and implementing productive education and training in the near future.

- The findings of this study might be useful in mapping out key knowledge and skills that are relevant for universities and the government of Uganda's training investments.

- Change in the training tools/ infrastructure policy. The findings of this study may be useful in causing the initiation; or review of existing Kyambogo University training policy (if any), especially regarding their state or condition, sufficiency, access and appropriateness; and the University administration's keenness on the currency and relevance of the university's entire training infrastructure.

- Bridging the gap and improvement in the Public Private Partnerships (PPPs). This report may provide new insights and recommendations on new partnerships between Kyambogo University, other higher institutions of learning, industry and

the job market. In that regard, the findings in this report may prove useful in helping to align technical training offered at Kyambogo University to the unique requirements of the current world of work thereby bringing about relevance and worth of the technical training offered at Kyambogo University.

- Managing competition with rival training institutions. Kyambogo University is not the sole provider of education in Uganda. As such, I foresee the findings of this study being useful in assisting the university to identify critical gaps in training; detail how to fill such training gaps, develop and leverage competitive advantage over rival training institutions with market competent graduates in the fields of science, technology engineering, mathematics technical teacher education and business.

1.10 Limitations to the Study

During the course of the study, I faced with several constraints. I subsequently undertook the following measures to mitigate them:

There was unwillingness by some respondents to take part in the study. The owners and chief executive officers of Nice House of Plastics and Royal Form bed mattress factory did not find time to answer the study questions meant for them.

Accessing unemployed graduates within the set study area for purposes of focus group discussion was another major limitation to the study. The recommended minimum number of focus discussion is 6, but I actually did a focus group discussion with only 4 unemployed graduates. Nevertheless, the data got from these four was comprehensive

enough for purposes of my study as I corroborated it with other data from interviews and documentary sources.

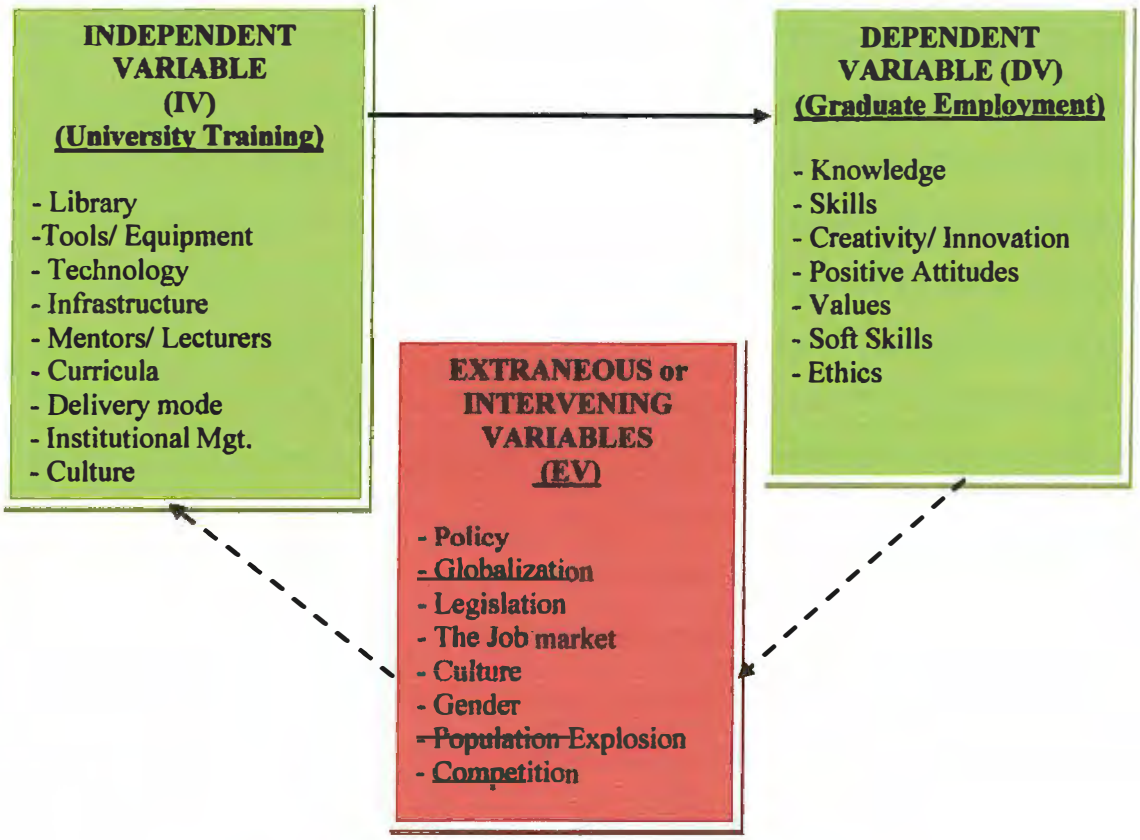
The study data collection process coincided with a strike in Kyambogo University; my case study area, a situation that destabilized some senior staff who were meant to be respondents. As a result, I conducted only one in-depth interview with one top management member of staff instead of the intended two.

In order to mitigate the above limitations, I triangulated (used three different methods) for data collection; including interviews, focus group discussions and documentary analysis. I also employed advanced soft skills i.e. (proper and respectful communication, inter-personal communication, and cultivated deep rapport) in my dealings with the respondents. I corroborated the data got from interviews and focus group discussions with documentary sources content.

1.11 Conceptual Framework

I used the framework bellow to explain the interrelations between the major concepts variables at play in the study.

Fig. 1.0 A model of the interplay between the major variables in the study



Source: Author, 2012

The above model is a description of the relationship between the indicators of the presumed variables of the study; comprising of the Independent Variable (IV) which was technical training, and expressed by (training tools, materials and equipment); the infrastructure (lecture halls, workshops and laboratories); lecturers (qualification, ethics, attitude and personality); training curricula (content, modules, and environment);

organization (timetabling and venue of teaching); delivery mode (theory, practice) and management which was expressed in terms of (planning, budgeting and directing). The Dependent Variable (DV) was graduate employment, and was expressed in terms of knowledge and skills, trainee attitudes, soft skills, creativity, innovation, their entrepreneurial characteristics and ethics. The Intervening or Extraneous Variables, (EV) were expressed in form of government policy on education and training, globalization, competition, cultural/ gender practices and norms, population explosion and the conditions in the job market. In the process of manipulating the IV (training), there were other external factors; extraneous variables (EV) that kept meddling and therefore affected the outcome of the dependent variables measured in terms of the knowledge and skills, competencies, the attitudes, creativity, soft skills and ethics of university graduates.

1.12 Operational Definitions of Study Terms

Apprentice: In this study, apprentice will refer to someone who learns through working.

Employment: The state of having a job or work either as a result of possession of relevant knowledge, skills and values for work in existing job market; or as a result of one's ability to develop work; arising from their creativity, innovation and entrepreneurial aptitudes.

Knowledge: The body of facts, principles, theories and practices that are related to a given field of study, trade or occupation.

Knowledge Economy: (KE) will refer to the 21st century phenomenon in which economic production and services rely more on intellectual capabilities rather than on physical inputs and natural resources. It is economic activity and wealth creation using or based on knowledge (human capital) as the major factor of production. The knowledge economy is also referred to as the Knowledge-Based Economy (KBE).

Job Market: Referring to the combination of the service industry, manufacturing, private businesses, government departments and the training institutions that provide jobs. Also known as the world of work or the labour market

Journeyman: Refers to a vocational learner who is mid-way between the novice and the master.

Learning outcome: A learning outcome is a statement of what a learner knows, understands and is able to do on completion of their learning/ training process. These comprise of knowledge and skills (competence), attitude and ethics.

Master: Refers to the vocational trainer at the top most level, with a lot of experience.

Novice: Refers to a fresh vocational learner; also referred to as apprentice.

Relevance: The alignment of training tools, equipment, materials, infrastructure and Trainers and training curricula to the unique training needs and outcomes or competencies required in the prevailing job market or world or work.

Skill: The ability to apply knowledge and use of know-how to complete the tasks at hand, responsibilities and solve problems practically.

Technical Education: The integration of traditional theoretical and/ or academic teaching with work based practical mentoring, guidance and counseling; usually in the science, technology, engineering and mathematics disciplines; and usually geared toward the impartation of "hard" or practical skills.

Technical Graduate: an individual, who has acquired certification of "hard skills" (at certificate, diploma or degree levels); usually in the Science, Technology Engineering and Mathematics (STEM) fields.

Technology: The use of the combination of materials, tools, equipment, techniques, science, knowledge, people and culture to conquer the environment and make life better for mankind.

Webometrics: Internet and World Wide Web information tool used to measure the output of academic and research institutions on the Web. It is sometimes alternatively referred to as cybermetrics.

World of Work: The mixture of the different institutions and venues where knowledge and skills of the different trades, occupations, professions and businesses are practiced, usually leading to employment and income for the practitioners of the different trades. Sometimes also known as; and used alternatively with job market or labour market.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review is a written discourse between the views of the researcher and that of earlier scholars in the researchers' chosen field of study. It is a section of academic work where connections are made between the earlier sources of knowledge the researcher has drawn from; and where he/ she has positioned themselves and their study among the related and referred sources of knowledge; while concurrently showing that they have engaged with, understood and responded to the relevant body of knowledge underpinning their new study (Ridley, 2009 p.2).

2.1.1 Structure of the Literature Review

I have searched, collated and studied relevant literature and earlier knowledge following the four objectives of the study. The literature search and analysis was structured in a cone shaped form; generally analyzing literature from the global perspective; where applicable, down to the African or the East African technical training scenes; and lastly to Ugandan technical training literature.

2.2. Technical Training and Graduate Employability in Context

The knowledge search and review began with the contextual definition of the two key concepts in the study - technical training and graduate employment or employability; according to my understanding of them. Technical training has been interchangeably referred to as vocational training through-out the study. Technical education and training is the integration of traditional, academic or elite education with the activity or work-

based or project based learning. According to Hager, 2008 & Mjelde, 2006), technical training is practical education that integrates the work of the mind and the work of the hands concurrently. It is education for work or labour, for this reason (Kraus et al, 2008) refer to modern societies as labour societies. Technical or vocational training is used for knowledge acquisition directly from actual work practices and experiences (Sotoudeh, 2009 p.211). It is learning or teaching for work according to the OECD (2009). It is usually a continuous and life-long process; generally occurs in the workplace during work; and in most cases informally. It is the kind of education grounded on John Dewey's activity and Kolb's experiential learning theories respectively. It is teaching at work and for work. It employs curricula that are oriented towards imparting immediately usable competencies in order to enhance the employability of apprentices (AU, 2007 p.17). Technical training is learning by doing; and measures the outcomes of the training rather than the usual cognitive intellect and the paper qualifications of traditional education.

Traditionally, technical training has been associated with imparting skills in the fields of Science, Technology, Engineering and Mathematics (STEM), according to the EQF (2008 p.8). Technical training therefore has an embodiment of technology according to Sotoudeh (2009 p.102). But the unique requirements of today's workplace have widened the horizon of technical training to include traditionally non STEM areas such as entrepreneurship, innovativeness, creativity, ethics & integrity, communication, culture, gender and diversity, trust and positive attitude (Nilsson, 2010 p.3; Mjelde & Daly, 2006; Okello, 2012 p.185). For clear understanding of the concept of technical training

therefore, this study defined technology in four contexts; including the elite oriented, science oriented, need oriented and the social-process oriented contexts:

The elite oriented perspective of technology submits that technology and by inference technical training involves the use of material resources, tools, techniques and sources of power to make life more pleasant and working more productive (Sotoudeh, 2009 p.102). The elite orientation is made explicit by the fact that in all societies, new and emerging technologies tend to be exclusive to the elite because they are the ones who can afford it. The BTVET Act, 2008 and BTVET Strategic Plan, 2011 all emphasize equity and inclusion in access to technical training in order to do away with such segregation. The science oriented context of technology is of the view that science drives technology and the development of technical training. Sotoudeh (2009 p.103) contends that the seed of technological growth is prepared and nurtured by science. Medicine and biotechnology are good examples of science driven fields of technology and technical training. The need oriented context views of technology and or technical training as a means of fulfilling customer's demands by technology based science and studies. These are customer-driven technological education and training. They result into knowledge and skills to develop products or services to meet needs with the help of scientific knowledge, according to Sotoudeh (2009). The current tech wars in Information and Communications Technologies (ICTs), especially between Korea's Samsung and America's Apple Technologies is an example. The social-technical context of technology, fronts the view that technology is not simply a collection of machines but interrelations between machines/ tools and the people. A mere collection of inter-connected machines cannot represent contemporary technology (Sotoudeh, Nilsson,

2010; 2009 p.107); rather social process is the binding factor of the elements of technology.

The concept of employability or employment or work on the other hand, derives its origin from the Anglo-Saxon dimension. In their view, (Gonon…et al, 2009 p.10; in Hillage & Pollard, 1998) say that employability is the ability to gain initial employment, maintain that employment and make transitions to obtain new employment. But critics say this concept of employment is one-sided. According to Lapin (2012) 'work is making things better for oneself and others; whereas (Hager, 2008 p.23; in White, 1997) defined work as "form of activity designed to eventuate into an end-product." (Nilsson, 2011 p.7) shares this view when he says that work must have some form of productive meaning; an end product. Griesel and Parker show the complexity of the concept of employment or employability when they wrote:

> Employability or employment goes well beyond the simplistic notion of key skills, and is evidenced in the application of a mix of personal qualities and beliefs, understandings, skillful practices and the ability to reflect productively on experience; often times in situations of complexity and ambiguity. It is influenced, in the main, by four broad and inter-related components: skillful practices self and resources, problem-solving and life-long learning (Griesel & Parker, 2009 p.5; in Yorke & Knight, 2006).

In my view, graduate employment/ employability is their ability to have a job; arising either from the possession of relevant skills and personal attributes such as positive attitude, values, ethics, innovation, creativity and enterprise; resulting from either formal education at school or the informal, on the job learning at work. It is the prospective employee's holistic ability. To this end, UNEVOC (2012) argues that the fundamental purpose of TVET is to equip young graduates with capabilities that can

broaden their opportunities in life and prepare them for the often difficult transition from school to work-life.

2.3 Technical training tools, materials and infrastructure

From the perspective of the Nordic countries like Norway; training tools, materials, equipment and general infrastructure are considered key factors in productive technical training; or technical training with tangible outputs. Nilsson (2011 p. 14) has a firm conviction that effective technical training is only possible where and when it is matched with sufficient and relevant training tools, materials and equipment. Nilsson (2011) describes the combination of relevant training tools, materials, equipment and general infrastructure as the "T" factor of productive technical training.

The condition or state of training tools and infrastructure in Germany is reputed to be the best in the world (Petrosky, 1992 p.2). Like Norway's, Germany's technical training scene is characterized by up-to-date training tools and equipment and adequate financing through the Public Private Partnerships (PPPs). As early as 1992, the German Private sector and industry even combined efforts to pay technical trainees who come to get practical training attachments and experiences in their factories or industries 400 USD; an equivalent of 1,000,000 UGX, according to Petrosky (1992).

The African Union, AU (2007), for its part pointed out that one of the characteristic socio-economic environments and contexts in which technical training delivery systems currently operate in the African continent are inadequate financing, poor institutional management and the ill-adapted organizational structures.

The African Union (2007) is of the view that:

> Training for higher quality TVET requires appropriate training equipment and tools, adequate supply of training materials, and hands on practice with these tools and materials. Other important training requirements included relevant textbooks and manuals and qualified instructors with experience in enterprise; leading to Competency Based Training, CBT (AU, 2007 p. 10).

The kind of training envisioned by the African Union is what (Nilsson, 2011, p. 3) referred to as productive technical training. In TVET, productive[2] technical training is directly dependent upon the state of the training tools, materials, equipment and infrastructure. He said that the quality or value of the training product is always reflected in the quality of the final product.

My two year exposure and experiences with vocational pedagogical training methods have been a confirmatory journey with both Nilsson's (2011) and the AU's (2007) positions regarding the important role of tools and materials in effective technical training. That position is that for meaningful and productive practical training to occur, the state of materials, tools, equipment and infrastructure is crucial. These tools must be current and relevant to the training at hand and the training materials should be adequate.

Nilsson (2011) in his five 'T' theory validated this position further when he said that that "there are five fundamental issues in achieving effective technical and vocational training outcomes. These five fundamental T's include the **T**ools and /or materials, **T**utors, **T**rust (ethics & integrity), the learning **T**asks and **T**ime." The so called five Ts represent the Tasks to be learnt during technical training; since the training is practical, the Tools to be used during those practical training sessions, the Tutors, Trainers or

[2] These are the technical tasks which integrate the working of the heart, mind and body. They are authentic in nature in the sense that they give meaning to the task taker in the form of physical rewards like work products and wage earnings and academic certificates.

teachers who train learners, the Time it takes to teach and learn the technical tasks at hand and the Trust (ethics, integrity and clear communication, mutual respect and the consistency) that must exist between the mentors and the trainees. I am in agreement with Nilsson (2011) in this regard; because in this era of rapidly changing scientific knowledge and technologies, the state or condition of training materials is of critical importance if the knowledge and skills acquired from training are to keep pace with, and remain relevant with the changes and unique requirements of the current job market. Nilsson (2011) is emphatic that the tools and training materials should be given utmost priority when planning the delivery of quality technical education and training. Furthermore, the said training tools, materials and equipment should be of high quality, in adequate quantities as well as accessible.

Afeti[3] (2009) observed that inadequate instructor training, obsolete training equipment, and lack of instructional materials are some of the factors that combine to reduce the effectiveness of training in meeting the required knowledge and skills objectives. The knowledge and skills equals the work competencies of the graduates (BTVET Strategic Plan, 2011; Nilsson, 2010; AU, 2007; GWPE, 1992).

The African Research Resources Forum (ARRF, 2009 p. 19) echoed the same sentiments when it said that the quality of technical skills training requires qualified instructors, appropriate workshop equipment, adequate supply of training materials and practice by the learners. The (AU, 2007 p. 23) was in agreement when it lamented that obsolete training equipment and lack of instructor training materials are some of the key factors to

[3] Dr. George Afeti is the Secretary General of the Commonwealth Association of Polytechnics in Africa (CAPA) and a TVET consultant at the African Union.

negatively affect the quality of technical training in Africa. The African Union lamented further that technical training in Africa is fragmented, AU (2007 p. 6). Theory and practice are offered separately and there is usually no immediate linkage between theory and practical knowledge.

2.3.1 Technical training and physical infrastructure in Uganda

Training infrastructure such as libraries, laboratories and workshops are of utmost importance in technical and vocational education and training, but the physical infrastructure in most institutions is dilapidated and inadequate in size to cater for the enrolled number of students, according to the BTVET Strategic Plan (2011-2012 p.5; Nilsson, 2011 & GWPE. 1992). Uganda's higher education sub-sector has continued to expand in terms of students' enrolment and the number of institutions (NCHE, 2010). The increases in numbers, however, have occurred in the face of declining or stagnant unit cost funding for education facilities, infrastructure and academic staff.

> The infrastructure situation has become worse since the last publication of the "State of Higher Education and Training". In 2010, the space available per student in lecture rooms, libraries, laboratories, and recreation facilities, academic and administrative office has not improved over the previous years. For example, in university lecture rooms, space dropped from an average of 0.78 sq. m2 to 0.34 sq.m2 and libraries from 0.28m2 to 0.13m2. In other Tertiary Institutions, the situation was generally the same: reduced and deteriorating infrastructure that could not cope with increased enrolments. Agricultural colleges on the other hand were not very crowded (NCHE, 2010 p. 3).

The observation by the National Council of Higher Education (NCHE) report above appear to be in consonance with the status of general training infrastructure even in Kyambogo university. As if to confirm the above views; Okello, in his paper, "Complexities and Contradictions in Technical Education," lamented: "even technical

and engineering programmes and their courses are these days taught theoretically," (Okello, 2010 p. 14). Apunyo (2012 p.18) is of the view that the Internet and ICT laboratories should be used in an effort to alleviate the logistical challenges associated with physical laboratories such as insufficient equipment, space and staff. I am in agreement. An institution like Kyambogo University would a go long way into solving some of its perpetual training technology and infrastructure woes in order to contribute to meaningful training and provide its graduates with modern and relevant job market skills.

2.3.2 Funding technical education in Uganda

Vocational and Technical Education (VTE) and technical and Vocational Education (TVET) are very costly, according to the (World Bank, 1991 p.2). In developing countries with week national economies like Uganda, TVET programmes have mainly been financed by Intergovernmental Organizations such as the World Bank Group, UNESCO and ILO; and bilateral donors like Australia, Germany, Denmark, Japan, Norway, France, Switzerland and the United Kingdom (Maintz, 2004). However, despite the popular belief that technical and vocational training is a productive system of education and that it might therefore be the panacea to the challenge of unemployment in the world and Uganda in particular, the (BTVET Plan, 2011; Mjelde, 2006; Petrosky, 1998, AU 2007) all indicate that for a long time, important training stakeholders like the World Bank Group (WBG) have not had a positive attitude toward technical and vocational training funding in developing countries. The WBG (2002) claimed that technical education and training; and by implication their curricula was too costly and did not show immediate value for money invested by the Bank.

Government and other stakeholders must address the problem of the funding of tertiary education before standards are compromised. According to the National Council of Higher Education (NCHE, 2010 p.3), virtually all tertiary institutions, public and private, get less funds than is needed for producing a competent graduate for the labour market (Kasozi, 2009 p.47). Training institutions get less than the required unit cost. This is more so in the sciences and technological fields. Furthermore, most institutions are dependent on one source of income, tuition fees. Few, if any, institutions have diversified sources of income such as endowments and loan schemes. In my view, this is a true picture of the educational funding situation even in Kyambogo University. Moreover, the defined university training funding alternatives are also narrow. Even the NCHE does not seem to be cognizant of paid professional research and consultancy as an important source of funding for universities and other tertiary institutions of higher learning. My view would be that leaving the funding of higher institutions of learning to be dependent on donations and endowments would teach learners to become dependent graduates, with nothing but a beggar mentality.

2.3.3 Libraries and technical training in higher education

With the reality of the knowledge economy dawning in on us, 21st century universities are expected to construct knowledge – the currency for business in this new form of economic development. The library should central in supporting research for generating knowledge. Schwartz (1997) commented that "an emerging problem for academic libraries is the lag of organizational development behind today's rapid technological changes. Development in technology has created an overriding need for libraries to broaden the demand for network-to-desktop information resources to support

new research and curricular issues in university training. However, according to the (NCHE, 2010), in Uganda's training institutions, student access to even just basic (hard copy) textbooks is not impressive. Only Theological institutions reached the 40 books per student minimum required by NCHE standard. But observation points to the fact that traditional print textbook libraries form the largest collection of training materials in one roof, in all Uganda's higher education institutions. Modern training materials now consist of electronic information materials in form of computers, the worldwide web and internet, electronic journals and e-books.

From my vocational pedagogy experiences over the past two years, knowledge and skills add up to work competencies; and to accumulate the requisite work competencies, a graduate must undertake hands-on practice with modern training tools, materials and equipment (Nilsson, 2010; AU, 2007). These tools and materials must also be available in sufficient quantities. The said tools, equipment and materials must be relevant. Only then will there be no mismatch between the unique skills required by the labour market and the skills imparted during training. The BTVET Strategic Plan, 2011; NCHE, 2010; GWPE, 1992 all pointed out that the training tools and infrastructure in training institutions are generally obsolete, whereas those in the work places graduates are expected to work often relatively new and up-to-date. My view is that most institutions only end up at identifying the problem of obsolete tools and equipment. Neither the NCHE nor the BTVET Strategic Plan has laid out systematic plans for the periodic replacement of training textbooks, tools, materials, equipment and refurbishing technical training infrastructure,; even when they say technical, vocational and scientific

education is the way to go to solve issues of unemployment and economic productivity by citizens.

2.4 How to conduct productive technical training

In Africa, educated yet unemployment youth are found in all cities loitering without jobs; probably because of the way teaching curricula are organized, (Amedzro, 2005 p.34; cited in Harbison, 1968). In Nigeria, about 70% of the unemployed youth are educated young citizens (Amedzro, 2005). And the situation is not limited to Nigeria alone. There exists widespread unemployment among the educated youth all over the urban areas of the twelve Anglophone countries in Africa namely; the Gambia, Ghana, Kenya, Lesotho, Malawi, Nigeria, Sierra Leone, Swaziland, Tanzania, Uganda and Zambia (Harbison, 1968; cited in Amedzro, 2005). The general unemployment scene among educated youth in Anglophone Africa was summed up this way:

> The size of the labour reserve army increases yearly. Battalions of this unemployed army engage themselves in selling handkerchiefs, dog chains and chocolates among others, along busy city streets. Others sell newspapers, toilet rolls, car dusters, shaving blades and shoe polish from China. All these wayside traders are seen at road T-junctions and near traffic lights in cities such as Accra, Lagos, Kampala, Nairobi and Dar es Salam. They keep on chasing passengers in moving vehicles. No one knows the distance they run daily. This exercise continues whether "rain or shine." Others keep on roaming about the cities looking for non-existent jobs (Amedzro, 2005 p.34).

In my view, this is a true picture of the current phenomenon of unemployed but educated youth as a result of population pressure.

Technical training and education for employment in Singapore is being conducted under the careful watch of its National Manpower Council to ensure adherence to quality, relevance and linkage to the available jobs in the world of work and the job market

(NMC, 2000). The German TVET training system on the other hand uses the dual model to ensure relevance, linkage to labour market and the employability of its technical graduates. Currently, more than 20% of pre-entry university entrants in Germany are serving as apprentices to enhance their job opportunities in industry after the completion of their formal technical training, (Petrosky, 2001 p.5). The German VET practice is called vocational didactics (Mjelde, 2009 p.7). It is a training model that offers both theory and practical knowledge concurrently. Didactics is more or less like the German dual apprentice model. In it, there is no time lost between the delivery of theory and practice; a pre-requisite for effective technical training to occur.

Soden and Pithers (2001 p.205) found out that increasingly; lecturers in post-school sector are expected to teach students to think well in knowledge-rich domains in order to prepare them to contribute to an advanced, adaptable, knowledge-based global economy. I concur with Pithers and Soden's, (2001) view that teaching at higher levels, especially technical teaching in institutions like Kyambogo University should be both advanced and adaptable. The EU (2008) shares this view as well.

According to the (AU, 2007 p.27) African TVET scene has very few, if any, national manpower councils like the NMC of Singapore. South Africa, Namibia, Ghana, Kenya, Tanzania and Benin are some of the few African countries with established national TVET watchdog bodies. Uganda has only just proposed the establishment of a watchdog body with a similar role to that of Singapore's NMC by the name of the Skills Development Authority (SDA) by the year 2013, according to the BTVET Strategic Plan (2011). Ugandan BTVET system further differed in its delivery mode. Theory and practical training are delivered separately and far apart. Theory is delivered in school

(class) environment and only some practice is done at the school workshops; but often in conditions that are not anything near the actual work place environment (KYU teaching timetables, 2012). Only later on is some work-related internship offered at the end of the technical training programme (KYU academic Planner, 2010-2011).

2.4.1 Productive technical training programmes for graduate employment

Nilsson (2010) argues that technical training meant for the purpose of imparting relevant work skills should be productive; meaning that any technical training should be able to bring forth tangible outcomes with regard to general knowledge, theoretical knowledge, practical knowledge, ethical behaviour, adherence to the specified delivery time limits, positive attitude and most importantly, the practical or hard skills required to accomplish the tasks graduates are trained to perform. Kirkley is of this view:

> Problem solving is a basic skill needed by today's trainees. Guided by recent research in problem solving, changing professional standards, new workplace demands, and recent changes in learning theory, educators and trainers are revising curricula to include integrated learning that encourages learners to use higher order thinking skills, and in particular, problem solving skills during work (Kirkley, 2003 p.1).

My experiences of vocational pedagogy are that the quality of the end product of training are dependent upon training tools, materials, infrastructure and the tutors, factors which are themselves defined by the type and objective of the training curriculum. The challenge, however, is that technical training tutors are usually engineering graduates and might be teaching engineering studies instead of imparting technical skills (Okello, 2010).

2.4.2 University technical training curricula and graduate employment

Gamble (2006) pointed out that technical or vocational training curriculum is rarely treated in the same way as general education; and one of the main reasons for this lies in the so called 'tacit' nature of vocational knowledge, and hence pedagogy.

> When one enquires deeper into the how such tacit knowledge is may be acquired, in any type of innovation, the answer always back to some kind of an apprenticing relation. Whether it is in the promising scientist that is apprenticed to the Nobel Laureate, or the Japanese folk craft pottery apprentice, it is through an apprenticing relation that the tacit knowledge is transmitted (Gamble, 2006 p.62).

Learning through practice and experience, by trying and failing and trying again; through engaging in action; this is the basis of acquiring thorough knowledge; according to (Mjelde, 2008). Even in the realm of 'pure ideas,' whether it be through the activity of writing or teaching; one learns best when they are involved in an activity (Applebaum, 1992; cited in Mjelde, 2008 p.7). The view regarding the arrangement of technical was further supported training "We recognize this form of learning as common to the heritage of indigenous pedagogy found both in African villages and in the master-apprenticeship models in vocational education around the world (Harding, 1986; cited in Mjelde, 2006). According to Sotoudeh (2009), technical training should be organized by the method of learning by doing. Engineering trainees need to be doers and thinkers at the same time.

University curricula need to be rich with projects that combine thinking with doing in engineering (Sotoudeh, 2009 p.160). McKimm (2007) said that curriculum is the template or design which enables learning to take place; and since curricula usually define the learning to occur during a course or programme of study in terms of knowledge, skills and attitudes of both the trainee and the trainer, it should also specify

the main teaching, learning and assessment methods and provide an indication of the learning resources required to support the effective delivery. Cunningham & Billingsley (2000. P.8) describe three major types of training curricula design - the subject centered, problem centered and the learner centered.

From my vocational pedagogy experiences of the past two years, I agree with McKimm's view regarding technical training curricula when he asserts that "educational objectives should become the criteria for selecting training materials, outlining content, developing instructional methods, and preparing tests in a curriculum." NCHE (2011), AU (2007), and Nilsson (2010) all shared Cunningham and Billingsley's (2000) view on technical training curricula. The EQF (2008) observes that technical training curricula should be flexible and that it should measure productive training outcomes such as competencies, knowledge and skills. I am in agreement with the EQF. My view, however, is that since higher education learning is the last level of training in Uganda before a graduate joins the job market or world of work; university training curricula ought to be more productive than is implied by the EQF. Curricula and its training outcomes should measure more training outcomes; and in addition to knowledge and skills, it should measure positive attitude, excellent communication skills, ethical conduct and integrity, creativity, and innovativeness the trainees exhibit after training; rather than the high marks printed on their academic certificates. Nilsson (2011) observed that there would be a danger to the world by nuclear scientists, doctors or teachers who are unethical and luck integrity.

Technical training curricula may be made flexible by modularization and it may be democratized through mass access (UVQF, 2010; EQF, 2008, BTVET Act, 2007).

Modularization brings about flexibility, making it possible for the trainee to select and pursue only those course units which will give them the skills they need. The impact of technical training on the flexibility of training curricula in Kyambogo University might be difficult to determine. There might be no visible indicators that training curricula in Kyambogo might have become more flexible than before. The attitudes of both the learner and the mentors or trainers are crucial if the products of technical training are to be of consequence in the world of work (Nilsson, BTVET Act, and Okello, 2010). I share the views of the three authorities regarding technical training curricula. Attitude is also of crucial importance for both the trainees and the trainers (lecturers in the case of universities), and even other training stakeholders like government and development partners to be factored in technical training curricula.

Khan (2012) said that traditional education curricula based on classroom learning is obsolete. "The system is broken and it acts like a product assembly line is based on specific age cohorts." Kahn suggests that today's teaching should be project based and consist of multi-age cohorts. Margolis echoed Khan's view when she proposed that;

> "Teachers should take their students into wonder experiences. Non-straight A students are not necessarily foolish - the teacher or parent has simply not discovered the hidden abilities of such a learner; something the over structured academic education system mistakes foolishness. Traditional education is limited – narrow curricula, the timetable, the classroom and exams are too restrictive to measure a student's true intellect. Albert Einstein and Bill gates were school drop-outs!" (Margolis, 2012; in a Television Interview).

In the 1990's, many technical training curricula in South-East Asia Nation's had to be redeveloped through modularization and instruction and assessment could be undertaken on competence basis Alto et...al (2000 p.133). Nilsson (2010 p. 1), is of the view that

technical and vocational training should be organized around group work, didactical productive tasks and mentoring rather than the traditional academic way. Schwartz said:

> As instructional approaches change, the spaces and strategies in which these activities occur will also need restructuring…..an emphasis on facilitating group work will be required on a broad scale as group projects and peer or faculty coaching become common instructional strategies (Schwartz, 1997 p. 43).

Mentoring best occurs in a community of practices (Wenger, 1997 p. 41). Kahn Academy (2012) said that meaningful learning should be organized in such a way that there is unlimited interaction between cohort members. Mjelde (2009 p. 8) asserted that technical or vocational learning best occurred when teachers and learners worked together as groups; MVP Handbook (2008 p. 7). Nilsson (2010) is of the view that the novice or apprentice, the journeyman and master should work together in a helpful way. and Mjelde (2006), I agree with the view that times have changed and that effective technical training; or indeed any training at all, should revolve around the tasks to be learnt (the problem), be activity-based and didactical; and should be organized in groups or teams irrespective of age differences.

The European Qualifications Framework (EQF, 2008 p.4) is of the view that assessment in technical training should focus on learning outcomes. In Uganda, even technical training is still evaluated and assessed by academic examinations method. Uganda's proposed draft Vocational Qualifications Framework (UVQF)[4] seems to have borrowed a leaf from the EQF when it recommends that "technical training should be modularized, assessed by trade testing and measured and evaluated by the training

[4] The proposed Uganda Vocational Qualifications Framework.

outcomes" (Kyobe, 2010 p.15). On his part, Hicks (2009 p.11) prayed for a more futuristic approach to education and training when he said; "the future is often the missing dimension within the education curriculum. There is a need to help learners think more critically and creatively about the future." I agree with Hicks that perhaps the major gap in Uganda's technical training curricula might be the failure to factor in the future and not take into account the rapid changes in knowledge.

2.4.3 Job market information and graduate employment

The single biggest gap to be filled in technical training and skills development is market information for monitoring, evaluation and policy development (Johanson & Adams, 2004). A World Bank Group study (2002 in Tanzania and Malawi found out that there was no evaluative evidence on the effectiveness of different technical training skills interventions; and highlighted the need for further research into innovative good practices; and approaches in technical training. Uganda's BTVET Strategic Plan (2011-2020, p. 19) observed that "market failure exists on information about demand and supply of skills; adding that labour market information is currently not systematically and regularly collected in Uganda." Matovu (2011 p.3) is of the view that "technical and vocational skills training would enable university graduates to be mobile within the different economic sectors and ensure their employability, so the acquisition of vocational skills needs to be emphasized." My view, however, is that while it is true that vocational training may be the panacea for graduate employment, the skills in question must be those established to be in demand by an empirical market survey, or any such training efforts will count for naught.

2.4.4 Certification in Technical Training and employment

Atchoarena (2000 p.101), "educational credentials (certificates and degrees) have shown little relation to jobs and employment. Diplomas and degrees have served more as credentials of the institutions' general prestige in the education system than as market signals of labour supply." The European Qualifications Framework (EQF, 2008) stipulates eight levels of VET certification - three different certificate level qualifications, diploma, bachelor, Masters and Doctor of Philosophy (PhD). Each level defines the knowledge, skills and competencies required for a graduate to be accorded the relevant qualification level. "The different technical qualification levels cater for everybody in the learning hierarchy; and in that way bring about flexibility, transparency, recognition, access, fair reward and democracy, equity, progression and life-long learning" (EQF, 2008 p. 18). In my view, this is what it ought to be for Ugandan BTVET reward system; as it would be useful in eliminating the stigma associated with limiting technical qualifications to certificate and diploma levels only, such as the case in Uganda. The BTVET of Uganda stipulates. The BTVET Act (2008 p. 7) stipulates certificate and diploma levels as the only qualification levels and/ or rewards. This position is validated by the MVP Programme book (2009 p. 8), which observes that "in Uganda, TVET is offered at the lower levels of education hence its low popularity." (The Draft UVQF, 2008; BTVET Act, 2008 and the BTVET Strategic Plan, 2011) are all in agreement that technical training should aim at learning outcomes and not academic certificates.

2.5 Impact of technical training on graduate employment

"It has long been the case that higher education and the work-place share a common misunderstanding about the roles of each other. Employers voice concern over

the quality of graduates exiting from the universities while higher education feels that employers do not fully appreciate the qualities and skills graduates posses" (HESA & QASA, 2009 p. 7). I share this view. There is divergence regarding the quality of education graduates between the work-place and the job market. Okello (2010) has referred to this as 'complexities and contradictions in technical education.'

Measuring impact in education and training may be done by evaluating the evidences thereof (Markless & Streatfield, 2006 p.4). "Measuring outputs from university education includes but not limited to the quality of graduates, the quality of their research and publications and the performance of the alumni in the job market" (NCHE, 2011 p.18). For Gonon (2008, p.64), the impact of technical training may be measured by four things: the improved links with higher education, improved links with employers, rise in the status of and qualifications of vocational teachers or trainers and improving vocational education and training curricula. In my view, the most direct method of measuring the impact of training on graduate employment should be the employment rate (the ease or difficulty) with which technical graduates find jobs in their respective fields/ trades, since the aim of education is employment. This view is supported by TESDA when it stated:

> TVET prepares people for employment since it is concerned with the acquisition of knowledge, skills and attitudes necessary to join the world of work. Thus, the main goal of TVET is to increase the employability of TVET graduates. Therefore, the participation in the labour force of the TVET graduates is an indication of intent to actively engage in the production of goods and services. This is a necessary step towards employment (TESDA, 2010 p.9).

2.5.1 Knowledge, skills and competencies of graduates

TESDA (2012, p.12) asserted that there are four clusters of knowledge and skills under which graduates of technical education and training may cause impact in their employment prospects and therefore be able to cause impact at their work places. These are the work and values cluster, inter-personal cluster, the cognitive cluster and the adaptability clusters: at the work and values cluster, 21st century technical graduates should be able to cause impact in basic IT skills, media literacy, self-management, time management, and attitude and values. The BTVET Act (2008) appears limited as it highlights only basic IT knowledge and attitude as the knowledge and skills areas that may impact a technical graduate's employment prospects. To the skills categories specified by BTVET Act, Nilsson (2011) adds time management, positive attitude and ethics/ values as critical in determining the employment prospects, and areas in which a technical graduate might impact his work-place positively. I agree with both TESDA and Nilsson's views. I wish to add, however, that that both academic and vocational education systems in Uganda need to embrace basic IT in this era of the new knowledge economy.

At the inter-personal cluster, people skills, communication, team working, customer orientation and cultural knowledge or understanding would be expected to cause impact in the employability of a technical graduate (TESDA, 2012). Nilsson (2011) is especially emphatic about the way technical training may affect employment prospects and process of graduates when he asks: "Can you imagine world with doctors, nuclear scientists or teachers without values, ethics and integrity?" Nilsson adds," a technical graduate should also be able to communicate effectively." I share Nilsson (2011) views.

Technical training graduates with a sense of values of ethics, integrity and proper communication should be able to find jobs quickly in world of work and also cause positive impact in their work places.

The cognitive knowledge and skills cluster, a technical graduate's impact may be seen from the aspects of learning to learn, problem solving, critical thinking and innovations (TESDA, 2012). According to Mjelde (2006), technical and vocational training is learning by doing. Modern vocational and technical education should be experiential and problem based or work-site based (UNESCO-UNEVOC, 2006. P.14). I suppose this is the reason Uganda's BTVET Strategic Plan (2011) is entitled "Skilling Uganda." I am in agreement with both Mjelde (2006) and UNESCO-UNEVOC (2006) views. Technical training is meant to impart hard skills or work skills, and these may best be acquired through learning by doing or actual practice at work. It is praxis. Mjelde (2009) in the MVP handbook sums up this point best when she says:

> Learning through practice and experience, by trying and failing and trying again; through engaging in action: this is the only true basis of acquiring thorough knowledge. Even in the realm of pure ideas", whether it be through the activity of writing, one learns best when they are involved in an activity (Applebaum, 1992; cited in Mjelde, 2008 p.7).

At the adaptability cluster, TESDA (2012) contends the impact of technical training on a graduate's employment prospects may be seen in terms of their flexibility, ability to adopt, conflict resolution and negotiation, knowledge and skills. I am in agreement with TESDA (2012) view. Technical graduates should be flexible and be able to adopt new technologies and ways in order for the rapid changes in technology to remain up-to-date.

2.5.2 Period graduates take to find formal employment

There is generally a low level of graduate unemployment for the citizens of European nations such as Germany which have emphasized technical training in their education systems (CEDEFOP, 2010 p.8). The length of probationary period when joining formal employment in Germany is almost non-existent as working trainees (apprentices) are almost always taken up by the industries where they perform work training, according to Petrosky (1998).

> In the Philippines an evaluation study by TESDA (2012) found out that a good number of employed TVET graduates do not have difficulty in finding work. This is based on the survey results on length of job search that overall, 81% of the TVET graduates are able to find their first job within 6 months of job search (TESDA, 2012 p.12).

However graduate employment pathways appear to be fraught with corruption in Uganda and beyond. Two unemployed graduates from a poor west neighbourhood of Melbourne commented: "You've gotta know someone to get a job these days (Lakes, 2006 p.257)." In Uganda, one unemployed graduate bemoaned corrupt recruitment tendencies when he said:

> I was shocked when I discovered that a former school mate who studied no professional course is now a health assistant in one of the sub-counties of a district in Eastern Uganda. This office is supposed to be occupied by a diploma or degree graduate. . What beats my understanding is that there are many unemployed graduates. Most jobs are not advertised or when they are, it is only for formality, because they are already filled anyway by spouses or relatives of big people in the district. Because of this, getting a job is very difficult as one has to have a 'god father'. This kind of nepotism must be checked if our country is to develop (Anonymous; New Vision, 2012 p. 9).

My view is that for the case of Uganda, the period taken by technical graduates to find employment might not be not clear, but still comparatively longer. Graduates remain

unemployed but for different reasons; among which is corruption, tribalism and nepotism. Even technical training and qualification no-longer seems to have an impact on who gets which job in Uganda; and on reducing the time frame within which a graduate may find a job.

2.5.3 Work, trainees and graduates

China and India have demonstrated in recent years, if a country has a skilled workforce resulting from technical training, it can attract business as labour is then abundant and cheaper (TESDA, 2000 p.33). "The knowledge-intensive and high-technology parts of OECD economies tend to be the most dynamic in terms of output and employment growth (OECD, 1996 p.7). In this learning and high skills labour economy; TVET is increasingly being recognized by governments as a precursor to youth employment, economic productivity and the resultant development which comes with it. While countries such as Germany and the Republic of Korea have over the past half-century built successful industries supported by effective TVET outcomes, many developing countries are beginning to prioritize TVET as well in an effort to prepare their youth for productive employment (UNESCO, 2000). My view is that technical training has impacted on the attitude of governments and training institutions by making them change their training or educational priorities and options.

Apprenticeship in Uganda is called industrial training, or internship, depending on the technical field in question (MoES, 2010; KYU, 2007). From my experiences of searching industrial training placements for university trainees, those in technical fields easily find placements for industrial training compared to their counterparts pursuing arts-based programmes. Furthermore technical training has had an impact in the sense

that technical trainees are working and easily find work while studying. Personal experience also shows that the technical category of trainees registered higher chances of finding formal employment on completion of internship training in the very workplaces of their industrial training. This implies technical training positively enhances the employment of university graduates. My view is that successful technical training projects like 'Jua Kali' in Kenya have seen it become the most industrialized and developed economy in East Africa. This can only demonstrate the positive impact technical training has in increasing prospects of employment for graduates.

Afeti (2009 p.11) observes that "generally in Africa, the quality of technical and vocational training in Africa is low, with undue emphasis on theory and certification rather than on skills acquisition and proficiency testing." Afeti's view is in consonance with that of the COMEDAF report (2007 p.22) that indicates that there were huge numbers of poorly, unskilled and therefore unemployable youth in most African countries. My view is that productive technical training impacts on employment prospects of graduates by increasing the jobs opportunities for them.

2.5.4 Technical training and the labour market

Majumdar (2008, p.3) emphasizes that "education and training should be looked into so as to ensure that it does not lose sight of the realities in the world of work. The impact of this kind of arrangement would be to align skills impartation with the unique job market requirements, thereby ensuring employment for graduates. The first United Nations Millennium Development Goals (UN MDG-1) focuses on the eradication of poverty and hunger. Following the widespread consensus that poverty may be reduced if people have the right education (knowledge and skills) in order to be employed, a new

target was added under MDG-1 in 2006. This addition was: "reaching full and productive employment and decent work for all, including women and young people (ILO, 2008 p.23). Majumdar (2008 p.3; Nilsson, 2010 p.11) are of the view that productive training has had the impact of linking skills impartation during training to the unique requirements in the labour market. It identifies the potential or actual jobs and therefore which skills should be acquired for one to undertake those jobs, something that is likely to positively impact on the employment of the graduates.

The link between training institutions and other stakeholders in development is referred to as Public Private Partnerships, PPP, according to the AU (2007); BTVET Strategic Plan (2011) and Petrosky (1998). UNSECO supports this view when it asserts that "linking technical training skills to the unique requirements of the labour market may best be achieved by partnering with private and public sectors who are the providers of the jobs and therefore consumers of the skills," (UNEVOC, 2012 p. 14). I concur with UNESCO's view entirely, because I believe that one of the ways of assessing the impact of technical training on graduate employment is the level of public-private partnerships. It is now widely recognized that responsibilities for school-to-work transition must be shared with labour-market stakeholders, particularly employers. More than any other educational issue, this is an area of public policy that requires a strong commitment to partnership, according to (UNESCO, 2000 p.2).

The German technical training system has won the trust of their public and private sectors. It operates a highly successful dual technical and vocational training system; and the success of this dual system is due to the symbiotic partnerships between several

organizations. Soskice, cited in Petrosky (1998) described the PPPs in German VET in this way:

> Employer associations, on both sectoral and local levels, play a major role in developing new apprenticeships, in modifying existing ones, and in advising the larger companies offering apprenticeships. In the German training system, Industrial, Commercial and Handiwork chambers organize local apprenticeship systems, approve and monitor company training, and administer the exam system. Other support is given by industrial unions which, generally, support the goals of the sectoral associations and chambers; the regional governments are responsible for vocational schools and coordinate curriculum development. The federal government determines the framework for legislation and training and also conducts research to evaluate the technical training system (Soskice, 1994 p.28; in Petrosky, 2001 p.2).

The dual TVET system in Germany has an elaborate financing and cost sharing system in which training costs are shared by regional governments, private companies, and the apprentices themselves. Compared to the German dual system, Uganda operates "mono" system. University and other higher education students complete their coursework and theory at school and then enter industrial training for short periods of time towards the end of their university courses. In comparison, there is no cost sharing arrangement with industry and the private sector. This has only just been proposed (BTVET Strategic Plan, 2011-2020 p.31; BTVET Act, 2008 p.14).

The absence of a properly functioning Public Private Partnerships (PPPs) might be feeding into the mismatch or the irrelevance between the jobs available in the labour market and the subsisting technical training regimes and skills outcomes in Uganda.

I agree with the view that Public Private Partnerships are some of the best ways by which relevance of technical training may be achieved (BTVET Strategic Plan, 2011; BTVET Act, 2008). The richer public and industry can help pick some of the expenses of poor

training institutions like Kyambogo. The BTVET Strategic Plan (2011 p.9) observes that the PPPs need to be developed and expanded. Under its strategic objectives (Strategic Plan 2011, p.22), Kyambogo University (KYU) dwells more on promoting partnerships with international organizations and the Ministry of Education and Sports (MoES). Partnerships between KYU, international institutions and MoES are healthy and should be encouraged. However, there are several gaps in the university's partnership plans. The cooperation partners are few and far between. The partners are mainly foreign based institutions whose interests and training programmes might be irrelevant to Uganda's development. But because it is Norwegian funded, the NOMA programme book (2009 p.9) feared that the Master of Vocational Pedagogy (MVP) programme might end up being Eurocentric, and therefore suffer the same irrelevance to Uganda's industrialization and development drive just like the British colonial system of education appears to have been. Partnerships are limited to only academic institutions and few, if any, direct labour market players such as local industry and businesses (KYU Strategic Plan 2007 p.10). In my view, it would have been more beneficial for KYU to forge partnerships with local industry, businesses and the general private sector more, in order to map out areas of mutual collaborative interest in terms of training, the tools thereof, the needed skills and competencies and the available jobs in the Ugandan labour market.

2.5.5 Culture, Attitude and Gender in technical education for graduate employment

> Reality is conceived as full of conflicts and repressions which cause contradictions and ambivalences in identity and subjectivity. But diversity could be turned into strength by developing organizational strategies and work counseling practices for cross-cultural learning and communication. Discourses in working life evidence the need for cultural competencies and diversity. With cultural knowledge and understanding, organizations can then create opportunities for

> successful internal and external ideas, innovations, practices and evaluations (Korhonen, 2010 p.10).

In my view, in Africa, cultural contradictions are reflected mainly through gender biases in training and employment. Gender barriers are reflected in enrolment in education and training programs, including its breakdown by individual subgroups (gender, socioeconomic background, participation by sector and profession, etc (UNESCO, 2012 p.16). In the Nkore and Gganda cultures of Uganda, women were not permitted to climb trees and tall objects; therefore they could not build a house or ride a bicycle. Another dimension is related to religion and its impact on opportunities for access to TVET. There are laws in Islamic cultures or countries such as Saudi Arabia that bar women from even driving a car (Aljazeera TV, 2011). Saudi Arabia and Afghanistan limit or bar female participation in education in general and TVET in particular (UNEVOC, 2012).

For long, there has been a common cultural belief in Africa to the effect that technical and vocational education and training (VET) are for the less endowed, academically (AU, 2007 p.23). In my experience, this cultural view has been prevalent in Uganda as well. TVET has majorly been considered a last resort learning avenue (BTVET, 2011; Ssekamwa, 1997 p.84; GWPE, 1992). At the local levels, this belief is validated by the comparatively lower enrollment in the technically oriented programmes like engineering in Kyambogo University whose major objective at inception was to train technicians, engineers and artisans. The KYU Strategic Plan (2007-2013 p.9), shows that the number of Arts related lecturers is far above the science, technology and engineering ones. The culture of gender stereotyping is also rife with the majority of Ugandans still believing that TVET training should be offered along strict gender lines. “Some technical

programmes like design, modeling, beauty therapy, nursing, hotel, catering and hospitality management are the domain of girls; whereas the more menially demanding technical programmes like mechanical engineering, civil and construction, carpentry etc should be for males" (AU, 2007 p.8; Mjelde, 2006 p.76).

My view is that the cultural and gender stereo typing might be negatively impacting on the employment prospects of female graduates through segregation. This follows from the gender power relations in African culture. Thus, cultural beliefs have had a direct impacted on women citizens who might have gotten training and the resultant employment in the technical fields like civil, electrical and mechanical engineering; air piloting, commercial vehicle driving etc; for fear of society's ostracizing them for exposing themselves. Thus, the continued reliance of national development on technical training and the ever changing gender roles in society signify that the negative perception regarding technical training for different genders might be beginning to change positively.

The political culture may also be impacting on technical, vocational education and training (TVET). There has always been a gulf between general or academic education, on the one hand, and vocational education and training (VET) on the other, according to Mjelde & Daly (2006 p.9). But Lassnigg (2008 pp.267-268) is even more blunt, when he asserted that "academic education makes up the vocational education of the ruling and the middle classes in every society; while VET involves job-related; or menial working knowledge for those who are shut out of power and influence in both politics and society."

> Since education is considered the **key** to development, technical and vocational education and training (TVET) must be the **master key** that can impart skills, stimulate industrialization, create jobs, alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development (AU, 2007 p. 17; citing UNESCO, 2004).

But there seems to be a contradiction between the AU's views regarding the place and importance of technical training in national development and the actual investment by African governments in technical education. African governments and their education systems do not seem to have prioritized resource allocation and funding to technical training (AU, 2007 pp. 22-24). Uganda's BTVET Strategic Plan (2011 p.6) indicates that only 4% of Uganda's education budget share is allocated to the more vital Business, Technical and Vocational Training; and that by plan rather than accident, the preferred route of education and training is the academic one through to university, rather than the allegedly more productive technical and vocational training. "Main decisions on BTVET are made within the Ministry's sector-wide approach (SWAp) mechanisms, which are dominated by general (academic) education stakeholders and have only limited representation of BTVET interests," according to the BTVET Strategic Plan (2011 p.6). I totally agree with these sentiments. My experience with the employment industry in Uganda is that most job adverts require academically educated candidates. Attitude remains negative; with technical and vocational education largely being regarded as the last resort kind of education for the less academically gifted (Okello, 2010 p.14; Mjelde, 2006 p.27; Ssekamwa, 1997 p.57). In my view, there appears to be a lot of lip service to management stakeholders in the education sector.

2.6 Skills on demand in the labour market and the world of work

Sennet (2008 p.37) describes skills as trained practices. EQF (2008 p.13) on the other hand defines skills as the knowledge and abilities required by one to undertake practical tasks. My view is that skills are trained practices in the different trades, occupations and professions which occupy man's development activities.

However, employment skills tend to be peculiar to different periods of human history and development. Education activities and work activities are mutually exclusive (Hager, 2008 p.23). I am in agreement with the view that skills are time bound. Because of globalization and rapid changes, the knowledge, skills and competences which are required today may not necessarily be relevant tomorrow given the dynamic and ever evolving uniqueness of requirements of the world of work; or even from one job to another. Work skills' relevance demand constant up-grading, through re-training to keep relevant. Priority TVET areas for African economies include Agriculture and rural development, Public health and water resources, Energy and environmental management, Information and communication technologies, Construction and maintenance, indigenous and cottage industries and good governance, according to the (AU, 2007 pp.32-33). I am of the view that because skills requirements change with time, the solution might be found in modularized, life-long, life-wide and life-deep learning. This may only be possible in working-life; which implies adult education. The NDP (2010) underpin the longstanding perception that sufficient research has not been undertaken to map out key employment sectors and the specific skills which are on high demand by the current labour market in order to align, or link technical training to the impartation of the unique skills required; hence the justification for a study to examine how the technical training

offered at Kyambogo University affects the employment prospects of its graduates in the current job market and world of work in Uganda.

2.6.1 Technical or "hard" skills

Europe's and America's skills in science, technology and engineering underpin their long term competitiveness, participation and dominance in the world economy CEDEFOP (2010 p. 9). In my view, this might be the reason for low level graduate unemployment for the citizens of some western European nations like Germany.

In my opinion, it might be the reason for Germany's strong economy and stability in the wake of the current world-wide economic recession and social instability; unlike its counterparts such as Greece, Spain, France and the United Kingdom.

Key occupational skills on high demand in Europe are research and training, green technology or renewable energy (solar energy and wind power), waste recycling, green business management, energy auditing, agriculture (organic farming), forestry & land management, marine technology (ship building), power technology, nuclear science, desalination and plant maintenance, system mechanics, technology installation, carbon trading, eco design & tourism, energy auditing, oil shale mining, chemical technicians, low carbon vehicles and solar energy entrepreneurs among others (CEDEFOP, 2010 p.9).

Compared to the Uganda, the skills that are on demand in European job markets have been clearly identified. In my view, this makes it easier to match the requirements in technical training to the exact demands of the labour market in the most effective way. This then brings in the issue of relevance. (Bergli, Froyland & Larsen, 1997, p.1; cited in Kulabako, 2010) say wherever there is a labour market characterized by adjustments, and

where many have to change jobs; then targeted training and competence building become more important.

Because universities and other higher institutions of learning are the places where training that is geared toward employment and the world of work is conducted, the kind of training Kyambogo University offers is crucial. But Uganda, like most of Africa, the current training programmes are supply driven. The African Union had this to say about the training situation in Africa:

> TVET programmes are not often designed to meet observed or projected labour market demands. Instead, education and training efforts appear to be geared on helping the unemployed find jobs, without any critical attempt to match training with the actual work skills required in the available job market. This situation has resulted into many technical and vocational school graduates not finding jobs; or finding themselves in jobs for which they had no previous training (AU, 2007 p.24).

My view is that non-targeted skills development is one of the major weaknesses of the technical training regimes in many an Africa country.

Training institutions do not track the employment destination of their graduates. Consequently, valuable feedback from trainee alumni[5] on the quality of training they have received and the opportunity for their experience-based inputs to be factored into review of curricula and training packages[6] are lost (NCHE, 2006 p.78). There is therefore a noticeable absence of training tracer studies that can help improve the market responsiveness of technical training programmes and their deployment.

[5] Former students of TVET programmes and education system

[6] A set of modules, preferred in technical and vocational training instead of the traditional curricula to enable the flexible delivery technical training from the point of view of UVQF

> Technical universities are influenced by social values through technology development and engineering profession perspectives. In return, they influence the socio-technical system through generation of knowledge, educating engineers, communication with the local community and global organizations and many indirect interaction channels (Sotoudeh, 2009 p.151).

In Uganda, the BTVET Strategic Plan (2011, p. 16), indicated that the range of training programmes currently offered; and the skills outcomes thereof are very narrow. This was dictated mainly by the insufficiency of workshop facilities. The Strategic Plan goes on to add that skills building and development in new occupations that would keep Ugandan trainees and workers abreast with technological developments both in East Africa and internationally have been neglected. The BTVET Plan (2011) particularly identifies the new oil & gas sector, ICT, Hotel and hospitality sectors, the mining and construction technologies as those areas of skilling that have not been well attended to.

The specialized trades and skills which were deemed significant for the labour market were: nursing and midwifery, allied health professional courses, agriculture; forestry and fisheries, engineering and electronics, meteorology, carpentry, artistry, art and design, music dance and drama, business and entrepreneurship, hair dressing and beautification, mining, catering, tourism and hospitality and professional sports (BTVET Act, 2008 p. 21). KYU Strategic Plan (2007) identifies music, dance and drama; sports science, special needs, agriculture, Art and industrial design, food processing and technology, home economics, engineering, business studies and science as core skills on demand in its view. But unlike Europe, the list of Uganda's and Kyambogo University's key skills do not include critical trades like the environment, clean energy and new energy

alternatives, tourism and hospitality skills, fishing, mining, politics and civics, agriculture and agribusiness, trade, innovations, enterprise and informal skills.

2.6.2 Values, attitude, ethics other soft skills and graduate employment

UNESCO (2000) observes that African policy-makers would like to see their countries positioned, through technical training, to take advantage of the new opportunities in the world economy and development. The challenge, however, is to transform young people completing primary and lower secondary education into workers with the knowledge, skills and attitudes to be adaptable, flexible and competitive. Such a workforce cannot be developed through the classic TVET models that focused on specialized workshop skills only. Rather, generic 'soft' skills like working in teams, problem solving ability and entrepreneurship are more important for today's industries. The required specialized skills or hard skills can be acquired on the job. In fact, prospective employers prefer employees who possess the 'soft' skills so that they can be re-trained according to the specific requirements of the employer's industry (McOmish and Perera, http://divainternational.ch/spip.php?article33). Sotoudeh (2009 shares this view when he asserted that flexibility and open-mindedness are crucial attributes for the contemporary technical trainee and graduates. Sotoudeh (2009) suggests that the following are other critical miscellaneous factors which technical universities should impart to their trainees for future work life and survival include:

> Communication & presentation skills, cross-disciplinary work skills, reflexive knowledge, international experiences & language skills, multi-tasking, open-mindedness, flexibility, patience, focus and concentration, self-integrity, independency, problem solving skills, persistence & endurance, self-confidence, innovation & creativity, to interpreting knowledge (theory) to practice, career development, analytical & logical thinking, feedback, self-

> confidence, basic environmental knowledge, life-long learning and practical knowledge gained from learning by doing (Sotoudeh, 2009 p.75-76).

Nilsson (2010, p.3) was even more emphatic regarding other equally important, if not even more important attributes of technical training when he says that professional ethics[7] has direct consequences on how technical people conduct themselves and perform during training; and in their job at the actual world of work when he poses the question: "Can you imagine a nuclear scientist or medical doctor or an accountant without ethics in their conduct? This would be catastrophic." I concur with Nilsson (2011) that this would be catastrophic. Absence of professional ethics would make life in this world far more dangerous! Perhaps the current corruption scandals rocking Uganda's civil service; and involving the theft of billions and hundreds of millions of development funds by some public servants could be as result of the over-emphasis by the education system on only the acquisition of hard skills at the expense of other key skills like ethics and integrity. Closely related to ethics is communication. Proper and clear communication is important in all aspects of life. In the context of training, it affects the understanding between teachers and their learners, so communication must be done in a clear and respectful manner, Nilsson (2011 p.8).

Mondo (2010) was of the view that university graduate and youth unemployment should not be blamed on government alone. "These graduates are unethical; they have no interpersonal skills and are lazy. Most of them do not want to work. That is why employers in Uganda have resorted to hiring foreign labour in most cases." Datemwa

[7] The moral rules and principles governing the practice of particular trades, occupations or professions

(2011) echoed the same sentiments to MVP Cohort II visiting researchers. "One of the underlying challenges is that university graduates join the job market with no soft and interpersonal skills. They are rude and disrespectful." They mostly express their disrespect by late coming and absenteeism. I agree with all the above observations. However, I wish to point out that the problem may be with training curricula which rarely emphasize aspects of ethics and integrity, positive attitude and respect for others during training delivery.

2.6.3 Entrepreneurship and Graduate Employment

COMMEDAF (2007 p.22) pointed out that the high incidence of unemployment among graduates in Africa is because of the absence of entrepreneurial training in the school training curricula. UNESCO (2004) appears to share the same view when it says:

> .....education policy-makers in developing countries, particularly in Africa have bemoaned the lack of employment opportunities for the educated; while at the same time observing that the availability of technical services was very limited. They are convinced that young technically trained graduates needed to become self-employed as independent service providers rather than depend on finding wage employment. Young people would then be able to satisfy the demand for those services while carving out profitable careers for themselves (UNESCO, 2006 p.5).

But while it might be true that entrepreneurship is an important aspect of university or other higher education level training, my view is that simply teaching entrepreneurship at university, and in the traditional way, may not necessarily turn the graduates into successful entrepreneurs. Otherwise if this was the case, then all university graduates of entrepreneurship would automatically be successful entrepreneurs in life.

2.6.4 Creativity, innovation and university graduate employment

> Education systems; and as part of them VET systems, are the important source for innovation via the production of the qualifications and the knowledge necessary for innovation. However, even if there is consensus about the positive connection between education and innovation, the concrete mechanisms through which education and training might contribute to innovation are far less clear (Lassnigg, 2006 p.274).

Both past and current economic and wealth distribution patterns in the world indicate that genuinely rich people were self made, self employed and are currently employing many others in their creative enterprises. In my view, these individuals divorced their minds from the thinking that it is the responsibility of someone else to provide them with employment or work. It might not be possible to teach or learn innovation; either in a vocational or academic educational setting. Hill (1983 p.151) noted that Henry Ford of Ford Motor Company and fortune begun his business career under the handicaps of "poverty, illiteracy and ignorance; but remained determined and persistent in the pursuit of his goals."Sotoudeh (2009) found out the following as other examples of skills success factors for technical graduates:

> Persistence or endurance, independency, flexibility, focus and concentration, goal-orientedness, dealing with multiple issues at the same time (multi-tasking) open and broad mindedness, analytical thinking, problem-solving skills, how to interpret knowledge to practice, creativity, self-confidence, career development, basic environmental knowledge, life-long learning, learning skills, feedback and patience (Sotoudeh, 2009 p.76).

Dukcevich (2012) gives a litany of super-rich American entrepreneurs without university degrees in entrepreneurship or any academic field whatsoever when he wrote:

> World famous information technology (IT) guru Bill Gates of the Microsoft fortune did not complete his physics and mathematics academic degree training at Harvard University but is now the

> richest man in the world. His personal net worth is 43 billion US Dollars. The late billionaire, Steve Jobs[8] of Apple Computers was a high school drop-out. Paul Allen of Charter Communications, with a net worth of 21billion dollars today is a dropout of Washington State University; Larry Ellison of Oracle is a drop out of the University of Illinois. Ellison is estimated to have a net worth of 15.2 billion dollars. Michael Dell of Dell computers is a drop out of University of Texas at Austin. He has a net worth of 11.2 billion dollars to his name. "In their self chosen routes to establish their enterprises and accumulate vast fortunes, these self-made entrepreneurs created hundreds, thousands, if not millions of jobs for others. Ironically, these individuals now employ many others with University degrees and more educated than them."
> (www.prostate.joeuser.com/recent/page/4074).

My view is that no one taught these creative and innovative minds entrepreneurship at university. Like Dukcevich, I believe firmly that entrepreneurship, creativity or innovativeness cannot be taught in school or university lecture halls. By their very connotation, creativity and innovation imply newness by a creative individual or mind. This therefore implies that there has to be some thinking out of the usually limits of curricula; "out of the box." It is therefore difficult to lecture someone on their own creation. Dukcevich goes on to submit that 99% of all wealthy entrepreneurs in the world do not to have university degrees or diplomas in their chosen occupations or trades. Majority are high school and college drop outs. He sums up the prevailing wealth and achievement contest between the degree and non-degree holding entrepreneurs' in America this way:

> All teachers and parents want to believe that the idea behind acquiring a college degree is to increase earnings potential down the road. That might be true. But for Bill Gates, Michael Dell and Larry Ellison and others of their ilk, the ivory tower was getting in their

[8] The late founder of Apple Computers and modern smart I-phone tablet technology; was very rich, no University degree to his name because he dropped out of high school for his adopted father's inability to pay for his education.

> way of making big bucks, so they quit. (www.prostate.joeuser.com/recent/page/4074).

The above education-wealth distribution pattern is exhibited in Uganda's economic and wealth distribution as well: James Mulwana and Gordon Wavamuno do not have academic degrees or diplomas to their names. They did not attend formal entrepreneurial lectures but are thought to be among the wealthiest citizens in Uganda.

My thinking is that the traditionally thinking that only what is taught within the four walls of the lecture room and the confines of the curriculum are restrictive are correct proved unbearable to the outward thinking and creative minds of the Bill Gates' of this world. They had no option but to quit school in order to find space for exercising their thinking and creativity more freely.

It is expected that a university graduate should be just competent enough to find a job and join the labour market; but creative as well. Failing that, university graduates should be able to create jobs to employ themselves and their peers (Matovu, 2011 p.3; Hill, 1983 p. 70). Unfortunately, the current reality is that this is not always the case.

Creativity and innovation means doing things differently. In attempting to explain the wealth distribution patterns between the educated and the non- educated, Hill (1983 p. 70) distinguished between two types of personal creativeness.

The imaginative faculties function in two ways, according to (Hill, 1983). One is known as 'synthetic imagination' and the other as 'creative imagination.' Through synthetic imagination, one may re-arrange old concepts, ideas or plans into new combinations. In my view, this is what most probably happens with the bright students in our schools and universities. According to Hill (1983), this faculty creates nothing; but

merely works with the material experiences, education and observation with which it is fed. This faculty is used by the inventor not the genius. Creative imagination is the faculty through which the finite mind of man has direct communication with the Infinite intelligence. It is the faculty through which "hunches" and "inspirations" are received. It is by this faculty that all basic or new ideas are handed over to man. Hill summed up creativity this way:

> While it is the synthetic imagination is the one which will be used more frequently in the process of transforming the ideas into jobs or money for that matter, you must keep in mind the fact that it is you may face circumstances and situations which demand the use of creative imaginations as well (Hill, 1983 p.71).

I agree with Hill's (1983) view. The unprecedented unemployment situation facing Kyambogo university graduates; and indeed all graduates from other universities may call for more imaginative creativity rather that the synthetically predetermined creativity, our current university training, education and curriculum offer its graduates. (Kahn (2012) said that the current education system fails to identify unique individual capabilities, gifts and creativity. I am in agreement with both Hill and Kahn. Creativity and innovation cannot be taught in class or lecture room. Certainly innovation is not taught either; otherwise it ceases to be innovative.

2.7 Summary of Literature Review

I gathered and studied literature based on the four major objectives and themes. Existing literature points to the direction that little has been done to prioritize technical training in Uganda. Training at university remains overly academic in orientation. The literature study also underpins the perception that sufficient research has not been done to

map out key trades and occupations and the unique skills required by them for alignment of training programmes and outcomes, and to inform curriculum development. The literature further showed that technical training curricula in Uganda and Kyambogo University in particular, might not be responsive to the future as they do not reflect current rapid changes in knowledge, technology and labour relations. Ethics, empathy, innovation and personal enterprise appear to be an enduring gap in technical education and training curriculum. All the above, together with the high levels of unemployment among graduates; even for the technically trained university graduates, provided the justification for a study to examine how the training offered at Kyambogo University is impacting the employability of its graduates in the current job market in Uganda.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The purpose of this study was to examine how the technical training offered at Kyambogo University affects the employment prospects of its graduates in the current job market and world of work in Uganda. I have described the study design; comprising of the approach, the population from which the study respondents were drawn, the data collection method(s) of the study, sampling techniques and the tools and processes which I employed to gather data in order to answer the study questions. The key sections in this chapter were the study design, population, the methods, sampling and sampling techniques, the data collection instruments, data collection procedures and a preview of how the data gathered by researcher were processed and analyzed in chapter four.

3.2 Study Design

I employed the descriptive approach and used the qualitative method. It was a case study because I intended to generate detailed information and insight into the relationship between technical training at Kyambogo University and the unprecedented phenomenon of unemployment among university graduates - even the technically trained graduates. The qualitative method was further used because the study was limited both in time and funding. Moreover, training and unemployment are social phenomena for which the qualitative method of investigation is more suitable (Hakkinen, 2011; Amin (2005).

3.3 Study Area and Population

The study was conducted in Kyambogo University; specifically in the library, civil and mechanical engineering departments and at Nice House of Plastics in Nakawa industrial area, Nakawa Division, Kampala District. A population is a complete set of individuals, cases or objects sharing some common characteristics from which a study sample may be selected for data collection (Mugenda & Mugenda, 1999). The population in this study was the staff of Kyambogo University, technical graduates, continuing students and the staff at Nice House of Plastics, comprising of approximately 15,000 people. From this population, I selected sample frame of top management, librarians, lecturers, technicians, industry owners and human their resource managers. From the sample frame, I generated a sample size of 35 respondents. This was because the study is a qualitative one for which only a small sample size; in this particular case 35 respondents were deemed appropriate (Hoie, 2011; Boeije, 2009).

3.4 Sampling and sampling techniques

This study employed the non-random sampling method; and the purposive and snow-ball sampling techniques.

Table 3.1 Summary of the Sample Size and sampling Techniques of the study

Category	Sample Size	Technique
Top management	2	Purposive Sampling
Lecturers	3	Snowball Sampling
Technicians	3	Purposive Sampling
Unemployed Graduates	4	Snowball Sampling
Continuing Students	13	Purposive Sampling
Library Staff	7	Purposive Sampling
Industry HRMs	1	Purposive Sampling
CEOs/ Entrepreneurs	2	Purposive Sampling
Total	**35**	--

Source: author, 2012.

The study sample size was 35 respondents selected as illustrated in table 3.1 above. The sample frame comprised of members of top management of Kyambogo University, library staff, Science, Technology, Engineering and Mathematics (STEM) Lecturers, Laboratory Technicians and Students offering engineering programmes, graduates of civil and mechanical engineering from Kyambogo University and industry managers and proprietors in the world of work in Nakawa Division.

3.5 Data Collection Methods and Instruments

Fig. 3.2: A summary of the objectives, data collection methods and category of respondents

	Objective(s)	Methods/ techniques(s) used to gather data	Respondent Category
1.	To establish the state of training tools, materials & infrastructure in Kyambogo.	• Interviews • Document Analysis	• Top Management • Technicians • Library staff
2.	To ascertain how training is conducted in Kyambogo University	• Interviews • Focus Group Discussions	• Lecturers • Top Management • Continuing Students
3.	To assess the impact of technical training offered at Kyambogo on graduate employment prospects	• Interviews • Focus Group Discussions	• Work Place Managers • Unemployed Graduates
4.	To establish the skills on demand in Uganda's job market.	• Interviews • Documentary Analysis	• Employers • Unemployed Graduates • Industry & Services

Source: Author, 2012

3.5.1 Interviews

An interview is a conversation between two persons, the interviewer and the interviewee. The interviewer mainly poses the questions and the interviewee provides answers according to a pre-announced theme or topic (Kvale & Steinar, 2008 p.7). My study interviewees were members of Top Management, Technicians, Librarians, Lecturers, Students and Industry practitioners. I used interviews because they are convenient, economical, time saving, they can be conducted in real time and they provided me with the opportunity to capture other hidden but vital data such gestures, facial expression, and general body language that respondents usually do not ordinarily provide.

3.5.2 Focus Group Discussion

A focus group is a selection of people, especially selected to participate in a research discussion owing to their expertise, interest or positions in the community in order to collect information on social issues and brainstorm on their possible solutions (Sarantakos, 1998). I employed Focus Group Discussion (FGDs) to gather data from Top Management, Lecturers, Students, Work places and unemployed technical graduates. This is because FGDs are economical to use and they solicit responses from people who are deemed to be experts in the relevant fields. I used the FGD to collect data for objectives two and three of the study.

3.5.3 Documentary Analysis

Documents are written, printed or pictorial sources of data. Documentary analysis therefore is the scrutiny of documentary sources of information that are relevant to a given study (Hoie, 2012; Amin, 2005). I employed documentary sources because these enabled me to retrospectively gather vital and relevant data for the study.

3.5.4 Data Collection Instruments

I employed three data collection instruments: interview guides, focus group discussion guides and documentary content analysis to collect the data for the study.

3.5.4.1 Interview guide

Interview guides are semi-structured sets of short questions (appendix I) that guided the interviewing process. The interview guides were semi-structured and open-ended. I used interview guides to collect data for objective number one and three of the study.

The kind of data collected by the study was qualitative; were in the form of personal or group testimonies and anecdotes from the respondents. Data was mainly in textual form. The kind of data collected by interviewing was qualitative.

3.5.4.2 Focus Group Discussion Guide

A focus group discussion guide is a set of short unstructured queries administered to a discussion group of people; especially selected to participate in the discussion owing to their expertise, interest or positions in their community in order to collect information on a number of social issues and brainstorm on possible solutions (Sarantakos, 1998). I used the FGD to collect data for objectives two and three of the study. None standardized discussion and observation was the data collection instrument. The data collected was qualitative in form of the opinions of the group.

3.6.4.3 Document Content Analysis

Documents are written, printed or pictorial sources of data. Documentary content analysis therefore is the scrutiny of documentary sources of information that are relevant to a given study, according to ((Hoie, 2012; Amin, 2005). I employed documentary sources because documentary sources enabled me to retrospectively gather relevant data for the study.

3.6.5 Data collection Techniques

In-depth interviewing (IDI), conversations with focus group members, reading and extracting content from relevant documents were the three major data collection techniques I employed to generate data for this study. I selected and used the IDI, Focus group conversations and document content extraction data collection techniques because

the study was a qualitative one; for which interviewing, FGDs and documentary analysis methods are deemed best suitable (Hoie, 2012; Kvale & Steinar, 2008).

3.7 Data Quality Management

Validity, reliability, and triangulation are the methods by which I ensured the fidelity of the parameters of the main variables of the study.

Internal Validity is the level of truthfulness or credibility of the research data collection tools or instruments; whereas reliability is the measure of consistency of the data collection instruments (Sarantakos, 1998). According to Guba, validity and reliability are used in reference to the extent to which research results are trustworthy, Guba (1981 p.87; in Hoie, 2012). Validity and reliability ensure the audit trail of a research project.

3.7.1 Validity and reliability in the study

I ensured the credibility of the study data collection instruments and findings by the following actions: I pre-tested or piloted the data collection interview schedules; by administering them to different groups to see if they consistently understood and generated the same responses all the time. I discussed and sought expert advice. I also triangulated the process of the data collection and analysis in the study by using a mixture of the interview, focus group discussion and document analysis methods.

3.8 Data Collection Procedures

I secured permission to access the data collection venues and persons; cultivated rapport with those people I met on arrival at the data collection venues; I obtained informed consent of the respondents and I sought the respondent's permission to use a

digital voice recorder to capture their responses during the interviews. I read select documentary sources and extracted the relevant study data from them.

3.8.1 Interviewing

Interviewing is the process of querying which uses short verbal questioning as the principle technique of data collection, Sarantakos (1998). I employed in-depth personal interviews (IDIs), involving face to face interaction with members of Top Management, Lecturers, Technicians and some work place managers as the interviewees.

I sought permission to access the data collection sites by causing NOMA programme managers to write a formal request to the managers of the data collection areas. At the data collection site, I established some rapport with the respondents by exchanging greetings and short pleasantries. I obtained informed consent of the potential respondents. I sought the respondent's permission to use a voice recorder to capture some vital responses. Interviewing was used to collect data from lecturers, Kyambogo University management and staff, technicians, students, proprietors in the job market and workplace managers.

I used open-ended interview guide for data collection because these are more suited for eliciting qualitative data. Moreover, interviewing as a data collection technique is more flexible and easy to moderate (Amin, 2005).

3.8.2 Focus Group Discussion

A focus group is a small team of between study respondents who actively engage with a researcher (Barbour, 2007). I purposively selected 13 continuing students of mechanical and civil engineering programmes and 4 unemployed graduates who studied mechanical or civil engineering programmes at Kyambogo University for the focus group

discussions. Unemployed technical graduates in the study were selected by the snowballing technique - I approached one unemployed civil engineering graduate who then provided me with the contacts of his unemployed colleagues around Banda and Nakawa.

3.8.3 Documentary Analysis

Documentary analysis is the careful and detailed scrutiny of primary and secondary sources of information in order to extract relevant study data (Hoie, 2012; Sarantakos, 1998). I developed a documentary check list of several relevant documents to my study; including the Kyambogo University Strategic Plan, 2007-2012; The Kyambogo University re-structuring report, 2004; BTVET Act 2008; the 1992 GWPE and the BTVET Strategic Plan 2011-2020. Other resources in the check list were primary sources like newspapers articles, journals, World Bank research papers on TVET by the, International Labour Organization (ILO) and UNESCO-UNEVOC.

I used documentary analysis because this method provided me with an opportunity to study technical training in universities and graduate employment issues retrospectively and benefit from the rich past data available on the subject of education and training in Uganda. It was a cheap and therefore economical method of data collection that provided me with refined and high quality secondary data regarding technical training and its relationship with employment. In generating data using the documentary analysis, I read and extracted content from relevant documents in relation to the assumption or speculations I undertook in the study statement of the problem and research questions.

3.9 Data Processing and Analysis

Qualitative data analysis is a dialectical process in which data are dissembled into elements and components; these data components are then examined and arranged according to the emerging patterns and relationships (Boeije, 2012). In this study, data processing and analysis was a four (4) stage process; including organizing, transcribing coding, presentation and discussion (interpretation). Data coding was by two sub processes of segmenting and reassembling. Processing and analysis was done following to the four objectives of the study. Since the study was qualitative and therefore the data generated descriptive, data analysis was qualitative and descriptive.

I processed the field results by organizing them. The data was appropriately stored, sorted, transcribed and coded. The field results were sorted according to the major themes in the three objectives of the study.

3. 9. 1 Data Presentation

I presented field results by transcribing them following the objectives and questions of the study. Furthermore, I presented the field results or data following the open codes which were assigned to the major themes arising from these empirical field results.

3.9.2 Data Transcription

The field results were transcribed by writing them down in an orderly manner in chapter four of the report. The order of transcription was guided by the objectives and the open and descriptive codes that were assigned to the emergent themes arising from the field data.

3.9.3 Data coding

Coding was achieved by the processes of segmenting and reassembling. The study field results (data) being qualitative, I used the descriptive open and selective coding technique to code the field results (Boeije, 2009). From the emerging themes in the field results, I developed a coding scheme comprising of twenty-two (22) open codes. These codes were descriptive and in the form of streams of words as the code labels. In this study, I have performed data transcription by noting down the recordings of the personal interviews, focus group discussions and the relevant documentary source contents in addition to the field notes I jotted down during the interview and focus group discussion processes. This is because the study triangulated the above three methods of research.

An audio recorder was used to record the interview processes because it was impossible to manually capture all the responses given by respondents during the interview and focus group discussions.

3.9.4 Data interpretation

I discussed the field results by interpreting i.e. explained what the data shows, accorded meaning to them; and their significance according to my understanding of them; and how I intended other readers of the report to understand them (Boeije, 2009; Kulbir, 2001). The units of discussion or analysis were the four research objectives or questions of the study. The study findings were the interpretations I accorded to the empirical data that emerged from the field; because field data only become findings after they have been discussed and/ or interpreted (Daly, 2011; Boeije, 2009; NOMA Handbook, 2009). I interpreted the study data using thematic descriptions. The study findings were presented in the form of one or more themes developed from the emerging field data. The themes

represented the patterns I found through analyzing and extracting from the data. Conceptual descriptions were integrated with thematic descriptions of the key parts of the field results. Themes from literature review were used to transform the field results and provide new insights.

3.9.5 Ethical considerations in the Study:

- I obtained informed consent of all the respondents involved in the study prior to the data collection exercise.
- I have acknowledged all other people's earlier work and contributions to the subject of training and (un)employment by citing within the body text; and referencing the used information sources at the end the study report so as not to appear as though I am the originator of those ideas and avoid plagiarism.
- Throughout the course of this study, I have endeavoured to observe and respect the privacy, confidentiality and the anonymity of all the participants, respondents or interviewees to the extent possible.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

The purpose of the study was to examine how the technical training offered in Kyambogo University has impacted the employment prospects of graduates in the labour market in Uganda. It attempted to answer the following questions: What is the state of training tools and infrastructure in Kyambogo University; how training was conducted in Kyambogo; what was the impact of the technical training offered on the employment prospects of graduates; and which were the marketable skills in the current job market in Uganda?

Fig. 4.1 Personal interview & focus group discussion success/ response rates

Respondent Category	Proposed Sample Size	Actual Interviewed	Success Rate
Library Staff	07	06	85.7%
KYU Top Management	02	01	50.0%
Teaching Staff	03	03	100%
Lab Technicians	03	02	66.6%
Continuing Students	13	11	84.6%
Unemployed Graduates	04	04	100%
CEOs/ Entrepreneurs	02	00	00.0%
Work Place HRMs	01	01	100.%
Totals & Average	**35**	**28**	**73.4%**

Source: Author, 2012

The presentation and interpretation of the study findings was made under the following 22 descriptive open codes, all emerging from the major themes in field results.

4.1.1 Codes for objective one

State of the training tools and infrastructure, Policy on training tools and infrastructure, Attitude toward training tools and infrastructure, Globalization and population explosion.

4.1.2 Codes for objective two

Training curricula in the university, Training mode and venue of training delivery, The lecturers/ mentors, Public-Private Partnerships between Kyambogo, industry and world of work, Gender and culture in technical training, Assessment and certification

4.1.3 Codes for objective three

Knowledge and skills of the technical graduates, Length of time without a job since completion of studies, Level of pre-job training by the graduate, Link between technical training and the labour market, Culture, gender in technical education and graduate employment.

4.1.4 Codes for objective four

Hard skills, Soft skills, Attitude, Ethics/ integrity, Entrepreneurship, Innovation/ creativity

4.2 Findings (data) under objective one of the study

(State or condition and relevancy of training tools and infrastructure)

From an interview with senior librarians, it was revealed that textbooks are the major training materials in Kyambogo University, but that these are old and outdated. They are also poor and low in quality. In the words of the library focus group members:

"Majority of Kyambogo University library books are for the certificate and diploma level training which was being offered by the three former institutions, UPK, ITEK and UNISE that merged to form Kyambogo University." Very few, if any, training tools and infrastructure are known to have been added in by the university since its inception.

The interview with senior library staff further revealed:

"No e-books or electronic journals have been acquired by the university library over the past five years. Connectivity of the internet in the university is inconsistent. Computers are not sufficient. There were only 12 computer sets in the university library lab today. Even the 45 computers that were stolen earlier this year have not been replaced."

Focus Group Discussion with library staff further revealed that:

"Three quarters of all new textbooks in the Kyambogo University library are donations from Book Aid International, BAI."

A TV interview given by one senior Librarian, revealed:

"If students say that no books have been bought by the library, it is true; if they say that the books are old it is also true. The problem is with us not the students"

The contents of a report by the National Council for Higher Education (NCHE) pointed out:

"Apart from just inadequacy, most books in the university libraries in Uganda are outdated. Most of them were published in the 1990s; and those that were donated tend to be irrelevant to the courses of study."

An in-depth personal interview with one of the senior technician in the civil and building engineering (CBE) department revealed that:

"50% of the tools, equipment and infrastructure in the civil engineering department were dysfunctional due to old age. Up to 20% of the training tools/ equipment have missing parts, and only 30% of them tools are functioning. The majority of these tools and equipment are makes of between 1960's and 1980's".

And from the documentary analysis of the contents of the BTVET Strategic Plan, it was revealed:

"The physical infrastructures of many institutions in Uganda are dilapidated and inadequate in size to cater for the number of enrolled students. Most workshops lack essential training equipment and tools."

The interpretation of all this is that printed books are still the preferred format of reading materials in Kyambogo University library and academic community, even in this modern era of digital information, e-books, the internet and the World Wide Web (WWW). And because printed textbooks are not easy to up-date compared to e-books, my interpretation is that Kyambogo University library stock is outdated. Top management in Kyambogo does not seem to have accorded the library service the priority and attention it deserves as a crucial and central academic unit of the university. Thus the knowledge and skills imparted using these materials, tools, equipment and infrastructure might render Kyambogo University graduate job-seekers less competitive in the job market compared to their counterparts who trained from other institutions in Uganda or abroad.

Sufficiency of training tools, materials and infrastructure in Kyambogo

'Even for those teaching subjects that have some new books, even these are inadequate. New and up-to-date library stock is lacking. Library books are generally inadequate."

Analysis of the university budgetary documents showed:

"More money was allocated for the purchase of books. Modern electronic journals or e-books and computers; and even when it did, the electronic tools were rarely purchased."

Table 4.2 Comparison of student book ratios in public universities in Uganda for 2005/2006

Institution	Students	Books/Journals	Student/Book Ratio	Ideal Ratio	Needed Units	Gap
Makerere	30,081	1,028,539	1:33	1:40	1,243,240	214,701
***Kyambogo**	**10,566**	**184,726**	**1:17**	**1:40**	**422,640**	**237,914**
MUST	1,790	34,800	1:19	1:40	71,600	36,800
MUBS	10,731	49,096	1:5	1:40	429,240	380,144
Gulu	1,837	15,700	1:9	1:40	73,480	57,780
Total	**56,005**	**1,312,861**	**1:23**	**1:40**	**2,240,200**	**927,339**

Source: *A.B.K. Kasozi, 2009.*

Analysis of the contents of KYU Strategic Plan found out that:

"Not only are book reading materials in the university library old and outdated. Kyambogo University library was constructed to serve only 600 readers but now serves 28,000 readers. The number of users has increased drastically without a matching expansion in infrastructure. There is a noticeable gap between the contents of the Kyambogo University's planning documents and the University's motto, "Knowledge and Skills for Service," (KYU logo, 2003)."

From the above table, the book/student ration in Kyambogo University is (184726 /26000 = 7:1).

Analysis of the GWPE (ENID) Report of 1992 revealed the following in support of the findings on the adequacy of training materials in institutional libraries:

"The present state of libraries in educational institutions is very pathetic - either there are no facilities at all, or where they exist, they (especially books) are out-of-date."

Analysis of the library standards document by the National Council for Higher Education (NCHE) showed that the ideal average sitting spacing per reader in a university library should be 2.5m². An interview with senior library staff corroborated this finding when one member lamented:

"The library buildings are small. The entire library service consists of four small libraries spread around the university campus. The library lacks enough office space for its staff and operations."

Table 4.3: The ideal sitting spacing standards for university libraries

Item	Ideal	Good	Acceptable
Library Space	2.5m² per reader	2m.² per reader	1m² per reader
Disability Facilities	All buildings	All classrooms	Only on a few
Student/ Book Ratio	1:40	1:30	1:20

Source: NCHE, 2011.

Table 4.3 below, Kyambogo university library spacing does not even come anywhere near this ideal standard.

An in-depth personal interview (IDI) with a senior technician in the civil engineering department revealed:

"Only 30% the training tools and equipment in engineering workshops and laboratories were functional. Training materials are perennially inadequate." "Not only are there few training facilities, but there often no sufficient training materials, tools and equipment."

The contents of the KYU Strategic Plan (2007-2012) showed that:

"Issues like inadequate ICT infrastructure coupled with lack of modern communication systems, lack of well equipped laboratories and workshops and inadequate workplace facilities for staff and students; are some of the many weaknesses and challenges the University faces."

My interpretation of these findings is that because of limited information materials and reading space, students and lecturers do not dedicate sufficient time for private study and research. It also means that learners do not spend sufficient time interacting with consulting with the latest information sources, leaving them to be totally dependent on information from lecturers in the traditional academic way. It also further means that both trainers and trainees will not have sufficient practice time with modern training and research tools and materials like computers and the internet, hence the low level of research in Kyambogo University.

Policy to keep Kyambogo University training infrastructure current and up-to-date

In-depth personal interview with a member of the University Top Management revealed that:

"One must be conversant with the rapidly changing nature of technology in education and training today. You need to know the lifespan of critical training equipments like computers and their software. "For instance if the training tools we are referring to are computers, one must know that a computer has a lifespan of five years. So you can replace these with newer versions every five years." You can also keep current through the training staff to be more competent in handling newer training equipment and tools."

An interview with senior librarians it came out that:

"Books are acquired and added to the library stock often but old books are rarely weeded out. The last time old books were weeded out by the library was in 2003." All that happens is that old and torn library books are re-bound to keep them in useable physical condition. Library information materials were acquired irregularly even when the budget records showed that funds were allocated for buying materials on an annual basis."

An interview with a senior Technician in-charge of tools and equipment revealed:

"Regular repair and maintenance; protection from vandalism, providing guidelines by trainees when in the laboratories, improving security of the laboratories and workshops, maintaining a clean and tidy working environment. However, the tools and equipment in the laboratories and workshops of the university were installed in the 1960's and 1980s. These have not been replaced since."

An interview with another senior mechanical engineering Technician revealed:

"Some training tools and equipment that were donated by the African Development Bank (AFDB) 12 years ago in 1996 remain unused. Some installed machinery have remained unused because trainers were not conversant with modern tools like one of the 1996 semi-digitized lathe machine in the mechanical engineering department."

A 1996 AFDB purchased semi-computerized and non-operational lathe machine

Source: Mechanical & Production Engineering workshop-Kyambogo University

My interpretation of these findings is that Kyambogo University library has no policy or systematic plans for the periodic replacement of textbook training materials.

Kyambogo University library does not have a definite library stock collection and development policy. The book and other reading materials acquisition process is erratic and intermittent. In a bid to keep the tools and equipment in the civil and building engineering relevant and up-to-date, they are repaired occasionally.

Documentary analysis of the contents of the Kyambogo University Strategic Plan (2007-2012 revealed that:

The university is silent regarding timeframes within which key training tools, equipment and infrastructure such as laboratories should be renovated or replaced. Instead, the strategic plan dwells mostly on staffing, promotions, academic qualifications and their remuneration. The strategic plan makes no mention of more crucial factors in technical training such as the age and currency of library materials and books, workshop equipment and machinery.

Attitude toward the library and other training infrastructure

An interview with senior librarians revealed that:

The number professional staff working in Kyambogo university library is low. There are many non-professional staff working in the library. S4 and S6 leavers have been deployed to work in the university library. It is disappointing that whenever a request is made for more manpower in the library, management is quick to deploy S4 and S6 leavers. No serious library manager can allow the recruitment of S4 and S6 leavers in university department as technical as the library. Someone should be able to reject dumping. Library management in Kyambogo still budgets for and buys only print books even in this digital e-era.

The library budget is dodgy and not clear. There is no clear amount of money earmarked for buying reading materials. There is poor and low budget allocation to the library by the university authorities. The library budget has fallen from between 1.5 billion to 2 billion UGX but it has now dropped to between 300,000,000 – 500,000,000 million UGX per annum.

My interpretation of this is that there is negative attitude toward the library, and management is not very supportive of the library as it has not given it the attention it deserves. The place and role of the library as the nucleus to teaching, and research in the university has not been appreciated. It further means that both the top management of the university and that of the library seem to have restricted their understanding to printed books only. In this day and age, understanding of a library is much more than printed textbooks and newspapers. It comprises of computers, the internet and the World Wide Web. This is the basis of the emergence of webometrics and cybermetrics as new technologies of contemporary librarianship and bibliometrics.

The out-datedness of library materials seemed to originate from the library's acquisition thinking and managerial policy arising from their attitude toward the library. The policy appears to be stuck in the old. The researcher's interpretation is that the university library acquisition policy is still stuck in the old traditional bibliometric thinking; which was to acquire more and more print information materials.

Globalization, population explosion and graduate employment

Analysis of documentary sources revealed that there is the problem of globalization. Goods, services, knowledge, human labour and investment capital now move rapidly across the world; and this has increased the levels of competitiveness.

A focus group discussion with unemployed graduates of Civil and Mechanical engineering revealed the following:

"I am very frustrated. Can you imagine that even as a graduate of civil engineering from Kyambogo University, I have resorted to casual labour for survival?" I live from hand to mouth each day. The work I do cannot afford to buy me even just food.

"But I think many graduates cannot find jobs these days because of the problem of population explosion and globalization. Before you know it, all sorts of people, with all kinds of skills are here competing for the few available jobs. There are so many people from India and Pakistan in Uganda engaging in petty trade because of the ease with which they can move. The population of Uganda is too high. Therefore too many of us are completing school these days. Have you heard of this programme (generation X) for promoting smaller families? I think government should promote that programme the more and encourage smaller families."

My understanding of this is that the high unemployment among university graduates was not necessarily because of the kind and quality of training they were exposed to. Rather, university graduate unemployment was ultimately dependant on aggregate demand. This aggregate demand has been outstripped because of the high population growth in Uganda at the moment which is much higher than economic growth and the rate at which jobs are being created in the labour market. Globalization has also brought about the aspect of stiff competition arising from foreign citizens providing cheaper labour and alternative goods and services from the likes of China, India and Pakistan in South East Asia. And so the earlier findings showing that training tools, equipment and infrastructure were out-dated; inadequate training materials and teaching

staff notwithstanding, it is the high population, corruption, nepotism, globalization and the stiff competition that comes with it; were more responsible for unemployment among Kyambogo University graduates.

Challenges facing technical training in Kyambogo University

An in-depth personal interview with a top management official revealed that training at Kyambogo University was faced with a variety of challenges; including:

"There is an acutely low level of funding for the university from government. It has been difficult to develop and retain relevant and qualified human resources. There was an acute inadequacy of teaching space and infrastructure. The university was not able to keep up with rapid changes in science and newer training technologies and there was stiff competition from other universities and tertiary training institutions of learning."

An interview with a technician in the mechanical engineering department appeared to confirm the above challenges when he said:

"There are low levels of adopting ICTs and other training technologies. Up to now, no one seems to be able to operate the semi-digital lathe machine donated by the African Development Bank (AfDB) to the mechanical engineering workshop in 1996."

And as if the corroborate the sentiments of the technician above regarding near lack of the adoption and use of modern training technologies in Kyambogo, a group interview with senior library staff revealed the following:

"Apparently, there are only of 24 computers in the university library. 12 of these are for administrative purposes and only 12 are for library users. Computers stolen from the

library in 2011 have not yet been replaced. The library concentrates on buying mostly printed textbooks. Can you imagine there are no e-books in the university library in this electronic era? Electronic journals have not been subscribed to over the past 5 year! No internet librarianship is practiced in Kyambogo University."

My interpretation of this result is that the level of computerization and digitization of library services in Kyambogo University library is almost nonexistent; and this is affecting the quality of information services provided by the library as the supposed nucleus of academic activity. Kyambogo University seems to have been reduced to the position of spectator while its rivals in the area of training acquire modern library and training technologies and endeavour to keep up to date with new technological education trends. This finding means that Kyambogo University is only still at the initial stages of adopting and deploying basic modern technologies in its library, teaching, research and publishing academic activities. The traditional manual printed resources such as textbooks and information management tools like the card catalogue are still the preferred. The card catalogue and the printed book catalogue are still the major retrieval tools of the university library even in this digital age.

In my view, these findings mean that the university top management, academic staff (library staff, lecturers) middle management and students have all not yet appreciated the paradigm shift in librarianship and other academic work; from the traditional bibliometrics to modern cybermetrics or webometrics. The e-information materials or resources in Kyambogo University library services are not just limited, but their accessibility is grossly limited. It also means that less importance is attached to the modern library tools and other technical training materials such as computers, internet

and the World Wide Web. It appears to mean that the understanding of training and academic work by stakeholders in Kyambogo University is still restricted to teaching only.

Prytherch (2007) seems to corroborate this view when he wrote, "*the internet and the World Wide Web (WWW) have now allowed anyone and everyone to become an academic and a publisher. These two media can now enable each one of us to become desk top publisher (DTP) or an e-publisher, or remote publisher or nanopublisher*"

4.4 Field results (data) for objective two of the study

Objective two of the study was to ascertain how technical training is conducted in Kyambogo University. The aim of this objective was to generate data for answering the research question: How is technical education and/ or training conducted in Kyambogo University?

Below are the six (6) descriptive and open codes under which I coded and presented the emerging data themes for study objective two.

Admission to technical training programmes in Kyambogo University

From documentary analysis of the contents of the Kyambogo University Strategic Plan, 2007-2012, it was found out that:

"Admission for training at Kyambogo University keeps on increasing each year. It is based on the available space and infrastructure and not on the programmes which will impart knowledge and skills required by the job market and the world of work"

Technical training curricula in Kyambogo University

From a focus group discussion (FGD) with mechanical and civil students engineering students, the following was revealed:

"We are not satisfied with the content of curriculum in civil engineering programme. Most technical things are taught theoretically. Tools for training are not there. The tools and equipment in the university are in contrast to the tools and equipment at the actual workplaces and or job market, where almost all equipment and tools were relatively modern, electronic and digital." Programme training curricula in Kyambogo University are supposed to be reviewed every five years. But in reality, they have not been reviewed over the past seven years."

An in-depth personal interview (IDI) with a Senior Lecturer in Mechanical Engineering department appeared to corroborate the views of the students, when he said;

"Training curricula in Kyambogo comprises of theory or theoretical knowledge, practical knowledge and industrial training or filed attachment, examination assessment and evaluation methods. Training curricula in mechanical engineering have not been reviewed in the last seven (7) years. The technology for teaching engineering in Kyambogo University is of the 1960s. The training equipments do not work. Most have missing parts. Others are complete but non-functional. They are clearly outdated. Training materials are never sufficient. There is a high student/machine ratio. The university still organizes and delivers its training programmes in way which is oriented towards examinations and certificates. Learning is lecture centered and not based on productive training tasks. The teaching/ training is neither problem nor project based."

My interpretation of the above results is that aim of technical training in Kyambogo University is the impartation of knowledge and skills that are relevant to the current job market. However, this training is still done in the traditional way and therefore its outputs might be obsolete. Given the 7 year period it takes Kyambogo University to review its training curricula; and the current rapid changes in knowledge and technology, it might be that the knowledge and skills (competencies) imparted to trainees is obsolete and irrelevant to the unique requirements of current world of work.

Technical training delivery mode and venues

An in-depth interview (IDI) with another lecturer of civil engineering department revealed that:

"Technical training in the department is organized on the basis of learning classes. Training is mainly delivered within the four walls of the classroom, it is not project or problem oriented and is restricted classes groups or cohorts of nearly the same age groups. Training curricula are rigid. The seven year period for implementing programme curricula review is too long in the face of the current rapid changes in knowledge and technology and the globalized competition.

A focus group discussion (FGD) with students of civil and mechanical engineering revealed that:

"Lecturers simply download drawings of new machines, usually with only one side their diagrams. In fact because of the lack of relevant training equipment, much of the training in engineering of Kyambogo was about the theory of the machines and equipment instead. It is not even training but it is teaching secondary school style! All the learning is about the lecturer. Only what the lecturer knows is taken as correct. Lecturers have

this draconian I know it all attitudes. New ideas from students are usually disregarded as incorrect and might even be viewed as a direct challenge to the lecturer. The punishment is usually low marks or failure of the course in question by the student.

Assessment is exam oriented. Evaluation is by exam mark the trainee has gotten in the written examinations.

From analysis of the contents of the KYU Academic Year. Planner, the study found out that: *"Practical training in Kyambogo University is usually done at the end of the academic programmes; in form of industrial training and work placements in industries; meaning that theory and practice are delivered totally different from one another"*

Khan, in an interview on Aljazeera TV lamented:

"The current education system in world is broken down. It is stuck with the traditional learning methods which are obsolete. It fails to identify the individual gifts and abilities of learners. The current education system makes both learners and teachers constrained or limited to the contents of stagnant curricula. It does not provide alternatives to learners who do not fit into the pre-packaged lecture-room curricula. Learner group comprise of homogenous age groups with similar knowledge levels, experiences and therefore even ignorance."

My interpretation of this is that 50 years after independence, the organization of training in our universities has not divorced itself from the colonial model of education. It is still a mono-directional affair; from the lecturer to the students. Unfortunately the lecturers do not appear to appreciate the level of democracy which the new era of Information and Communication technologies (ICTs) and the Information Society (IS),

have brought to education and training; because today, it is possible for a trainee to be more knowledgeable than his/ her teacher in certain areas.

Lecturers/ instructors attitude and technical training for employment

A focus group interview with engineering students revealed the following:

"Here in Kyambogo the lecturers behave like they are the Alpha and the Omega. You cannot correct them even when it is clear they are mistaken. They forget that in today's cyber world, a student can be more knowledgeable than their teacher and that new information and knowledge in Science, Engineering and Technology (STE) fields is generated every 5 minutes. In most cases, learners are intimidated into keeping quite just for the sake of completing and passing a lecturer's the course unit. For me I think that some these lecturers feel threatened, because they do not take time to research what they teach. I think they fear that some of us will take their jobs."

My interpretation of these field results is that learning (training) in Kyambogo University is still teacher centered and mono-directional. Even technical training in Kyambogo University was still organized around the traditional academic teaching of the past decades, contrary to contemporary pedagogical methods. Today's impartations of "hard skills" or productive skills demand that training be hands on and didactical in approach. The rapid changes in knowledge and technologies require that the trainers and their learners have positive attitude, open to change and be respectful of themselves and others in order to be at par with competitors in terms of knowledge, skills and training outcomes.

Public-Private Partnerships (PPPs) between Kyambogo University and the job market stakeholders

From an in-depth personal interview with one of the members of Top management, it became apparent that:

"Employers our there form the biggest portion of the job market for university graduates. But unfortunately, these important stakeholders in training do not appear to have a say in Kyambogo University's training curricula. Kyambogo University appears not to even have an alumni[9] association. PPPs between Kyambogo University and workplaces are periodic and occur only during internships and industrial training placements."

Analyzing the contents of the Kyambogo University Strategic Plan, 2007, revealed that:

"The PPPs Kyambogo University has with other organizations are limited to only academic institutions and few, if any, direct labour market players such as local industry and businesses.

Kyambogo University has no jobs to offer its graduates. It is the services sector, manufacturers, transporters and farmers that have the jobs; and therefore know exactly which skills are required for a graduate to fit in the available job positions in the workplaces. Training in Kyambogo University is underfunded. The tools and equipment are outdated, inadequate and infrastructures dilapidated. Public Private Partnerships (PPPs) are crucial in the delivery of effective and relevant technical training for the job market and thereby ensure employment for Kyambogo University graduates. The PPPs

[9] People in public life who are former students of an institution of higher learning. They are commonplace in Europe and America's where they play active roles in supporting their former institutions morally, financially and materially.

Kyambogo University has forged is mainly with foreign training institutions and funding partners".

My interpretation of all these is that the technical training provided at Kyambogo University would be more productive, relevant much more aligned to the job market if market research was done prior to conducting the technical training to establish the most desired skills in the world of work, through corporation and partnerships with the players in the world of work and industry.

Assessment and certification

Analysis of some technical programmes of study in Kyambogo University showed that assessment was still heavily bent on passing written examinations. The examinations test mainly the theoretical knowledge taught. Like is the case with other forms of training, academic certificates are awarded at the end of the prescribed training tenure to as a validation of the outcomes of the technical qualifications attained.

A documentary analysis of the contents of ENID report, and Ssekamwa work on the history of the development of education in Uganda showed that learning and class work are still highly individual processes. The main assessment criterion was still the marks scored by the learner or trainee and not the actual work competencies of the newly qualified graduates.

My interpretation of this is that even technical training at Kyambogo University has made very little effort to move away from the educational tradition handed down by the British colonial masters whose major aim for the training they conducted was to produce clerical support staff for their administration.

Gender and culture power in technical training

Analysis of the contents of Kyambogo University's Strategic Plan (2007-2012) indicated that its major objective at inception was to train technicians, engineers and artisans. There are lower enrollment levels for girls and women in technically oriented programmes like engineering in Kyambogo University. Documents also showed that both students and lectures numbers are higher in Arts related disciplines compared to the science, technology and engineering.

My interpretation of this was that technical training, and indeed all training at Kyambogo University was still heavily divided along the traditional gender lines. The indication was that girls or women might still be keeping to the arts and related subjects because of their gender and assumed less physical endowment; while the men or boys should be the ones to undertake training in science, or technical fields where they can draw on their assumed superior strength to be able to take on the more physically demanding tasks or roles.

4.5 Field Results (data) for Objective Three of the study

Objective three of the study was to assess the impact of technical training offered in Kyambogo University on the employment prospects of its graduates in the current job market in Uganda. This objective was to enable the study generate data for answering the research question: What is the impact(s) of the technical training offered in Kyambogo University on the on the employment prospects of its graduates?

Below are the five (5) descriptive codes under which I coded and presented the emerging field data for objective three of the study:

Knowledge and skills of the technical graduates

Documentary analysis indicated that the required knowledge and skills for technical graduates include the ability to deal with multiple issues at the same time or multi-tasking; open and broad or open-mindedness; analytical thinking; problem-solving skills; how to interpret knowledge to practice; creativity; self-confidence; career development; basic environmental knowledge; persistence or endurance; independency; flexibility; focus and concentration; life-long learning; learning skills; feedback and patience.

Length of time without a job since completion of studies

"*I am very frustrated. I have spent so much without a job since completing my university training. Can you imagine that even as a graduate of civil engineering from Kyambogo University, I have resorted to casual labour for survival? I live from hand to mouth each day. The work I do cannot afford to buy me even just food.*"

In the Philippines, all technical graduates are able to find jobs within 6 months of completing their training. There was no known specific time range graduates of Kyambogo University take to find jobs in Uganda's job market.

Level of pre-job training by the graduate

Documentary analysis shows that majority of Kyambogo University's VET graduates undergo some kind of pre-job training before they can fit in the jobs on offer; meaning that Uganda's technical training does not have that much impact on the employment prospects of its graduates. On the hand, VET graduates in countries like Germany join the labour market without pre-job training because of their comprehensive dual apprenticeship system of VET ensures that they have all the requisite skills for the job market.

Link between technical training and the labour market

Kyambogo University's linkage with the public seems to very poor and still in its infancy. The alumni association with former students is just being established. Private Public Partnerships between Kyambogo University and workplaces are periodic and are limited to only during internships and industrial training placements. There were no modalities for sharing the modern tools and equipment which Kyambogo lacks because it cannot afford them yet they are found in the workplaces who can afford them. The knowledge and skills imparted to trainees at Kyambogo University were independent of the requirements of the world of work, effectively rendering them irrelevant to the job market even before the trainees graduate.

Analyzing the contents of the Kyambogo University Strategic Plan, 2007, revealed that: "The PPPs Kyambogo University has with other organizations are limited to only academic institutions and few, if any, direct labour market players such as local industry and businesses.

Culture, gender in technical education and graduate employment

Technical training has impacted culture and gender issue in mainly two ways. These impacts are both positive and negative. Technical training has impacted culture to the extent that Ugandan's now appreciate that both even women and girls can pursue technical education like engineering. The number of female engineers and technicians is on an upward trend. Culturally, technical education is no-longer viewed as the usual last resort education option for academic failures; but rather, it is now being appreciated as the panacea or silver bullet for the rampant youth unemployment. Every parent/ guardian now wants their child to offer engineering or a technical programme at university. Thus,

the continued reliance of national development on technical training and the ever changing gender roles in society signify that the negative perception regarding technical training for different genders might be beginning to change positively.

4.6 Field results (data) for objective four of the study:

Objective four of the study was to determine the skills which are currently on demand in the current world of work in Uganda. This objective was to enable the study generate data for answering the question: Which are the skills on high demand in the current job market and world of work in Uganda?

Below are the four (4) descriptive open codes under which I coded and presented the emerging data themes for objective four of the study:

Hard skills and graduate employment

From an in-depth interview with one member of top management, it became apparent that the hard skills on high demand in Uganda' job market were;

"*Teaching, research and cybermetrics, webpage design & development. Other skills on high demand were ICT competencies, online or internet information searching, electronic Selective Dissemination of Information, (eSDI), community information services and Current Awareness Service (CAS).*"

Content analysis of the BTVET Strategic Plan (2011) and the BTVET Act (2008) revealed that other knowledge and skills on high demand are accounting and financial management, Nursing and midwifery and allied health professional courses, Agriculture, forestry and fisheries, Engineering and electronics, Mining, oil and gas technology, Meteorology, Carpentry, artistry, art and design, Music dance and drama, Business and entrepreneurship, Hair dressing and beautification, Catering, tourism and hospitality and

professional sports. "The range of training programmes currently offered in Uganda was narrow," (BTVET Strategic Plan, 2011).

Content analysis of the AU TVET report (2007) showed that Agriculture and rural development, Public health and water resources, Energy and environmental management, Information and communication technologies, Construction and maintenance, indigenous and cottage industries and good governance or politics.

From an in-depth interview with one lecturer and technician of engineering revealed that:

"the hard skills on high demand today are passenger motor bike riding (boda boda) and repair, motor vehicle repair and driving, iron forging and metal fabrication, generator repair, energy engineering (clean energy, including solar, wind and biogas energy). Others were engineering skills (civil, electrical, mechanical, manufacturing, electronics, IT, economics and development and telecommunications engineering). There was need for building works; hydrology and water engineering. There was also demand for environmental engineering on demand given the current environmental challenges facing Uganda. Yet other skills on high demand were agro-processing and value addition, enterprise, creativity and innovativeness."

The interpretation of these results was that the range of hard skills imparted to learners in Kyambogo University was still limited to the rudimentary forms of science, technology and engineering, STE. Because of the age and level of technology used when imparting them, the levels of competencies of Kyambogo University technical graduates might not be sufficient for them to measure up to the high levels of competition in the job market brought about by globalization. The said hard skills were further confined to only

a few and common trades in comparison to the hard skills on demand in developed countries.

Research skills and graduate employment

An in-depth personal interview with one of the topmost university managers revealed that: *"Research is becoming increasingly important in higher education. There is need for all trainers and teachers to develop research as a learning culture. But the research capacity in Kyambogo is poor. On a scale of 1-100, research in Kyambogo University is approximately at 20%."*

Document analysis of the webometric ranking for July 2012 revealed that: *Kyambogo University's academic activity (library resources sharing, research and publishing) not visible on the World Wide Web (WWW). Visibility on the Web (webometrics/ or cybermetrics) is measured by the volume of an academic institution's sharing of its academic outputs, publishing and communication online.*

My interpretation of this is that the understanding of academic activity in Kyambogo University unfortunately appeared to be limited to teaching only; and that there was low level of research being conducted in Kyambogo University. There were almost no publishing done as an academic activity. The 20% level of research level mentioned appeared to refer to the kind of academic research conducted by students for the partial fulfillments of the award of their academic degrees.

Soft skills and graduate employment

The soft skills on demand are interpersonal skills, effective and clear communication, ethics, integrity, empathy, positive attitude, politeness and sense of

responsibility. You cannot imagine an engineer or teacher who is unethical, because this would put the lives of communities and the entire human race into danger.

The interpretation of this finding is that technical skills alone are not enough for graduate for successful employment in today's unique and competitive labour market. Employers seem to prefer graduates who have the right balance of both the technical skills and the soft skills. It also means that technical training at Kyambogo University should be organized in such a way that it provides for the development of soft skills of graduates; implying university graduates should be ethical, respectful, have concern for others, positive in attitude and be able to communicate effectively.

Enterprise, innovation and creativity in Kyambogo University

A focus group discussion with engineering students, it came to light that graduates prefer to have an occupation that was different from their university professions:

"I have observed that the majority of the rich people are not practicing what they specialized in at university. The problem is that the school system always wants to force you to remain in your original trade. This is what we see even in this university. For me, I wish to come up with an agricultural innovation even if I am a mechanical engineer. This is because the community in my village is surrounded with natural sources of water which can be used for agricultural production but they still depend on seasonal rain water for farming. They lack the money, basic technology and knowledge of how to exploit the available water and land resources." They have no entrepreneurial skills, they cannot innovate."

Another focus trainee engineer said:

"In this country, innovative ideas are rarely supported or funded. Kyambogo University lecturers do not accept new ideas and ways of doing things. "We feel that the Lecturers seem to be threatened by students who do not do things in a predetermined way, following outdated methods." Teaching in Kyambogo University revolves around the lecturers. What I know and the lecturer does not know is automatically wrong. Some lecturers seem to suffer from the "I know it all academic syndrome."

My interpretation of these findings is that creativity, innovation and entrepreneurship are crucial for graduates in the current labour market; and that creativity and innovation imply newness; or difference, yet the university training system stipulates rigid curricula. This means that true entrepreneurship cannot be taught in the lecture rooms of universities. The majority of successful entrepreneurs did not have university degree certificates. These are natural gifts, as most educated people appear to fear to undertake the risks associated with new adventures.

CHAPTER FIVE

SUMMARY, CONCLUSION(S) AND RECOMMENDATION(S)

5.1 Summary

The purpose of the study was to examine the effect of technical training in Kyambogo University on the employment prospects of graduates in the job market in Uganda. The methods of the study were the interview, focus group discussion and documentary content analysis. The objectives of the study were to establish the state of training tools, materials and physical infrastructure in Kyambogo University; to ascertain how technical training is conducted in Kyambogo University; to assess the impact of the technical training offered in Kyambogo University on the employment prospects of its graduates in the current job market; to determine the skills which are on demand in the current job market in Uganda.

5.2 Findings

- The training tools, equipment and physical infrastructure in Kyambogo University are both outdated and insufficient; and fall short of the requirements for delivering productive technical training to meet the unique competency requirements of the current job market.
- There are no policy guidelines for the periodic replacement and updating of training tools, equipment and infrastructure in Kyambogo University.
- Training in Kyambogo University was limited to almost only teaching, it is theoretical and exam oriented.

- Rapid changes in science and technology, negative attitude, lack of individual creativity or enterprise, population explosion, corruption, nepotism and soft skills impacted the employment prospects of Kyambogo University graduates the more.
- The obsoleteness of training equipment and infrastructure notwithstanding, the world of work in Uganda still preferred to hire graduates from Kyambogo.
- The 'hard skills' on high demand are accounting, banking and financial management; hotel & tourism, construction engineering, telecom engineering, mechanical engineering, oil & gas engineering, renewable and alternative and renewable energy engineering, agriculture, agribusiness, agro-processing and value addition, information technology, research, consultancy, professional sports and politics.

5.3 Conclusion(s)

The out date-dness and inadequacy of training equipment, infrastructure; understaffing, underfunding and staff wrangles notwithstanding, technical training at Kyambogo University has had a substantial positive impact on the quality and relevance of training outcomes and therefore their chances of finding work. The out-datedness, inadequacy and insufficiency of training tools, equipment and infrastructure cut across all departments and sections in the university.

Because Kyambogo University has not priotized the library as the nucleus of academic activity and related ICTs, is the reason it is lagging behind in research, publishing and the general academic communication, and is conspicuously missing from the Webometric and Scimango academic/ training rankings. Kyambogo University

management and academic staff have largely continued to restrict their understanding of a library to a collection of printed textbooks books only.

Graduate attributes such as individual enterprise, innovation and creativity; interpersonal relationships, effective communication, ethics, empathy for others, integrity and honesty affected the employability of graduates more than the technical 'hard' skills. Other factors which significantly affected the employability of graduates are tribalism, corruption, globalization and population explosion.

The meaning of the word academic in Kyambogo University has, unfortunately, been reduced and limited to a single aspect of classroom teaching only.

5.4 Recommendation(s)

- Kyambogo University should appreciate and recognize the library as the nucleus of academic activity and give it due priority.
- Staff recruitment for the library should not be limited to traditional bibliography but to qualifications in modern trades which are complimentary to librarianship like ICT, Research and Publishing.
- Kyambogo University should adopt and deploy digital librarianship and technologies in order to overcome the physical challenges associated with the current out-datedness, inadequacy and insufficient infrastructure.
- Kyambogo University, should, as matter of urgency establish the directorate for research, publishing and donor projects to enhance research, training, publishing and academic communication.

- Kyambogo University should appreciate positive change as an unavoidable constant; and adopt a broader meaning of the term 'academic' to include not just classroom teaching, but the library, librarians, research and publishing.
- The budget allocation to the library should be 10% of all University incomes following the recommendation by the National Council of Higher Education.
- The University should, as a matter of urgency, develop and put in place a policy for replacing and updating critical technical training tools, equipment, materials, infrastructure and human resources.
- The University should keep track of the rapid changes in knowledge, science, technology and engineering for it to be ready to adjust, respond, remain up-to-date, relevant and competitive.
- Kyambogo University's training curricula should be apprentice-based such as the German dual model; modular, administered through actual doing (praxis), in partnership with the workplaces; it should be life-long, life-wide and life-deep.
- The university should re-direct and align its training efforts with the current requirements of the world of work to ensure employability for its graduates.
- Training by Kyambogo University should be demand driven, directly linked to the development needs of communities and country; and it should capture the key issues of ethics, positive attitudes and gender equity.
- Kyambogo University should pro-actively partner with industry and employers in its technical and vocational curricula development and training delivery.

- Top management and the academic staff (librarians, researchers & lecturers) should all appreciate the 'paradigm shift' in information/ knowledge formats, teaching, as well as dissemination channels or media and adjust accordingly.
- Kyambogo University should encourage individual enterprise, innovation and creativity by supporting ideas with different lines of thought. It should appreciate that what is innovative and creative will always be different from the known.

5.4 Way Forward and Further Research

The trainees and eventually graduates of Kyambogo University will become the parents, politicians, voters, government, educators, technicians, engineers, business people and entrepreneurs of Uganda in the near future. For that matter, the way forward for Kyambogo University should be to adapt and keep pace with the rapid changes in science, technology, engineering and mathematics (STEM), and the apparent shift from the material or money economy of the 20th century to the current 21st century; in order to remain competitive in the dynamic and highly competitive nature current knowledge economy labour market. Thus, Kyambogo University should prioritizé its library as the nucleus of academic activity to inform modern research, teaching publishing and academic communication. In the same light, the laboratories and workshops should be modernized for practical technical and vocational education and training to suit the unique labour requirements of the new knowledge economy.

I recommend further research on the impact of the new knowledge economy on vocational higher education and training in Uganda.

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APPENDICES

APPENDIX I: Interview guide for Lecturers/ Library Staff

1. Which are the major training tools and materials in your department?
2. What is the state of training tools and equipment in your department?
3. How much time do you dedicate to the teaching of theory and teaching practice in your lectures?
4. How often is the teaching curriculum in your department reviewed?
5. In your opinion, what is the greatest challenge faced by lecturers in Kyambogo University?
6. In your opinion, what should be done to improve teaching at Kyambogo University?
7. Apart from what is in the prescribed in the curriculum, what else do you teach your students?
8. In your opinion, which skills would you think are currently on high demand in the Ugandan job market?
9. What should lecturers do to align training in Kyambogo University to the current requirements of the labour market?
10. As lecturer, what should Kyambogo University add to its training in order to address unemployment of its university graduates?
11. As University, how can we fend off the stiff competition from other universities and training institutions?

APPENDIX II: Interview Guide for Top Management

1. You are at the helm of academic affairs in the university; what is your comment regarding the state of training tools, materials, equipment and general infrastructure in the university.
2. Which challenges do you face with regard to training materials and equipment?
3. What is Kyambogo university's policy regarding training tools, materials and equipment?
4. How would you rate the quality of technical training at Kyambogo University?
5. What plans are in place to improve training generally at in the University?
6. What are your comments regarding the public private partnerships with industry out there?
7. As a DVC, which skills, in your opinion, would be necessary in enhancing the employability of Kyambogo University graduates?

APPENDIX III: Interview Guide for Laboratory Technicians

1. Which training tools, materials do you mostly use in your job?
2. What is the state of the training tools, materials and equipment in your workshop?
3. In your view, how much time is allocated to student practical training in this workshop?
4. Is the timing allocated to practical learning appropriate? If not, how much time should it be?
5. How do you contribute to technical training in this department?

6. What challenges do face in this workshop in carrying out your job?
7. In your view, how should technical training be carried out in Kyambogo University?
8. As technical person, which would you say are the most marketable technical skills in Uganda today?
9. On addition to technical skills, what other skills should be imparted to students?

APPENDIX IV: Interview Guide for Select Industry Proprietors (Megha Industries and Nice House of plastics)

1. What do you take into consideration when recruiting a worker for any of your technical sections?
2. What is the percentage of university graduates in your workforce?
3. What kind of skills should university graduates you wish to hire should have?
4. I what ways can industrialists and entrepreneurs like you be involved in university training?
5. If you had the opportunity, what would you change about university technical training?
6. From your experience, what are the skills that are currently on high demand in Uganda's labour market?
7. In your opinion, can practical entrepreneurship be learnt through university education and training?
8. In your opinion, how can one do to become an entrepreneur like you?
9. What is your advice to unemployed university graduates?

APPENDIX V: Focus Group Discussion Guide for Continuing Students

1. What programme were you offering at Kyambogo University?
2. What tools, materials and or equipment did you mostly use during your training?
3. What is the condition of the training materials and equipment in your study programme at Kyambogo University?
4. Are you satisfied with the curriculum content of programme you are offering at Kyambogo University?
5. What are your prospective plans upon graduation from Kyambogo University?
6. If you had the opportunity, what would you add or remove from your programme curriculum teaching content?

APPENDIX VI: Focus Group Discussion Guide for Unemployed Graduates

1. When did you complete your university training?
2. What programme did you study at Kyambogo University; at what level of certification did you graduate?
3. Why do you think you have not got a job since you graduated?.

4. Were you satisfied with the kind of training in your programme at Kyambogo University?
5. What do you think should be added to the content of your training at University?
6. If you were to get another opportunity for university education, what would study?

APPENDIX VII: Checklist for Key Study Documentary Sources

- National Development Plan (NDP) of Uganda 2010-2015
- Kyambogo University Strategic Plan 2005-2012
- BTVET Strategic Plan 2011-2020
- European Skills for Green Jobs Synthesis Report
- African Union VET Revitalization Report
- The 1992 Government White Paper on Education
- European Qualifications Framework (EQF)
- BTVET Strategic Plan 2011-2020
- Kyambogo University Annual Budget, 2010/2012
- NOMA MVP Programme book, 2008
- 2008 and the National Council of Higher Education (NCHE) higher education status report, 2010.