AN EVALUATION OF INTEGRATION OF INFORMATION COMMUNICATION TECHNOLOGY INTO BUSINESS EDUCATION AND TRAINING PROGRAMMES IN UGANDA COLLEGES OF COMMERCE - SOROTI

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APPROVAL

We confirm that the work reported in this thesis was carried out by the candidate under our supervision as Kyambogo University supervisors:

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DECLARATION

This is to certify that this is my original work which has been presented while making consideration to incorporate the views of different scholars. I declare that it has not been presented previously to any institution of higher learning for any award.

Signature: ..... 12th December 2012.....

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DEDICATION

To my late father David Otiyema, who ever remained a friend and a role model in my life.

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The production of this Master's Thesis has been a dedicated effort of a number of people whose contributions are worth appreciating. I am greatly indebted to everyone whose input has been very important in coming up with this piece of work. It has been a good experience working with each one of you and I am happy with what we have accomplished together.

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LIST OF ACRONYMS AND ABBREVIATIONS

BET	Business Education and Training
BTVET	Business Technical Vocational Education and Training
CAD	Computer Aided Design
CAPA	Commonwealth Association of Polytechnics in Africa
CDs	Compact Disks
COL	Commonwealth of Learning
ICT	Information Communication Technology
ICTs	Information Communication Technologies
IT	Information Technology
MTN	Mobile Telecommunication Network
MVP	Masters in Vocational Pedagogy
NOMA	Norwegian Masters Abroad
NTV	National Television
TVET	Technical Vocational Education and Training
TVSD	Technical Vocational Skills Development
UBTEB	Uganda Business and Technical Examinations Board
UCC	Uganda College of Commerce
UCCs	Uganda Colleges of Commerce
UCCS	Uganda College of Commerce-Soroti
UNESCO	United Nations Education Scientific and Cultural Organization
UPS	Uninterruptible Power Supply

ABSTRACT

Business, Technical, Vocational Education and Training (BTVET) institutions in Uganda have integrated Information Communication Technology (ICT) into their training programmes to cope up with rapid changes in technology. However, the labour market indicators have pointed to unmet skills requirement in ICT amongst employees. The study was carried out to: find out the level of integration of ICT into the training programmes of UCCs, establish whether the integration of ICT into the training programmes makes the graduates more acceptable to the employers than those without and identify the constraints involved in the integration of ICT into the training. The study used a descriptive survey design taking both quantitative and qualitative approaches. Purposive, snowball and systematic random sampling techniques were used to select the respondents. The methods used to collect data were majorly interviews, self administered questionnaire, observation and document analysis. Qualitative data was subjected to descriptive analysis and quantitative data analysis was done using simple statistical methods. It was generally found out that the level of training in ICT in UCCS is relatively low. Limited software and inadequate period for training were equally found to affect the level of ICT training. The graduates were found to be acceptable to the employers though they have to be retrained on the tailor-made programmes that are nonexistent at college. Constraints involved in training include administrative, manpower, financial, time and technical constraints. The study recommended provision of a variety of software for training in different technologies and review of curriculum to offer more practical oriented training. Others included procurement of more computers to cater for the large student numbers, installation of the internet, procurement of a standby generator with a larger capacity and increase budget allocation for ICT training. Recruitment of a systems administrator, more ICT lecturers and administrative support in updating their skills was suggested. The employment agencies should be involved in curriculum design and reviews in order to minimize mismatch between training provisions and requirements in the job market.

CHAPTER ONE

1.1 Introduction to the study

The integration of ICT into Business Education and Training (BET) programmes is one of the issues that cannot be underrated by any training institution. It is an aspect of Technical, Vocational, Education and Training (TVET) which is recognized worldwide as education and training geared towards employment. However, Uganda uses BTVET in order to incorporate the business trade; hence 'B' is added to the abbreviation. The study has mainly used the term TVET and occasionally BTVET when referring to the department that handles TVET issues in the Ministry of Education and Sports in Uganda.

The aim of the students and the institutional commitment should be to offer programmes that enable them meet with the rapid changes in technologies that are now apparent in the modern workplaces. This report gives the findings from the study the researcher carried out to evaluate the integration of Information Communication Technology into BET programmes Uganda colleges of commerce. In the study, consideration was made on establishing the extent to which ICT has been integrated into BET programmes. This was done with particular reference to the views of the employers on graduates with ICT knowledge and skills as opposed to those without. Identification of possible constraints of ICT integration into the training programmes was also done. In this chapter, the researcher has provided, personal background, motivation for the study, a general background of the problem of study, the statement of the problem and purpose of the

study. These are followed by the objectives, research questions, scope, significance, justification and limitations of the study.

1.2 Background

This section presents personal background of the researcher, the motivation for the study and the background to the study.

1.2.1 Personal background

The researcher is a Ugandan female specialized in the area of Business Education and Training. The background information includes holding a Diploma in Education and a Bachelor's Degree of Office and Information Management of Makerere University. Work experiences has been serving as a lecturer in Uganda Colleges of Commerce for the last twenty years and currently based in Uganda College of Commerce, Soroti which is one of the BTVET public institutions in Uganda.

As an instructor in the Secretarial Department there was still need to upgrade in the career which led to the attainment of a Bachelor's degree. This caused my services to be more needed in other areas and the current subjects of specialization for teaching are Information Communication Technology and Business Communication Skills.

The positions of responsibilities held have been Head of Department Management Studies and Information and Communication Technology. Others include the position of an examiner for ICT and Business Communication Skills with Makerere University Business School and Uganda Business and Technical Examinations Board (UBTEB).

1.2.2 Motivation

The career of the researcher has all along remained as a trainer in business skills and this is a field where experiences on the nature of training have been gained over the years. The experiences acquired as a master's student in vocational pedagogy was an inspiration for the researcher to reflect upon ICT skills training in Uganda. Aware of the dynamic nature of the world of work characterized by rapid changes in knowledge and technology, it was considered pertinent to demonstrate functional knowledge, skills and values to carry out a research in ICT training in the field of Business Education. Over the past fifteen years, Uganda has shown a remarkable recovery from economical, social and political turmoil. However, in spite of this recovery, Uganda is still a poor country and the penetration of ICT and level of Internet use is still low. This scenario could have a direct bearing on ICT training and coupled with experiences in the area, a study was considered worth undertaking to evaluate the integration of ICT into the training programmes of UCCs with a view of suggesting improvements.

1.2.3 Background to the study

Information communication technology (ICT) has become a worldwide topic for discussion. For example according to the Mobile Telecommunication Network (MTN) advertisement on National Television (NTV) Uganda, the internet has now been declared everyone's right by the United Nations (MTN, 2012). This indicates that ICT is now affecting every aspect of human life throughout the world. Currently, the labor market is characterized by rapid changes in technology meaning that training should also change to match the shift from traditional approaches of training the labor force to that of modern

approaches. This is in line with Mjelde (2006, p. 33) who stated that work processes and vocational fields change in league with technological developments. Information technology has changed work processes both in the various vocational fields and in the teaching processes for these fields. For that matter, most institutions of higher learning have now embarked on integrating ICT into their training programmes in enhancing training that provide learners with skills required for the modern work place. This is a technology that enables recording, processing, retrieving and the transmission of information or data. It is therefore expected that by the time a student graduates from an institution he/she should be able to use ICT to handle various tasks that demands its use. Use of ICT would enable the trainee to handle the various tasks in a more convenient manner and much faster than otherwise would have been done manually. In light of the above, the study focused on ICT as a skill that learners who are being prepared for the job market should be trained in. The ICTs considered in this respect include use of technologies such as computers, internet, CDs, scanner, printer, application software programmes such as Ms Office and accounting software packages. In the study, evaluation was taken to mean assessment of the worth of training in these technologies in UCCs with particular respect to the skills that graduates acquire and use in their day today performance at work. Meanwhile, integration was considered as adding ICT training as a course unit to the different academic programs available in UCCs to provide basic ICT skills to the learners.

As a skill requirement for the modern workplace, the use of ICT in education and training has been a priority in most countries during the last decade. In European countries, most

schools, however, are in the early phase of ICT adoption, characterized by patchy uncoordinated provision and use. There are some enhancement of the learning process, some development of e-learning, but no profound improvements in learning and teaching (Balanskat, Blamire & Kefala 2006, p. 3). In this respect Kolding, Robinson & Ahorlu (2009), found that the formal education system in most European countries is only providing graduates with skills to the most basic extent that businesses are seeking. In fact, 58% of European employers stated that they believe that ICT curricula need to be much stronger, even at primary and secondary education levels, to ensure that ICT skills requirements are met in the future.

In the Philippines, one of the major obstacles to optimizing computer use in high schools has been the lack of timely technical support. In some extreme cases involving schools in remote areas, disabled computers take months to be repaired since no technician is available in the immediate vicinity and so the computers have to be sent to the nearest city hundreds of kilometers away (Tinio 2011, p. 24).

In developing countries, more especially Africa, there has been relatively little application of ICTs in the TVET sub-sector either as a teaching tool or to enhance access to programmes. This is corroborated in a statement by the Commonwealth of Learning (COL) and the Commonwealth Association of Polytechnics in Africa (CAPA) in advance of a seminar they co-sponsored in Sierra Leone in May 2007 that focused on integrating ICT and e-learning into TVET. According to Glen & Shafika (2007) it stated that although ICT and e-learning is gaining ground as an effective pedagogical tool in higher education, TVET institutions and polytechnics in Africa are lagging behind. The reason

appears to be lack of knowledge and expertise in the use of these new technologies in the area of technical and vocational training p. 26

In Nigeria for example, the use of computers has become one of the driving forces in the delivery of instruction of today's vocational education and training (VET). However, Oguzor (2011, p. 1) conversely noted that though computers have become increasingly accessible resources for educators to use in their teaching activities, most teachers are still unable to integrate it in their teaching and learning processes. These points out a plight in ICT integration into TVET which raises a number of concerns that needs to be addressed.

In line with the above it is also important to note that, over the past fifteen years, Uganda has shown a remarkable recovery from economic, social and political turmoil. However, in spite of this recovery, Uganda is still a poor country and the penetration of ICT and level of internet use is still low (Jager 2008: para 25). Added to this complexity, the BTVET strategic plan (2011) reports that soft skills necessary to perform well in the modern work environment are underdeveloped among the Ugandan workforce and not appropriately taken into account in training programmes. This includes amongst others computer literacy. It continues to report that the range of occupations for which BTVET programmes are offered is rather narrow, and does not address skills needed in modern and emerging productive sectors. Available studies and labour market indicators point to unmet skills in the hospitality industry, business management, financial and again ICT sector. p 5. Besides the BTVET report, findings from research expeditions in relation to tools and materials used in training institutions generally indicated inadequacy and

obsolescence of the necessary tools for learning. For example in Arapai Agricultural College, there was only one tractor and one computer laboratory to be shared by about 1,500 students during training. This means that there are problems related to training provisions in the BTVET institutions which amongst them ICT is pronounced. Moreover, the experiences in the integration of ICT into the Masters in Vocational Pedagogy programme in Kyambogo University gave light to the fact that ICT skills if acquired, is an important tool in preparing a learner for the modern work place.

Based on the above observation, the researcher is concerned that Úganda Colleges of Commerce are some of the government aided BTVET institutions offering training in the Business trade. The training programmes majorly consist of specialization in Accounting, Secretarial studies, Hotels and Institutional catering, Marketing, Stores management, purchasing and supplies management. It is important to note that all these programmes have the component of ICT training in the curriculum and one wonders why there is still a gap in the ICT sector as pointed out by the BTVET strategic plan. As a result of this concern, a study was considered worth undertaking in Uganda College of Commerce – Soroti (UCCS) based on the theory of Glen & Shafika (2007) who pointed out that there are huge gaps between urban and rural areas in terms of access to ICT infrastructure. They continued that, access to a reliable supply of electricity is a general problem but is particularly severe in rural areas because of the difficulty of connecting to national electrical grids. The reflection of the researcher on the above theory is that UCCS is located in an urban setting but the study conducted found out that there were a number of constraints involved in ICT training. This includes amongst others lack of access to

reliable electricity which according to theory, the problem is only severe in rural areas. The study therefore invalidated the theory since it found similar problems in an urban setting as in UCCS. Given the difficulties which were earlier on discussed it was necessary to establish the extent to which UCCS has appreciated and incorporated training in ICT skills into their study programmes. It is against this background that the researcher carried out a study.

1.3 Statement of the problem

Over the years, the labour market indicators have been pointing to unmet skills requirement in ICT amongst employees in Uganda with great concern. This problem is possibly attributed to inadequate ICT infrastructures and low levels of human resource training in handling ICT courses in BTVET institutions amongst others. Despite these shortcomings, Uganda Colleges of Commerce have endeavored to integrate ICT into their training programmes. However, it is not known to what level this integration has taken place. It is therefore, on the basis of this observation that the researcher is inspired to evaluate the extent of ICT integration into training programmes in the colleges of commerce in the country.

1.4 Purpose of the study

The purpose of the study was to find out the extent to which Uganda Colleges of Commerce have integrated ICT into their training programmes with particular reference to availability of ICT infrastructures, softwares and other training resources.

1.5 Objectives of the study

The objectives of the study were to:

i. Find out the level of integration of ICT into the training programmes of UCCs.
ii. Establish whether ICT integration into the training programmes makes UCC graduates more acceptable to employers than those without ICT knowledge and skills.
iii. Identify the constraints involved in the integration of ICT into the training programmes of UCCs.

1.6 Research Questions

i. To what level has UCCs been able to integrate ICT into their training programmes?
ii. Has the integration of ICT into the training programmes made UCC graduates more acceptable to the employers than those without ICT knowledge and skills?
iii. What are the constraints involved in the integration of ICT into the training programmes of UCCs?

1.7 Scope of the study

This section of the report comprise of the geographical, content and time scope as presented below:

1.7.1 Geographical scope

The study was carried out in Uganda College of Commerce - Soroti. The institution is located in Soroti district in eastern Uganda, approximately 4 kms from Soroti town along Katakwi road. The institution was chosen because it is one of the government aided

Business Education and Training institutions in the country. It was taken to be representative of the other colleges of commerce offering similar programmes. The study was limited to two selected programmes that included: (i) Accounting and (ii) Secretarial studies. These two programmes were chosen for the study since they were the only ones offering training in ICT skills that particular semester; a time when the study was carried out. They were then taken to be representative of other programmes who were scheduled to have ICT in another semester.

1.7.2 Content Scope

The study mainly concentrated on establishing the extent to which ICT has been integrated into the training programmes in UCC Soroti. The study focused on the use of ICT for imparting skills for document production using word processing, spreadsheet management, power point presentation, access for database management, computerized accounting, file saving abilities, using the internet and other ICT tools. The employer's views on their demand and acceptance for computer literate graduates were also sought.

1.7.3 Time frame

The study confined itself to the period between 2005 and 2012. This particular period was considered because it was a time when attempts to expand ICT training were evidenced. In the year 2005 the Ministry of Education and sports donated 20 computers each to all the UCCs and in 2008 there was recruitment of ICT lecturers by the Education Service Commission.

1.8 Significance of the study

1. Relevant information provided can enable various BTVET institutions to appreciate and maximally employ the integration of ICT into the training

programmes and thereby contribute to producing graduates who are able to overcome the challenges of rapid changes in technologies in work places.

ii. The study presents findings that should make it possible to identify the training gaps in ICT skills. The BTVET institutions can then be in a position to use the information to put in place a better mechanism for training involving ICT; and which should reduce this gap for better output.

iii. Feasible recommendations are generated which should help the different BTVET institutions to overcome some of the constraints involved in integrating ICT in the training programmes and make improvements accordingly.

iv. Employers are expected to benefit from having a workforce which is enlightened on the use of ICT for work processing. This will enhance productivity and management efficiency in workplaces.

v. Policy makers are expected to generate new ideas relating to ICT integration into the training programmes in BTVET institutions. Therefore, better policies will be put in place that can make an improvement in BTVET for national development.

vi. Curriculum developers for UCCs are expected to get information that could be necessary in promoting curricula reviews that will address ICT aspects which can offer rich programme content and give the learners a competitive edge over their colleagues from other institutions.

vii. The findings and recommendations of the study could act as a basis for future researchers in the related field.

1.9 Justification for the study

The justification for the study was based on some of the following observations:

In the developing world, Information and Communication Technology (ICT) is often welcomed as an important instrument for accelerated change. Governments in the developing world are under considerable international and national pressure to review and update their processes (Jager 2008: para 25). This concern raised the need to conduct a study.

There are new sectors emerging and many of them are based on the use of ICT products and services including the internet. All these increases the demand for new skills and competencies, including personal skills to these new demands; both those related to ICT and those related to changing work organization. A study was therefore called for based on this observation.

ICT is profoundly affecting every aspect of human activity. Its greatest potential lies in human resource development. To compete successfully in a fiercely competitive global economic environment a highly skilled and educated workforce with aptitude and skills in the application of ICT in everyday life will be essential. It is on the basis of this need that a study was considered worth conducting.

Over the past fifteen years, Uganda has shown a remarkable recovery from economical, social and political turmoil. However, in spite of this recovery, Uganda is still a poor country and the penetration of ICT and level of Internet use is still low (Jager 2008). In

relation to this plight, it was imperative to conduct a study that is expected to show the level of ICT integration into training programmes in UCCs.

The range of occupations for which BTVET programmes are offered is rather narrow, and does not address skills needs in modern and emerging productive sectors. Available studies and labour market indicators point to unmet skills in the ICT sector amongst others. This scenario justifies the study.

1.10 Limitations of the study

The study was limited by the following:

i. Due to the short period in which the research was expected to be done there was a limitation in scope. The study was carried out in only UCC-Soroti and this might not be representative of other colleges of commerce in Uganda. This calls for further research that can cover UCCs from different regions in the country.

ii. Fixing of appointments was quite challenging since the respondents were busy people and this definitely slowed down the data collection process. Efforts were therefore made to reschedule the appointments at the convenience of both the researcher and the respondents so that the required data could be got.

iii. Considering the activities that were involved in conducting the research, quite a lot of money was required for feeding, accommodation, and transport during data collection. Printing and photocopying were equally challenging. Limited

financial resources affected the process of the research but in the interest of accomplishing the task the researcher used personal savings.

iv. Vocational pedagogy is still a new academic programme in Kyambogo University and Uganda as a whole. In this case, there were difficulties in getting relevant literature and especially textbooks for the study. This limitation was addressed by making use of the internet sources.

1.11 Conceptual Framework

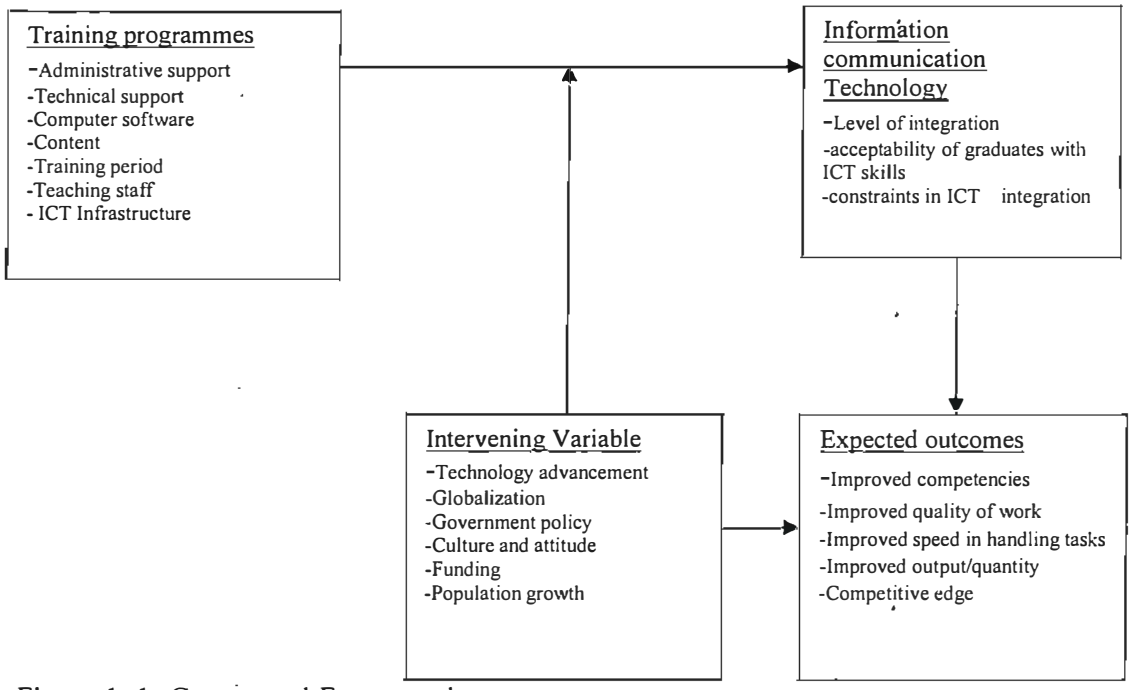

Figure 1. 1: Conceptual Framework

Source: Primary source

1.11.1 Explanation of the Conceptual Framework

The conceptual framework illustrated in figure 1.1 explains the different variables related to the study and shows how they may influence each other. In this case, training programmes is the independent variable which continues to run whether ICT is integrated or not. This constitutes factors affecting a problem under investigation namely, administrative support, technical support, training period, teaching staff, infrastructures, content and computer software. It means these factors are likely to affect the level of integration of ICT into the training programmes which eventually has implications for the performance of graduates at work and their overall acceptance in the world of work. However, it should be noted that there are other intervening factors where control over

them can be difficult. These include amongst others, technological advancement, globalization, government policies, funding, population growth, culture and attitude. These factors affect both the training programmes and ICT integration which constitutes the variables. If the factors under independent variable are properly managed, then the integration of ICT into the training programmes can achieve success. Consequently, the expected outcomes will be improved competencies, quality of work, speed, output and competitive edge. Where the intervening variables stringent, then it becomes difficult to get good results. For example, when funding is not improved or government policies on training in institutions poses some restrictions on decision making , then ICT training remains constrained and the expected outcome will not be achieved.

1.12 Operational Definition of Terms

A number of terms have been used in the study and below are explanations of what they refer to in the context of the study.

Evaluation: assessing the worth of offering training in ICT in the different programmes and establishing the extent to which it has succeeded in equipping the graduates with skills required in the workplaces.

Extent: the level of use of ICT in terms of availability of ICT infrastructures (hardware and software) and other resources. This should determine how they have been used to support training and contribute to performance of graduates at their work places.

Integration: inclusion of ICT aspect as part of the training programmes aimed at providing basic ICT knowledge, skills and attitudes to enable graduates handle modern work processes and meet with rapid changes in technology.

Information communication technology (ICT): technologies that support communication by capturing, processing, storing, retrieving and dissemination of information to the intended users. In the study ICT refers to a work tool that involves the use of technologies such as computers, internet, CDs, scanner, printer and application software programmes such as Ms Office and accounting software packages.

Training programmes: courses of studies designed to provide education and training to acquire the practical skills necessary for employment in a particular occupation. The focus on this study is the Business Education and Training Programmes meant for occupation in the business trade.

Triangulation: involves the application and combination of several research methods, instruments and techniques in the study of the same phenomenon.

Uganda colleges of commerce: Government aided training institutions offering post secondary education and training in business specialties. (Secretarial skills, Management and Accounting)

Research Expeditions: explorative studies designed to accomplish specific objectives by collecting data, reporting findings, making analysis and drawing conclusions. No previous research experience may be required but a willingness to take decisions is desirable.

ICT infrastructure: refers to interconnecting hardware, software and other devices that are interconnected to the computers to support the flow and processing of information. It also refers to computer–equipped classrooms or laboratories.

1.13 Organization of the report

The report has been organized into chapters 1 – 5. **Chapter one** contains introduction to the study, background information, statement of the problem, purpose, objectives and scope of the study. It also presents the conceptual framework, definition of operating terms, significance, justification and limitations of the study.

In **chapter two** the researcher presents review of related literature according to the study objectives. It includes a summary of the chapter that indicates gaps identified in the literature and has been filled by the study.

Chapter three contains the methodology used in the study and spells out the research design, target population, study sample, data collection methods and research

instruments. Data quality management, procedure for data collection, data processing and analysis has also been explained.

There has been presentation of findings and discussion of results in **chapter four**. All these have been done in relation to the study objectives 1, 2, and 3.

Finally **chapter five** presents summary, conclusions and recommendations for improvement. These have been handled based on the findings availed in chapter four of the report. Areas for further research have also been suggested.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this section, the researcher presents scholarly views related to the problem under investigation. The presentation logically follows the objectives of the study to:

i. Find out the level of integration of ICT into the training programmes of UCCs.
ii. Establish whether ICT integration into the training programmes makes UCC graduates more acceptable to employers than those without ICT knowledge.
iii. Identify the constraints involved in the integration of ICT into the training programmes of UCCs.

2.2 Level of ICT integration into training programmes

Literature on the level of ICT integration into the training programmes was reviewed in relation to the support necessary for the integration and what is involved in ICT integration itself into the training.

2.2.1 Support for ICT integration

There is need to render different support the integration of ICT into training programmes of institutions. This will determine the overall success of the learning objectives and the level to which this integration takes place in an institution.

According to Tinio (2011), education administrators play a key leadership role in ICT integration in education. Many teacher- or student-initiated ICT projects have been undermined by lack of support from above. She also noted that for ICT integration programmes to be effective and sustainable, administrators themselves must be

competent in the use of the technology. They must have a broad understanding of the technical, curricular, administrative, financial, and social dimensions of ICT use in education (p.23). This is in line with Oguzor (2011, p. 6) who stated that the implication of computer and information and communication technology on education for the advancement of vocational education and training compels support and acceptance. The environment of rapid change is demanding higher priority to human resource development.

The views put forward by the different scholars points to the support that is required for ICT integration but do not clearly bring out the kinds of support. This support could determine the level of integration that the study intends to find out.

2.2.2 ICT integration

There was need to find out the level to which ICT is integrated into the training programmes of BTVET institutions since this might have an effect on the knowledge and skills expected of the learner. In relation to this Basim (2008) observed that although instructors can reach a wealth of information and can use a variety of methods to deliver training, the full integration of ICT in post secondary technical and vocational training remains low (p.1). While the scholar point out to the fact that ICT integration is low, he does not show the indicators for this low level that the study intends to establish. Besides, other than the instructors that have been spelt out there are other socio-economic factors that are often responsible for determining the level of ICT integration into training.

Tinio, (2011), further noted that the effective integration of ICTs into the educational system is a complex, multifaceted process that involves not just technology. She contended that given enough initial capital, getting the technology is the easiest part. To her, curriculum and pedagogy, institutional readiness, teacher competencies, and long-term financing, among others can however be equally complex. Besides, the gap between those who have access to and control of technology and those who do not—means that the introduction and integration of ICTs at different levels and in various types of education will be a most challenging undertaking. (p. 3)

This view concurs with Oguzor (2011, p.6) who said that the integration of information and communication technology into vocational education and training is a complex process. On the other hand, he observed that it is necessary to determine the country's technology readiness level. It is noted that the scholars emphasize that the integration of ICT into training programmes is complex but do not show the level. However, the level could be implied by the complexity that has been put forward meaning that it could be low. In addition, while some indicators have been pointed out it does not specifically look at the infrastructure availability. This is a gap that the study is addressing in order to determine the level of ICT integration.

From another point of view, Balanskat et al (2006) also stated that most schools in most countries, however, are in the early phase of ICT adoption, characterized by patchy uncoordinated provision and use. He continued to say that there are some enhancement of the learning process and some development of e-learning, but no profound improvements

in learning and teaching (p.3). While this view points out to irregular provision and phase of ICT integration, it does not give the details of the integration such as those related to ICT infrastructure, software, curricula and human resource availability and capacity. Yet this is a gap in the study that determines the level of ICT integration.

2.3 ICT knowledge and skills in employment

The study was intended to establish whether graduates with ICT knowledge and skills are more acceptable to employers than those without. For that matter, a review of literature was made on the need for ICT knowledge and skills in the job market. Given the fact that there are rapid changes in technology which could have a lot of influence on the employment sector, it was important to review literature as presented below:

In light of the above observation, Mjelde (2006, p.33) pointed out that work processes and vocational fields change in league with technological developments. Information technology has changed work processes both in the various vocational fields and in the teaching processes for these fields. Lasonen (2010: para 1) also agreed with this view by saying that information and communication technology (ICT) has reshaped occupational structures, job classifications and skills requirements. Furthermore, new technologies have enabled students to bridge school, work, and social activities. The views of the scholars points out how ICT has transformed occupational structures and work processes generally which could have an implication for employers in valuing ICT skills of the graduates. However, it does not show the specific skills that the study sought to find.

Meanwhile according to Johanson (2004, p.12), traditional (taylorist) forms of work organization minimize the skills required of most employees to perform the job. However, increased competition and the introduction of ICT have prompted many firms to undertake fundamental changes in their internal organization and work practices. These include changes in factory lay-out, the flow of production, quality assurance and the use of inventory. It is noticed that Johanson points out that traditional forms of work organization minimizes skills requirement but this does not show the specific skills needed in handling tasks. The study looked at the skills such as the use of application software packages and other technologies instead of only the flow of production which is a gap that the study sought to fill. Furthermore, the view raises concerns as to whether the traditional work form is still desirable and this is another gap that the study looked at.

Simiyu (2011) also argued that there are indications that ICT creates jobs through direct employment in the ICT industries and indirectly through ICT enabled and ancillary enterprises. He further stated that while ICT and e-learning replace old tasks and occupations through automation, the same technologies also create new tasks and occupations whereby ICT products and services generate new jobs (para. 3). The argument of the scholar points to job creation by ICT but the question is "what kind of jobs and skills?" The study expected to find out some specific skills that employers could be interested in but no mention has been made of any ICT skills in this literature.

In a related development, Clarke & Palmer (2011) asserted that Technical Vocational Skills Development (TVSD) should efficiently incorporate ICT to improve the quality of

training and equip graduates with skills relevant to industry demands. They noted that this is required to respond to existing industry demands but also to ensure a TVSD sector that is responsive to a continuously changing labour market and new emerging business sectors that many times are technology intensive (p. 8)

The author highlights the need for skills relevant to industry demands but does not specifically point out those skills that employers may require of graduates in performing ICT related tasks. Besides, while there is continuous change in labour market needs resulting from technology change, it is not known whether the traditional form of work processing is still needed by the employers in some situations. This is a gap literature has not pointed out and it is what the study focused on.

Kolding & Kroa (2007, p. 3) also observed that basic ICT skills, such as use of e-mail and basic word processing and spreadsheet applications, have over the last few years become part of a standard set of skills for the majority of participants in the job market. Consequently, use of ICT has become a main component of our daily business lives, a necessary skill needed in the job market. The scholar has spelt out some basic ICT skills required in the job market but there are other skills the study sought to find out which were not pointed out. In addition, it does not give light on the position of the job market on the traditional form of work processing.

2.4 Constraints involved in ICT integration into BTVET programmes

The integration of ICT into BTVET programmes could be limited by many socio-economic factors that make it rather difficult for institutions to achieve their goals maximally. These constraints were reviewed in different literature to ascertain the gaps which called for an investigation.

In most developing countries, TVET is limited in scale, scope, quality and relevance. The programmes are not relevant to the needs of the local labour market, the curricula and syllabi are outdated and the institutions lack the tools and equipment necessary for a practical education. Where present, the equipment in workshops and laboratories is often outdated, bearing little resemblance to the technologies currently used by industry. (Loo, n.d.) as cited in (World Bank, 2010). The author's view points out constraints particularly concerning availability of infrastructures but not specifically ICT infrastructure. In addition it has not put forward the limitations which could be related to human resource availability, capacity and competency. This therefore indicates a gap which is an aspect that the study focused on.

However, according to Umoetteh (2007), most institutions have little or no infrastructure for cyber centers, computer–equipped classrooms, or high-speed Internet access, and do not even have the funds to implement such infrastructure. He further said, many also lack the expertise to provide students with practical hands-on training in ICT; either for basic computer skills required on any job in today's knowledge–based economy, or for more advanced capabilities required for students on an ICT career track (p. 1). The available

literature observes constraints in relation to infrastructures, funding, and human resource needs but is limited in providing information on constraints in regard to administrative support for ICT integration, technical support and adequacy of training time. This are however, gaps that the research intended to close.

Glen et al (2007) also pointed out that there are huge gaps between urban and rural areas in terms of access to ICT infrastructure. Access to a reliable supply of electricity is a general problem but is particularly severe in rural areas because of the difficulty of connecting to national electrical grids. They continued that there is a general lack of human resource capacity to provide ICT training and equipment servicing, and there is also a lag between the availability of ICT infrastructure and the ability of agrarian societies to integrate it to benefit national development (p. 22). While this addresses the issues of infrastructure availability and human resources it does not show limitations relating to funding, technical support, administrative support and time allocated for training.

Furthermore, Clarke et al (2011) asserted that limited outreach of necessary national ICT infrastructure (particularly Internet connectivity) and substantial costs for developing this infrastructure have hindered the use of ICT in Technical Vocational Skills Development (TVSD) delivery in many developing countries. As a consequence many TVSD graduates students lack what employers recognize as relevant skills (p. 5). The scholar points to the limited infrastructures and costs as key challenges in integration of ICT into training but the aspects of adequacy of time, administrative support, technical support and human

resources necessary to train are not addressed. However, this remained a gap in the study since the researcher wanted to get information concerning the staff responsible for ICT training and the available support provided.

Meanwhile Albirini (2006) as cited in (Sukri et al 2011) found lack of teacher competency, and lack of access to computers by teachers in schools as a main obstacle to their acceptance or rejection. As such, serious work needs to be done to curtail the worseness of the situation, considering the fact that the fast changing world of work never awaits anybody. He further noted that this situation also poses a great challenge to stakeholders, policy makers and curriculum implementers (p. 4). This scholarly view only looks at teacher competency and their access to computers as a hindrance to ICT integration into training but leaves out the challenges posed by inadequate ICT infrastructures, adequacy of time, financial, administrative and technical support which are all crucial for the success of ICT integration.

Balanskat et al (2006) also observed that limited access to ICT (due to a lack or poor organization of ICT resources), poor quality and inadequate maintenance of hardware as well as unsuitable educational software are also defining elements in teachers' levels of ICT use. Moreover, the absence of an ICT dimension in the overall schools' strategies and their limited experience with project-oriented activities supported by ICT, are decisive in determining levels of ICT use by teachers (p. 5). This literature specifically looked at the limitation in the quality of hardware and software as well as their maintenance and limited access. A gap is observed in failing to bring other aspects of

infrastructures such as computer laboratory, internet facility, technical, administrative and technical support as well as adequacy of time allocated for training. The study was expected to consider the limitations faced in relation to these aspects

2.5 Chapter Summary

The review of related literature was done to show some gaps which the study was in a position to handle. In the first place, literature did not point out the specific ICT infrastructures to determine the level of ICT integration. In addition, the kinds of support towards integration, types of technologies and specific skills offered in training were not provided. This means the level of integration was not clearly defined in the literature. Secondly, the specific ICT skills required of graduates by employers were not addressed. Besides it was also limited in pointing out the views of employers on graduates with ICT knowledge and skills as opposed to those without. Finally, the literature was not able to put forward a number of constraints in ICT integration into training programmes. These included limitation in relation to technical, administrative and financial support. Manpower and adequacy of time for training were also issues of concern. Consequently, the study focused on these gaps.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section presents the research methodology that was used to collect data. It discusses the research design, target population, study sample, sampling techniques, data collection methods, data collection instruments, procedure of data collection, data quality management and data processing and analysis.

3.2 Study Design

This research was based on a descriptive survey design. Elmes et al (2003) as cited in Odiya (2009:32) points out that surveys are useful in collecting data about attitudes, opinions and feelings and suggest that it should be used if results are descriptive in nature. This study design was chosen as the most appropriate in the study of the research problem because the study aimed at evaluating the integration of ICT into training programmes in Uganda Colleges of Commerce. By the use of a descriptive survey design, both quantitative and qualitative data on the integration of ICT into the training programmes were obtained.

To collect quantitative data, the researcher used questionnaires that contained mainly closed-ended questions and some few open-ended questions with spaces provided for written responses. For qualitative data, the researcher used interview guides with open-ended questions to counteract general deficiencies such as lack of expression and

independent opinion of informants which are common with quantitative methods. These approaches were also supported by observations and study of documents.

3.3 Study Population

The study population of interest was comprised of 05 administrative staff, 30 academic staff, 283 final year students, 10 employers and 35 graduates who completed their courses and are already working. In total, the study population was 363. These were five population categories targeted as explained below:

The Administrative staff: this was targeted because of their administrative position. By virtue of this position they should be able to give ICT support for the different training programmes. This made them better suited to give information relating to the achievements made and challenges encountered in ICT integration into the training programmes.

The graduates: The study population comprised of graduates who are already employed so as to get their views on ICT training and their experiences in the workplace. The reason for this was based on the fact that they have been exposed to workplace experiences which provided a better picture of the required information.

The Academic staff: This comprised of staff working at the selected departments of accounting and secretarial studies and handling different programmes where ICT is integrated. It was expected that since they are responsible for ICT training, they would be in a better position to provide information on the nature of training and could easily tell the success attained and constraints relating to ICT integration into the training programmes.

The final-year students: These were selected from the two programmes (secretarial studies and accounting). The choice of the final year students was because of their experiences during ICT training and exposure to industrial training at the end of year one in the programme. They were considered to be well equipped with pertinent information regarding the ICT training and how it relates with ICT related tasks.

Employers: who have employed graduates from Uganda colleges of commerce were considered important in giving relevant information. The choice was based on the fact that they supervise these graduates and could provide information concerning their performance at work especially in relation to ICT related tasks.

3.3.1 Sample Size

The study sample consisted of two (02) administrators and four (04) academic staff members (lecturers) who are responsible for ICT training in the selected departments. Fifteen (15) and thirty five (35) final year students from Secretarial studies and Accounting departments respectively were also picked for the study. The other sample comprised of four (04) employers and eight (08) graduates who have completed their courses and already working. This made a total of sixty eight (68) respondents sampled for data collection. Onwuegbuzie & Leech (2011:para1) argue that making sampling and sample size considerations is central to qualitative research and refute arguments made by qualitative researchers who claim that sampling and sample size considerations are not relevant. The justification for the choice of a study sample was that most qualitative studies involve some type of analytical generalization that could involve an active process of reflection. It enabled the researcher obtain a variety of information for

purposes of consistency. The respondents selected were also representative of Uganda Colleges of Commerce and workplaces which definitely gave satisfactory input towards the study.

Table 3. 1: Summary of the Sample Size and Selection methods

Category of Population	**Sample Size**	**Selection Method**
Administrative Staff	02	Purposive sampling technique
Lecturing/Academic staff	04	Purposive sampling technique
Final year students	50	Systematic Random sampling technique
Employed Graduates	08	Snowball sampling technique
Employers	04	Purposive Sampling technique
Total	**68**	

Source: Primary source

3.3.2 Sampling Techniques

The study used purposive sampling, snowball sampling and systematic random sampling techniques as explained below:

3.3.2.1 Purposive Sampling

Purposive sampling technique was used in selecting the study sample so as to get the right respondents who are responsible for ICT training in the selected training programmes; these are the lecturers. It was also relevant in getting the respondents who are responsible for giving support on ICT integration in the training programmes and these are the college administrators. According to Wright (2011:12), purposive sampling is where the researcher targets a group of people believed to be typical or average or a group of people specially picked for some unique purpose. These people were

purposively selected because of their knowledge, expertise and experiences in relation to the topic of the study. For that matter, the researcher expected to get enough and valid data from their submission to the study.

3.3.2.2 Snowball Sampling Technique

Snowball sampling technique was used to get the graduates who are employed. This choice of technique was based on the fact that the exact locations of the graduates were not known. In carrying out the sample selection, two employed graduates were identified with the assistance of the college administration. These individuals offered assistance in identifying the rest of the required respondents for the study. According to Odiya (2009:162), snowball sampling technique is used when the researcher has no idea of which individuals have the characteristics required for the study. This same technique was also used in getting the employers required for the study. It was the employed graduates selected for the study that led the researcher in getting the employers.

3.3.2.3 Systematic Random Sampling Technique

In choosing the final year students, a systematic random sampling technique was used, using their attendance list. This means that, of the total number of students attending ICT training in each programme, a number on the list was taken as a sample. According to Odiya (2009: 159) a sampling interval in this technique is found on the basis of the required sample size and the population size. For that matter, in selecting 15 students in the secretarial studies with a population of 22, the sampling was systematically determined by selecting every 2nd student on the class list. In the case of accounting

programme with a population of 261 and 35 respondents were required; every 7th student on the class list was selected for the study. The choice of this technique is justified by selection being spread throughout the population and the alphabetical list is considered representative.

3.4 Data Collection methods

The study majorly used three methods to collect data as explained below:

3.4.1 Interviews

Interviews were used to collect in-depth information as the respondents gave their opinion and ideas in a natural way. According to Opdenakker (2006:3), face to face interviews can take its advantage of social cues, such as voice, intonation and body language of the interviewee and can give the interviewer a lot of extra information that can be added to the verbal answer of the interviewee on a question. The justification for the choice of this method is that there is no significant time delay between questions and answers. It enabled the researcher to create rapport that was particularly useful for getting the story behind a participant experiences. The researcher asked questions and took notes in the process. Reference was always made to the notes from time to time in the process of organizing the data. The interview method was mainly used to answer all the three research questions.

3.4.2 Observation

Observation was used to study non verbal behaviors and cross check the observed items with information that was obtained through other methods. The choice of observation as a method of data collection is based on the fact that it supports collection of original data

at the time it occurs in its natural environment. Barifaijo, K.M., Basheka, B. & Oonyu, J. (2010) conform to this and urgued that we can assess or evaluate many physical aspects of an environment such as learning conditions using a combination of observation and interviews (p.92). In addition, observation tends to be the only method available to collect certain types of data. In the course of the study, the researcher made observations during lectures to get an idea on the computer/student ratio, available training infrastructure, types of ICT tools used in the training and the standby generator amongst other items observed. Observation was supported by taking some photographs of the observed items in the computer laboratory. The method aided in answering mainly research question one.

3.4.3 Document analysis

Document analysis was used to obtain secondary data from documents relating to integration of ICT into the training programmes. According to Amin (2005:177), this is a method that involves delivering information from sources called documents. These could be textbooks, news papers, articles, speeches, advertisements, pictures and many others. Some documents were studied to help confirm the reliability of data collected through other methods. Document analysis was also helpful to the researcher as it enabled her to test the consistency of the data that was collected. Documents relating to training such as the curriculum, ICT course outline, and time table amongst other documents were considered relevant and analyzed.

3.5 Research Instruments

There were four data collection tools used in the study as indicated below:

3.5.1 Questionnaires

This is a tool that was used to aid the interview method of data collection. It was basically used to generate quantitative data by gathering facts, opinions, perceptions, attitudes and beliefs. According to Barifaijo,K.M, et al (2010: 100), questionnaires are best used for collecting factual data and appropriate questionnaire design is essential for obtaining valid responses to the questions. The researcher therefore designed a form consisting of a list of questions and statements calling for information about the respondent's views on the integration of ICT into the training programmes of UCCs. The questionnaire construction was guided by the study objectives 1 and 3. It was made up of closed ended questions that required specific answers and open ended questions were presented with spaces provided for written responses. This tool made it easy for the researcher to handle as many respondents as possible at once and within the shortest possible time as opposed to conducting interviews. For that matter, the questionnaire targeted mainly the final year students pursuing secretarial and accounting programmes who were sampled for the study. This saved a lot on the limitation of time that would require meeting the selected respondents one at a time, hence questionnaires were appropriate to handle a bigger number of respondents. The tool was majorly used to answer objective 1 and 3 of the study.

3.5.2 Interview guides

According to Odiya (2009 p.186), an interview guide is a list of questions that will be administered during the interview. The researcher conducted face to face interviews with

different respondents guided by this particular research tool. It gave avenue for capturing detailed data about the variables by probing into issues during interview sessions. The researcher particularly used unstructured interviews by constructing open-ended questions as a guide. These types of questions made it possible for the participants to freely talk about what they considered important without directional influence from the researcher. There were different sets of questions used for the different sample population selected for the study and all of them were based on the specific objectives of the study. This tool acted as an important guide in probing answers for research questions 1, 2 and 3.

3.5.3 Observation checklist

In order to guide the observation method, observation checklist was employed to physically study the activities that were going on and for viewing the training facilities that were in place according to the purpose of the study. This helped to give the researcher primary data. Observation checklist contains a list of all items to be observed in a particular situation. Odiya (2009:195) asserts that this is necessary since the researcher marks every item observed and indicating the state or form in which it occurs. At the end the researcher should be able to describe what took place; hence checklists become very useful in collecting qualitative data. In the study, the observation tool was made by identifying the indicators for the observation which was based on what the researcher expected to find in the learning environment. The researcher was particularly interested in infrastructure availability where observation checklist mainly focused on computer laboratory, computers, class capacity, internet, space, and electricity amongst others. The checklist mainly answered objective one of the study.

3.5.4 Documentary study guide

This is a tool that was used to guide documentary analysis. It contained a list of documents that the researcher expected to be relevant for providing mainly answers to objective one of the study. The list contained the curriculum, course outlines and time tables which were analyzed accordingly during the period of the study.

3.6 Data Quality Management

Getting reliable and valid data is a prerequisite for every researcher. Triangulation techniques were therefore used in order to get verification of data obtained from other sources. According to Barifaijo et al (2010: 73) triangulation involves the application and combination of several research methodologies in the study of the same phenomenon. In carrying out the study, the researcher made an effort to use different methods of data collection so that data on the same topic could be verified from other sources and supported the findings of the study. This means the basis for triangulation was to crosscheck information gathered from different categories of respondents using varied and several data collection methods, instruments and techniques in the study.

Triangulation contributed to reliability of an instrument through checking the consistency of findings generated by different instruments and that of data sources. Revision of question construction, testing and retesting the tools to ascertain whether results remained consistent under different situations were done. Validity was enhanced by improving on the credibility of data by checking on lies, omitted information and making references on literature.

3.7 Procedure for data collection

Sharing of the tools was done with the NOMA students to check for correctness and clarity in the design. This was followed by further discussion with the supervisors and finally production of the tools. The researcher went ahead to obtain an introductory letter from the post graduate office at Kyambogo University. This provided a formal introduction that offered the researcher access to Uganda College of Commerce – Soroti and organizations where UCC graduates are employed. Permission for carrying out the study was sought from the administration of the institution and organizations visited and thereafter appointments made for conducting the research.

Prior to data collection, there was pre-testing of these tools with the final year students in other programmes (Human Resource Management and Hotel management) which were not selected for the study but has ICT integrated. They were considered to have similar characteristics with those selected for the study and worth using to verify the accuracy of the tools. The researcher proceeded to collect data according to the research schedule. Ethical considerations to maintain confidentiality of information obtained from respondents in the process of conducting the research was adhered to.

3.8 Data processing and Analysis

Quantitative data obtained by questionnaires was analyzed using simple statistical methods. It involved tabulation to generate a frequency distribution of the codes and calculation of the number and percentages of these codes. Tallies were made through the schedules that were expected to produce generalization of results to other similar

situations. Results were presented, interpreted and discussed in relation to the study objectives.

The primary data collected from qualitative study were organized and interpreted descriptively in non numerical terms. This was later analyzed qualitatively by comparing and relating the findings to existing knowledge with the aim of determining the adequacy of the information, its credibility, usefulness and consistency. The data was further reorganized, discussed and documented systematically in relation to the study objectives. This is in line with Merriam & Simpson (2000: 61) who said, processing involves harmonizing the information gathered before it could be used in producing the final result to give a comprehensive understanding.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter presents the findings of the study in regards to the extent to which ICT has been integrated into the Business Education and training programmes in Uganda Colleges of Commerce (UCCs). The selected training programmes included Secretarial studies and Accounting to be representative of other programmes. For a systematic flow of this chapter, the presentation for quantitative data has been done using tables and the analysis of data has been done using simple statistical methods and percentages. The presentation for qualitative data has been descriptively done and analysis involved summarizing the data and identifying relationships between variables. The presentation and discussion of findings are in light of the three research objectives.

4.2 Presentation and discussion for objective one.

Objective one of the study sought to find out the level of integration of ICT into the training programmes of UCCs. The level was determined based on the availability of ICT infrastructure and other resources necessary for training. A consideration was also made on the organization of training in ICT. Data for this objective was collected through questionnaires which were administered to the final year students. Interviews were also conducted with the administrators, lecturers, and the employed graduates to obtain the desired information. The findings under this section address the research question: "What is the level of integration of ICT into the training programmes of UCC?"

4.2.1 ICT infrastructure

In the interest of establishing the state of ICT infrastructure that is in place to support ICT training, questionnaires were administered to 50 final year students (35 Accounting and 15 Secretarial students). In the questionnaire (section A), item numbers 1 – 4 provided the necessary responses as presented in Table 4.1 below.

Table 4.1 showing responses on the state of ICT infrastructure available to support training

n= 50

Infrastructure	Response	Frequency	Percentage
A Well furnished computer laboratory	Availability Not available	10 20	20 80
Internet facility	Availability Not available	0 50	0 100
Reliable electricity supply	Availability Not available	32 38	64 36
Standby generator	Availability Not available	38 12	76 24

Source: Primary Data

From Table 4.1 above, 80% of the respondents contended that the college does not have a well furnished computer laboratory while 20% were of the view that the computer laboratory is well furnished. In addition, 100% of the respondents reported that internet facility is not available and 0% said this facility exists. Meanwhile 64% of the respondents indicated that there is a reliable electricity supply and 36% showed that reliable electricity supply is not available at all times. When the respondents were asked

whether a standby generator was available, 76% of the respondents agreed while 24% said it was not available.

Findings on the state of ICT infrastructure available at college through interviews with 2 administrators and 4 lecturers also showed that there was a computer laboratory but with limited space, inadequate computers and no internet connectivity. They agreed on the availability of electricity to run the computers but said that power cuts are common. Both agreed that there is a standby generator to supplement power.

Additional findings based on observations carried out by the researcher indicated that there was no internet connectivity, limited space and few computers (22) as compared to the student numbers of 1,200. It was also observed that there is electricity connected to the computer laboratory and a standby generator available at college. These findings are supported by Glen et al (2007) who stated that while the practice of equipping schools with computers and using them to teach computer literacy and use packaged content to augment teaching is useful, the goal of fully integrating ICT in educational administrative and pedagogical processes will continue to be constrained by the lack of access to ICT infrastructure, affordable connectivity with sufficient bandwidth, and a reliable supply of electricity (p. 35).

The findings are backed up by the conceptual framework in chapter one, figure 1.1 which points to ICT infrastructure as one of those factors affecting the level of ICT training and hence, an indicator of the extent to which ICT has been integrated into the training programmes. The findings reflect unsatisfactory ICT infrastructure indicated by lack of internet facility, few computers, limited space and power cuts amidst the available

electricity connectivity. This could explain why 80% of the respondents reported that the computer laboratory is not well furnished. While 64% of the respondents agree on the availability of a reliable electricity supply, 36% of them said electricity supply is not reliable and this is probably due to the response relating to power cuts obtained through interviews conducted with the 2 administrators, 4 lecturing staff and 8 employed graduates. The findings mean that students are limited a lot in learning modern ways of communication such as e-mail which could have been used, for example, in submission of assignment. They also fail to conduct research and get academic information that is necessary for their training and seeking job opportunities thereafter.

In relation to the adequacy of computers, the researcher found out in an interview with the four lecturers that there were only 22 computers to cater for 261 accounting students in the second year. Findings through observation also pointed to the same number of computers (22) in a working condition; otherwise the rest observed were completely down and appeared to be beyond repair as shown in the figure below.

Figure 4.1 showing computers in the Computer laboratory which were broken down and lying on the floor:

Source: Primary Source

Accordingly the researcher took trouble to analyze the time table for UDBS, year two – Accounting and findings pointed out that for a period of 13 weeks, 8 hrs is allocated in a week for pastel. This means, in line with the total number of students pursuing the program (261 students), the time allocated has to be shared by about 4 different learning groups composing of 66 students each. That means in each group of 66 students the ratio of students/learners to a computer is 3:1. This finding is backed up by figure 4.2 showing students crowded on one computer during a lecture. It is a finding which concurs with Loo, (n.d) as cited in World Bank (2010) who stated that insufficient training equipment leads to trainee overcrowding during practice demonstrations, with most of the students only observing the demonstration and not having the opportunity to get some hands-on practice (p.5). This could point to the fact that the number of computers has a lot of bearing on the time allocated for training. The computers are too few to cater for the

student numbers effectively and which eventually affects the level of integration of ICT into the training programmes.

Figure 4.2 showing students crowded on a single computer during an ICT lecture:

Source: Primary Source

In addition a single computer laboratory cannot comfortably serve the entire students community. It means that on average, each student has only 2 hours of ICT practical lecture in a week which reflects a very low level of provision of training equipment and time. This could result in students getting very limited access to 'hands on' training and as such they come out when they are ill equipped with the necessary knowledge and skills required by employers. This is contrary to Mjelde (2006) who asserted that in interactive learning one is supposed to put one's hands on or into things to try things out. This provides familiarity to one's own knowledge and it happens in a workshop learning in the vocational fields whether one is in a kitchen or a machine shop (p. 133).

On the side of Secretarial Studies, Software for Document Production was found to be allocated 6 hours per week on the time table that was studied by the researcher and the number of students observed in a class was 22 which mean that all the students can comfortably be accommodated in a ratio of 1: 1. As such sufficient 'hands on' training can be assured for this class where students do not have to share computers during training.

4.2.2 Software programmes for training

For purposes of ascertaining the level of integration of ICT into the training programmes of UCCs the researcher had to find out the kind of software programmes which are available for training in ICT at the college. In order to get the desired responses, questionnaires were issued to the final year students and items numbering from 5a – g in section A of the questionnaires provided responses which are presented in the Table 4.2 below:

Table 4.2 showing responses on the availability of software programmes for training

n=50

Software	Responses	Frequency	Percentage
Ms Word	Available	50	100
	Not available	0	0
Ms Excel	Available	50	50
	Not available	0	0
Ms Access	Available	48	96
	Not available	2	4
Ms PowerPoint	Available	48	96
	Not available	2	4
Pastel	Available	48	96
	Not available	2	4
Tally	Available	0	0
	Not available	100	100
QuickBooks	Available	0	0
	Not available	100	100

Source: Primary Data

From the results of 50 students presented in Table 4.2 above, all agreed on the availability of Microsoft (Ms) Word and Ms Excel representing 100%. None of them (0%) objected to the presence of these training packages. The above results also show that 96% of the respondents believed that Ms PowerPoint, Ms Access and Pastel are all provided for training while 4% of them pointed out that these packages are not available. 100% of the respondents said that Tally and QuickBooks are not available for training meaning that none (0%) agreed on their existence.

Findings from (4) lecturing staff and (08) graduates interviewed revealed that the students are introduced to basic ICT skills like Ms Word, Ms Excel, Ms PowerPoint and Ms Access. For those taking accounting option an extra training is done on elements of

accounting software known as pastel. They also agreed that Tally and QuickBooks are not offered for training in ICT.

Findings based on analysis of the course outlines from the field by the researcher reflected accounting packages like Quick Books, Tally, Sage and Pastel. The course outline also confirmed the availability of Ms Word, Ms Excel, Ms PowerPoint, Ms Access and internet. However, a study of the time table indicated that the internet that appears in the course outline is not practically handled but only introduced in the first year in theory. This is probably due to lack of the internet facility. Out of the accounting packages that appeared in the course outline it was found out that it is only pastel that is time tabled meaning that the rest are not taught.

Responses shown in the table indicate that all the final year students (100%) said that some softwares (Tally and QuickBooks) are not available for training and this is a sign of limitation in terms of what is offered for training the students. 4% of the respondents did not agree on the availability of Ms Access, Ms PowerPoint and Pastel which could mean that perhaps such students are not aware of what they are doing relating to the training and the hope that they can come out competent with ICT knowledge and skills is quite minimal. Otherwise, responses based on interviews with the 4 lecturing staff and the 8 employed graduates confirmed that these training packages exist. The results are also supported by analysis of the timetable and course outline done by the researcher.

Responses also indicate that 100% of the final year students agreed on the availability of Ms Word and Ms Excel. 96% of them also accepted the availability of Ms Access, Ms PowerPoint, and Pastel as software programmes installed for training in basic ICT skills which is necessary to empower graduates for the work place. The findings are also in line with those of Kolding et al (2007) which stated that basic ICT skills, such as use of email and basic word processing and spreadsheet applications, have over the last few years become part of a standard set of skills for the majority of participants in the job market. Consequently, use of ICT has become a main component of our daily business lives, a necessary skill needed in the job market (p. 3).

In light of these findings, it should be remembered that in the wake of technological advancement, competition becomes a key issue which calls for attention in addressing issues of training in ICT. Considerations to allow for a variety of softwares to be installed and having the students trained on their use would be good in equipping them with varied skills that make them have varied opportunities for employment. This is in line with Sukri et al (2011:2) who pointed out that application of ICT into TVET changes the entire focus of manpower needs in the world from 'skill based' to 'ICT capable' workforce. Otherwise being restricted to only a few of them to offer only basic skills means the level of ICT training remains low for UCCs and the students are to a large extent disadvantaged in as far as labour market is concerned.

Besides, it was inevitable to ascertain the ability of the students in using some of the technologies relating to ICT without any difficulty. For that matter, questionnaires were administered to the final year students who were 50 in number and questionnaire item number 10 provided results that are shown in Table 4.3 below:

Table 4.3 showing responses on the ability to use some of the technologies without difficulty

n=50

Technology	Response	Frequency	Percentage
Scanner	Yes	10	20
	No	40	80
Printer	Yes	31	62
	No	19	38
Compact Disks	Yes	24	48
	No	26	52
Flash Disks	Yes	28	56
	No	22	44
Internet	Yes	15	30
	No	35	70

Source: Primary Data

Findings in Table 4.3 relating to the ability to use some of the technologies indicated that the 80% of the respondents are not in position to use a scanner while 20% showed the ability to use the technology comfortably. 64% of the respondents said that they can use a printer and the other 38% said that they cannot easily use a printer. 48% of the respondents pointed out that they can use CDs well while 52% said that they are unable to use the technology. Flash disks were found out to be used well by 56% of the respondents and 44% of them said they could not easily use them. Findings also indicated that 70% of the final year students who gave their responses are not in a position to use internet while 30% said they are able to use the technology. These findings show that a good number of students are able to use technologies that include printer, CDs and flash disks. However, use of other vital technologies like scanner and internet seems to be a big problem since 80% and 70% of the students respectively cannot use them.

There was further need by the researcher to find out from the final year students where they acquired knowledge and skills in using the above technologies and the responses were obtained based on questionnaire item number 11 as shown in Table 4.4 below:

Table 4.4 showing responses in relation to where the knowledge and skills in the technologies (scanner, printer, CDs, Flash disks and internet) were obtained.

n=50

Responses	**Frequency**	**Percentage**
At college	0	0
At a computer training center	32	64
At home	6	12
During industrial training	12	24
TOTAL	**50**	**100**

Source: Primary Data

From Table 4.4, responses from those who can use the different technologies without difficulties revealed that 64% of the students acquired the knowledge and skills from private computer training centers, 24% gained the knowledge and skills during industrial training and 12% of the respondents learnt to use the technologies at home. None of the respondents (0%) accepted having learnt to use the technologies at college.

Findings obtained through questionnaire item number 11 supported the responses of the 4 lecturers and 8 employed graduates who were interviewed. They all reported that training in vital technologies such as use of scanner, printer, CDs, flash disks, and

internet is not done and the software for training in such technologies are not available at college. One of the employed graduates said she had to learn the use of some of these technologies at the work place after getting employment.

Based on the findings in Table 4.4 showing the responses and results obtained through interviews, it means the college has not considered the need to integrate these technologies into the training programmes. These are vital technologies employed for any modern work place activities and if UCC-Soroti as a training institution does not provide the software and train students in their use, then the integration of ICT into the training programmes still remains at low level. This could eventually have adverse affects on the students at the end when they enter the job market.

4.2.3 Organization of training

There was need to establish whether the organization of training in ICT reflect reasonable level of training provision. In relation to this, questionnaire item number 6-8 provided responses relating to the possibility of accessing the computer laboratory so as to achieve desired mastery of learnt skills. This is reflected in Table 4.5 below:

Table 4.5 showing responses on accessibility to computer

n=50

Accessibility	Response	Frequency	Percentage
For 'hands on' training during lectures	Available	40	80
	Not Available	10	20
For practice after lectures	Available	38	76
	Not Available	12	24
For installing any other software not provided at college	Available	12	24
	Not Available	38	76

Source: Primary Data

From Table 4.5 above, it is seen that 80% of the respondents agreed that training is organized in a manner that is 'hands on' during lectures while 20% of them said 'hands on' training is not available. 76% of the respondents accepted that there is freedom to access the computer laboratory for private practice in order to gain mastery of the material taught and 24% did not contend that accessibility of the computer laboratory for practice exist. In relation to installation of any other software that the college does not provide, 76% of the respondents said there is no freedom to do that while 24% of them said that freedom is available.

There was need for more information in relation to accessibility of computers and 4 lecturers and 8 employed graduates who were interviewed all accepted that there is 'hands on' training which students get during ICT lectures. However, 4 of these respondents noted that this effort is constrained by limited computers. This could explain

why 20% of the respondents reflected in Table 4.5 said they do not access computers for 'hands on' training during lectures. Similarly, it might clarify why 24% of the respondents said they do not access computers for private practice. They also responded by supporting the final year students saying students have the freedom to go back and do private practice whenever the computer laboratory is free from lectures. However, the lecturers continued to point out that the student numbers to benefit from this scheme is still a challenge coupled with time required to attend other lectures in other courses. For example, one respondent said when the computer laboratory is free for practice a student is expected to attend another class and he may miss practice a number of times. In relation to the findings, Bjerknes (2002: 11) agreed by pointing out that experiential learning reflects the person's inductive knowledge development rather than simply reflecting knowledge acquisition. Lave & Wenger (1991) also confirmed that learning is most profound when situated in a definite place and time. Exposing the learners to practical activities and workers to practical daily tasks are sources of the vocational knowledge.

It is important to realize that continuous interaction with tools and equipment provides better mastery of skills. As such better modalities have to be put in place to ensure that students get enough practice and not to depend only on what is delivered by the lecturers. Their personal and 'hands on' experiences could contribute tremendously to the attainment of desired objectives of training.

It should however be noted that from another point of view given by the 4 lecturers interviewed all said that students do not have the freedom to install any other software on the computers to expand their knowledge. In this respect, since 76% of the students also said they do not have that freedom then they agree with the lecturers and the findings could mean that the 24% of the respondents shown in Table 4.5 who said there is freedom could be doing it illegally.

Findings from interviews conducted by the researcher with the 4 lecturers and 8 employed graduates also showed that training in ICT are organized comprising of both theory and practical. The analysis of the course outlines was also done and it reflected the result provided by the above interview (theory and practical training). This finding is in line with Nilsson (1981b, 37) cited in Mjelde (2006) who asserted that what characterizes the development of vocational education in schools are that it has three components: Practical (work technique), vocational theory and general education. The practical component comprises of teaching the techniques of practical work. The vocational, or craft theory component has to do with teaching about materials used and how tools and machinery function. (p.52)

The researcher found out through interviews with 4 lecturers and 8 employed graduates that theory is introduced in the first year of training and according to the respondents, this is when the students are introduced to some of the different technologies (scanner, printer, internet, CDs, flash disks). Additional findings indicated that the use of these technologies is never practically taught in the course of training. In line with these findings, Okello (2009, p. 26) called this a contradiction in VET. A situation where

vocational courses that should be practical yet taught theoretically cannot deliver practical skills needed in the labour market. 3 of the employed graduates said they learnt the technologies on the job. The findings are also in line with what appears in the conceptual framework in chapter one, figure 1.1 showing content as one of the factors impacting on training in ICT. In this case therefore, while theory element of learning remains part of vocational training, the absence of the above mentioned technologies and lack of training in their use at college indicate low level of ICT integration into the training programmes; and yet the skills are highly required at work place. It means a practical approach to the use of such technologies in enhancing hands on experiences other than the theory aspect is not given due consideration in as far as learning content is concerned. Moreover, this would provide students with richer ICT knowledge and skills that give them better employment security. If the training institutions cannot provide training on these technologies then employers will continue to bear the burden of retraining the graduates or the graduates themselves lose out in the available job opportunities.

The additional information got during the same interviews in regards to organization of training was that the practical is introduced in the second year of training. It is done such that the Ms Office packages (Ms Word, Ms Excel, Ms Access, and Ms PowerPoint) are taught in the 1st semester and Pastel in the 2nd semester. The respondents however, said that this time is not enough for the learners to grasp the required concepts and skills. As if this is not enough, it was astonishing to learn that the practical is allocated less time than the theory. Although a study of the time table showed equal allocation of time for theory in year 1 and practical in year 2 in a week (i.e. 8 hours each), further scrutiny gave light

that the 8 hours for practical have to be shared by 4 different learning groups. This is as a result of few computers available for training and it means that every student attends a practical class only once in a week such that learning becomes largely theoretical. This finding and the situation portrayed concurs with Mureithi (2009) who said that the current system of education in most countries is highly theoretical and lacks practical basis from which students can develop technical skills and capacity to meet the challenges of the African economies today (para. 22). Loo, (n.d) as cited in World Bank (2010) is also in support of this finding and said that due to the fact that the institutions are poorly resourced, the education and training remains theoretical and the graduates are not considered more skilled than their academic counterparts by the labour market (p.5). The purpose of any kind of training should be to equip learners with competency in handling tasks. For that matter, consideration has to be made in giving enough time for the practical element of training if a desired level of competency is to be achieved. In any case, if the issue is not addressed then training remains largely theoretical based and the graduates fail to practically perform. It can also be observed that the complexity in adequacy of time, tools, materials and other resources means beats and pieces of knowledge and skills can be delivered to the learners. Thus learners from UCC-Soroti will have a wider knowledge about the work in the vocational theory sense with scanty practical knowledge in their areas of practice, hence low level of competency.

4.3 Presentation and discussion for objective two.

Objective two of the study sought to establish whether UCC graduates with ICT knowledge and skills are more acceptable to employers than those without. The principal

respondents for this objective were the employers of UCC graduates. The others included the college administrators, lecturers and the employed graduates. The findings under this section address the research question: "Are UCC graduates with ICT knowledge and skills more acceptable to the employers than those without?" The findings on the acceptability of graduates were based on respondents' views concerning work performance of the graduates and the relevance of ICT knowledge and skills for the employers. Opinions were specifically sought through interviews.

4.3.1 Work performance

It was deemed necessary by the researcher to establish the views of respondents on the performance of UCC graduates using ICT and interviews had to be conducted in order to get desired responses. In an interview with one administrative staff, he had this to say:

> ICT integration into the training programmes makes the graduates acceptable to the employers due to automation of activities that result in improved efficiency, effectiveness, accuracy and motivation at work.

It was found out from the 4 lecturing staff interviewed that employers need graduates with ICT skills in order to perform faster and accurately at work. These responses are in line with Jager et al (2008) who noted that in the developing world, Information and Communication Technology (ICT) is often welcomed as an important instrument for accelerated change. ICT programmes are used to increase the efficiency and effectiveness of organizations and to help align processes with best practices from the developed world (para. 1).

In a related view, one lecturing staff had this to say:

> ICT helps in enhancing competitiveness, lowering the cost of training and provision of timely communication that enhances decision making.

Another lecturer said:

> The graduates are more acceptable because of advancement in technology. Most organizations now employ the use of modern work methods, tools and techniques that require ICT knowledge and skills.

This response is supported by Mjelde (2005, pp. 18-19) (see also Rodrigue (2004, p. 3) who points out that information technology has changed both work processes in the various vocational fields and in the teaching processes for these fields. Grosjean (2006, p. 83) also reaffirmed that the combined forces of globalization and technological innovation have altered the nature of the labour market and profoundly affected who has access to professional employment and how work is carried out. The findings relate to the conceptual framework chapter one, figure 1.1 which points to advancement in technology as an uncontrollable factor affecting training in ICT. It means the growth in technology now dictates that training institutions should unquestionably integrate ICT into their training programmes so that they produce graduates who are acceptable to the employers.

This means that employers are now trying to look at how best they can achieve acceptable work performance using ICT and be able to meet the needs of their customers satisfactorily. The traditional forms of work processes might mean that an organization is not better placed in fighting competition. In the same way, the graduates are not safe in terms of job opportunities and for that matter, modern work techniques have to be explored and students trained in their use. There is no way employers will fail

to update their operations from time to time if they have to meet up with the standards in the labour market.

One of the lecturers interviewed appreciated that ICT knowledge makes the graduates more acceptable but observed that there are instances when they may not be easily acceptable because employers are likely to have staffs that are not creative and appraisal of employee commitment is hard for the employer. He again noted that theoretical based training and mismatch between training provisions and employers' needs are bound to exist. These findings relates to the view of Sennet (2008) who asserted that the benefits of Computer Aided Design (CAD) lies in its speed, the fact that it never tires, and indeed in the reality that its capacities to compute are superior to those of anyone working out a drawing by hand. Yet people can pay a personal price for mechanization in that misuse of CAD programming diminish the mental understanding of its users (p. 81).

The response highlights the fact that computers have both their merits and demerits (lack of creativity) which Sennet also clearly points out in his claim. This means that ICT is generally accepted especially due to technological advancement worldwide. However, while one of the respondents observed that it may not be wholly acceptable due to its shortcomings, the advantages could outweigh the disadvantages. It has to be accepted that technological advancement with all the associated challenges is now the only trend to take in the wake of globalization. This drives organizations to focus on more of the benefits involved in ICT use than the negative consequences. If, businesses cannot employ the use of ICT for their operations then there is no way competitive advantage can be achieved. The option is either to accept ICT depending on the prevailing

conditions in the job market and be able to employ those graduates who are ICT literate or risk otherwise. However it should be observed that large part of a developing country like Uganda still do not have access to electricity that can support the use of ICT. Businesses in such places will therefore continue to run even in the absence of power but the question remains on how competitive they can be.

4.3.2 Relevance of ICT knowledge and skills in employment

Findings revealed that the ICT training at college provides basic relevant knowledge and skills to address rapid changes in technology that make the graduates more acceptable to the employers. The 8 employed graduates interviewed all said they normally get good feedback from their employers regarding their performance using ICT knowledge and skills. One of the secretarial graduates interviewed had this to say:

> Computer literacy of staff was a requirement by the district authorities (Soroti District Local Government) and most of us had to enroll for training at college. Work was quite challenging before but a lot more was learnt during the training and work performance has improved in terms of speed and quality.

This is in line with Kolding et al (2007) who observed that in the current work environment, ICT skills are seen as key to be able to perform the job. He further noted that those without ICT skills, particularly basic ICT skills, are severely hampered when competing in the job market. There is a broadly held view, in fact, by the majority of those involved in the hiring process that a lack of ICT user skills would either disqualify or impair (at various degrees) a candidate for a position. Not even a candidate's practical

experience would significantly improve his/her chances of getting the job without ICT skills (p. 6)

The responses presented above reflect the fact that ICT knowledge and skills at whatever level is relevant for work performance in any organization. It is therefore a necessity that cannot be under looked. The concern of the Soroti district authorities to set up a condition for ICT training could mean that there was pressure in having ICT literate staff who could measure up to the requirements of the organization. With improved work performance they tend to see the relevance and have a reason to appreciate the contribution of ICT and hence, acceptability of those with knowledge and skills in the area. If ICT did not have meaning to the employer at the district, then they would not have advised the staff to go for training.

Findings through the same interviews with the employers and the employed graduates also showed that the most commonly used knowledge and skills at the work places are Ms Word and Ms excel. Ms PowerPoint and Ms Access are used in very rare cases while Pastel knowledge and skills was not found applied in any of the organizations visited while following up the accounting graduates. One of the accounting graduates said:

> While the training at college offers basic ICT knowledge and skills, different organizations have different software used for their operations. This requires retraining of newly employed graduates on the use of such new softwares.

However, it has to be noted that many times employing agencies have resorted to seeking applicants with experience to avoid spending money on re-training. In support of the finding above, Grosjean (2006, p. 83) contend that employers today seek workers with

high educational attainments and competencies that are necessary for creating and processing knowledge and information – the 'raw materials' of the global economy. With limited skills, graduates are bound to find difficulties in performing tasks effectively, let alone finding jobs. Findings indicated that Microfinance Development Network uses "Finance Solutions" while Letshego uses "Credit Ease" as tailor made programmes to manage their accounting operations and records. None of these softwares was found available for training at college where the graduates working in these companies acquired ICT knowledge and skills.

Findings from interviews conducted with 4 employers pointed out that ICT knowledge and skills is a necessity and that employee performances using ICT are satisfactory to the needs of the organizations. They reaffirmed that it is mainly Ms Word and Ms Excel that is mostly used in addition to the tailor made programmes available for different organizations. By the fact that UCC-Soroti offer training in some of those programmes (pastel) which are not employed at the work places visited, it is contrary to Jorgensen view who suggests that there should be a connection between the two learning environments - the school and the workplace learning environments (Jorgensen, 2008, p. 186). Less of this is bound to bring about a mismatch.

These responses indicate that it is in very few cases where UCCs as business training institutions provide for training in ICT that matches the requirements of the employers. If most of the organizations are using mainly Ms Word and Ms excel, then it means that UCC-Soroti is spending resources in training for those packages (Ms Access, Ms PowerPoint and Pastel) which are rendered redundant by the graduates when they get

employed. In addition, the availability of tailor made programmes for different organizations to handle accounting records and other information means that the training institution is spending resources on training which is not relevant in the field. It may also mean that linkage between the institution, employers and other stakeholders is poor and this calls for an intervention. However, while it could be important for the training institutions to tune their training to the needs of the employers it also becomes more complex in the sense that different organizations adopt different tailor made programmes. This makes it rather difficult for the training institutions to determine/choose the kind of training provision to give to their students.

One of the employed graduates also noticed that training at the institution is relevant for work but said the presentation is done in a complicated and abstract manner compared to training at work place which is more simplified. In a related view one of the employers also noticed that there is a mismatch between training offered and what is involved in the work place. One other employer had this to say:

> There are different ways of presenting books of accounts during training at school and in the bank.

These findings conform to Mjelde (2006) who stated that there have been many points of view about learning in school versus learning at work, practical versus academic education, classroom versus workshop and different views have emerged at different times (p 52).

In relation to these findings, a reflection was made by the researcher on the research expeditions carried out in different work places and training institutions during the

training in MVP at Kyambogo University. It was generally found out that at school, training tends to be a combination of general knowledge, theory and limited practice while in work places training tend to be based on 'hands on' experiences involving practical work which is given enough time and attention compared to that at school. This would require that the training institutions link up with employers in providing relevant training that is practical oriented to suit the needs of the employers. But this is yet a complexity for the institutions since the needs of different organizations are varied. There may also be need to link up with the different stakeholders to ensure that the curriculum is reviewed to suit the needs of the job market. Failure to involve the stakeholders in the curriculum review process is bound to bring about a disconnection between the learning content and the demands of the labour market.

One of the employers who were interviewed had this to say:

> The graduate with basic ICT knowledge and skills are more acceptable than those without because they can easily adapt to the requirements of the organizations than those who lack the knowledge and skills.

He continued that ¾ of their staff are UCC graduates whom they are quite comfortable working with and they believed the learning content was well handled and relevant for work. However, all the 4 employers responded by saying they had to retrain the employed graduates on the tailor made programmes. According to Billet (2001), these kinds of learning (learning at place of work) are necessary for performance at work. Mjelde, (2006; see also Cort, et al, 2004), also supported that workplaces are characterized by continuous changes in the mode of work processes. Skills and

knowledge required by the employees to work effectively can only be provided through such work-based trainings or refresher courses.

It is therefore still good to encourage the training institutions to offer training in basic ICT knowledge and skills. This makes it even much easier for the employed graduates to be trained on the tailor made programmes and adjust to the needs of the organization. At the same time, it is also important for employers to remember that changes in technology and the associated softwares/programmes has now to be adopted and adapted as part of life in an organization. As such they should look at retraining of new employees to update them with skills as a need and not a burden.

4.4 Presentation and discussion for objective three.

Objective three of the study was aimed at identifying the constraints involved in the integration of ICT into the training programmes of UCCs. In order to get the necessary responses, questionnaires were administered to the final year students. In-depth interviews were also conducted with the administrative staff, lecturers and employed graduates to obtain additional information. The findings under this section address the research question: "What are the constraints involved in the integration of ICT into training programmes of UCCs?" It generally involved looking at resources constraints relating to technical, manpower, time, financial and administrative constraints which could impact on the integration of ICT into the training programmes.

4.4.1 Resources constraints

It was found necessary by the researcher to seek opinions relating to the state of various resources constraints that could affect support for training of students in ICT. In order to

get the required responses, questionnaires were issued to the final year students and questionnaire items 1 – 7, Section B offered the results as reflected in Table 4.6 below:

Table 4.6 showing responses relating to availability of various resources involved in training in ICT

n=50

Resource	Response	Frequency	Percentage
Suitable infrastructure	Available	20	40
	Not Available	30	60
Enough space for computers	Available	22	42
	Not Available	28	58
Well qualified ICT lecturers	Available	14	28
	Not Available	36	72
A systems administrator	Available	0	0
	Not Available	50	100
Internet service provider	Available	1	2
	Not Available	49	98
Nominal fee for ICT service	Available	36	72
	Not Available	14	28
Antivirus software	Available	9	18
	Not Available	41	82
Adequacy of training time/period	Available	11	78
	Not Available	39	22

Source: Primary Data

From Table 4.6 above, 60% of the respondents said that ICT infrastructure that is in place is not suitable for ICT training and the remaining 40% think that the infrastructure is suitable for training. Besides, 58% of the responses showed that the space provided is not enough to accommodate the available computers while the other 42% indicate that the space is enough. Further still, 72% of the respondents were of the view that the ICT lecturers are well qualified and 28% think that the lecturers are not well qualified. Responses continued to reveal that 98% of the respondents said there is no internet

facility at college and 2% said the facility exists. Meanwhile, 72% of the responses indicated that there is a nominal fee charged to improve ICT service and the other 28% responses showed that the nominal fee is not charged. On the other hand, additional responses point to the fact that 100% of the respondents contend that there is no systems administrator in place to manage the computer systems. The other responses also showed that 82% of the respondents agreed that antivirus software is not available to protect the current computers while 18% indicate that the software is installed. In addition, 72% of the respondents accepted that the time available for training is not enough to enable learners get the desired concepts and skills while 28% thought the time offered is adequate.

Whatever findings are reflected in Table 4.6 above, there are clear indications that constraints exists in the integration of ICT into the training programmes of UCCs. The major constraints are lack of antivirus software, absence of a dynamic administrator, lack of internet, lack of qualified lecturers and limited time for training. The other constraints put forward by a good number of respondents cannot be underrated and those are lack of suitable infrastructure and space to accommodate computers.

While the data got through questionnaires stands, the researcher deemed it necessary to enrich the findings by interviewing 2 administrators, 4 lecturing staff, 8 employed graduates and 4 employees. This was intended to provide information which still relates to various resources as used in the questionnaire. The findings of interviews and discussion are as given below:

4.4.1.1 Financial constraints

Financial constraints for purchase and maintenance of computers were pointed out in an interview with the 2 administrators. Findings from these administrators also attributed the failure to install other softwares and internet facility to lack of funds and limited time for training. The same problem is noted to have forced the administration to charge students a nominal fee of shillings 160.000 per student for purchase of more computers. This is also reflected in the findings through questionnaires earlier on presented in Table 4.6. In reference to the afore mentioned findings Sife, A. S., Lwoga E.T. & Sanga C. (2007) noticed the problem of funding and pointed out that financial resources form a key factor to the successful implementation and integration of ICTs in education. It is obvious that countries with higher financial resource bases stand a good chance than those with limited resources to reap benefits offered by ICTs (p. 8)

The major concern of the respondents interviewed was that students contribute funds towards ICT training annually but there is no significant impact since the number of computers continues to remain low. Yet this contribution has been in existence for the last ten years. This raises lots of questions on how the funds are used and if used reasonably, how they are appropriated. The respondents expressed their belief that, if each student is charged a fee for computer service, then by now the computer laboratory would be fairly well stocked. This is a situation which Oguzor (2011) also observed and pointed out that the pattern of technology innovation in schools inhibits its full adoption, where innovations need to be justified by considerations of their costs and benefits. This pattern limits the exploration of the full potential of technologies and the extent to which

they can influence the teaching and learning of vocational education and training courses (p. 4).

The issue of funding is what the conceptual framework in chapter one, figure 1.1 reflects as being a factor amongst others which affects ICT integration into the training programmes. Its shortage could limit the efforts that can be made for the success of ICT training. If the administration views ICT as being key in business education and training then it would be in a position to solicit for funds that can be used together with the student collections to purchase enough computers and even make regular repairs and maintenance. In any case this should also be given a priority in the college's annual budget if training in this area is to improve. The possibility to get donations if explored could also be a relief for this financial stress. The Ministry of Education should as well be supportive in this noble cause but if the burden is to rest solely with UCCs, then there is little hope of realizing improvement in the area of ICT training.

4.4.1.2 Administrative constraints

According to the 4 lecturers who were interviewed, administrative support was found to be low since the responsible staffs often complain of lack of finances. They said this has always resulted in irregular and untimely servicing of computers. This is what may not be in conformity with Sife A. S. et al (2007) who pointed out that administrative support is critical to the successful integration of ICTs into teaching and learning processes. Administrators can provide the conditions that are needed, such as ICT policy, incentives

and resources. The commitment and interest of the top management and other leaders at every level is the most critical factor for successful implementation of ICTs (p. 6).

Administrative support is one of those factors affecting ICT integration into the training programmes as reflected in the conceptual framework in chapter one, figure 1.1. Its presence or absence will determine the extent of this integration. It is possible that even with all the willingness to support ICT integration, the cost of ICT training might still continue to exist and remain high. This can be a hindrance which results into low levels of achievements. This condition is particularly prominent in less developed countries. But amidst such a challenge, the administration still need to support ICT training by planning how funds can be utilized to ensure satisfactory integration into the training programmes. A positive attitude and attaching the desired value to ICT training by the administrators will contribute to minimizing most of the constraints that is viewed to be attached to ICT training.

Additional findings during the same interviews with the 4 lecturers of ICT in line with administrative constraints were that there is a lot of bureaucracy involved in trying to make procurement for the computer hardware, software and maintenance. This finding could be part of what Tusubira and Mulira (2004), cited in Sife A. S. et al (2007) observed that there tends to be some vague knowledge about ICTs, some interpreting them as simply advanced technologies that require a lot of money and very advanced skills. They are not appreciated as a means of creating efficiency and cost effectiveness (p.7).

While it is important to have a system in place for this nature of work, it is bound to result in unnecessary delays and lack of motivation on the part of the responsible staff. It might be important to give room for some flexibility in order to achieve efficiency. The way administration view ICT training has to change so that services relating to ICT training are given immediate attention and the necessary actions taken.

4.4.1.3 Manpower constraints

It was pertinent to establish the state of manpower available for training in ICT. Findings in terms of manpower needs were acquired through interviewing 4 lecturing staff and 2 administrative staff. It was found that the administration has not made an effort to employ a systems administrator or even a laboratory attendant to take the responsibility of maintenance of the computers. This is a finding that is also reflected in Table 4.6 with information got through questionnaires.

The role of a systems administrator is very important especially in handling breakdowns of the machines, UPS failure, cleaning up for viruses and other technical problems with the computers. This should not have been overlooked and it is a high time the administration thought about employing a systems administrator to continually check on the status of the systems. Otherwise if the burden is left on the lecturers in addition to preparation for their lectures, then there is room created for inefficiency.

Further probe into this area during the same interview revealed high enrollment of students against inadequate staffing (1,200 students against 4 lecturers). The lecturers were also reported to have limited qualification and hence not fully equipped with all the

necessary skills for training. Additional finding related to this pointed out that of the 4 lecturers, only 2 were conversant with Pastel and has often resulted in hiring labour from outside. This is a similar finding provided in Table 4.6 concerning manpower where 72% of respondents said the lecturers are not well qualified. One of the staff interviewed had this to say:

> There are limited equipment, limited staffing in ICT training, low pay, lack of risk allowances and moreover the burden of staff training and retraining due to advancement in technology is left on the staff themselves.

According to Ssemwogere (2010), quality BTVET training can only be delivered by competent trainers with sufficient technical and practical training. They must exhibit confidence in practical and pedagogical skills commensurate with technologies of the day and befitting the different workplaces (p. 16). It is very important to realize that in vocational education and training 'hands on' experiences under the guidance of a master is paramount. The lecturers are responsible for guiding the students and therefore needs to be supported to update their skills quite often if they are to assist learners appropriately. This is what Nilsson (2008) also recognized by pointed out that if learners are to do something or manufacture something they need help in terms of a person who knows how to do something. It means that the learners need a person as a model for his/her actions, as a person who gives instructions and explain in a dialogue what to do, how to do and how to act in difficult situations. This is a person who gives courage and support; a helpful and trustful person whom the learners look upon as a good model" (p.1)

A factor that the conceptual framework in chapter one, figure1.1 has not ignored and that could determine the extent of ICT integration into training programmes is the teaching staff. In the event that staffing is not enough and the few have limited qualification then the learners are not assured of proper guidance that provides them with the necessary skills. With rapid changes and advancement in technology, upgrading of staff skills should be ongoing through training and retraining. The number of lecturers that matches the student numbers is also an urgent matter to be addressed. Oguzor (2011) also supports staff development and said; training teachers as computer instructors is an urgent and essential matter. He also observed that since most software has to be developed by the teachers themselves, intensive training should be requested (p. 6).

4.4.1.4 Time constraints

Time required for training was one of the resources that the researcher had to seek opinion on. Limited time for training was found to be one of the outstanding constraints which in most cases according to the findings forced the students to seek training assistance from outside college. This is as pointed out during the different interview sessions the researcher held with the administrative staff, lecturers and the employed graduates. An accounting graduate said she had to move out to seek assistance in Pastel in order to learn the concepts well and this was at a cost.

The employers who were interviewed were also concerned that the training offered is done within a limited period of time which affects the level of 'hands on' skills to be acquired. These are the findings which Table 4.6 supports. It was also found out that the time constraints are highly associated with the inadequacy of computers. These responses

could also mean that there is a problem with the curriculum where time allocation for intensive training is not adequately addressed. A review of the curriculum could be the way to go while at the same time making consideration to link up with employers so that relevance and competency in training is achieved. This is a view which is in line with Wiley (2008) who stated that a curriculum should never be a fixed entity, it needs to be dynamic to be useful and it is never really "finished" - always a work in progress. No matter how hard you work to "perfect" a curriculum, you always have to be open to change, because an effective curriculum must always evolve. He further observed that this is not a sign of failure! It is actually a sign of success. Times change, learners change, health care changes and curriculum have to change to stay current. (p.,2)

4.4.1.5 Technical constraints

Technical support for ICT training was looked at by the researcher as an aspect that could not be ignored in the study. It was found out through observation that the college has a standby generator but one of the respondents who were interviewed said it is not very reliable as at times it fails to run. The 4 lecturers interviewed also said a lot of time is wasted in trying to connect the generator to the computer laboratory since it is not automatically set to operate immediately power goes off. The concern of the researcher based on observation done is that the generator seems to be too small to run all the computers in case of any blackout. The researcher observed and witnessed on one occasion when a practical lecture was to run but the standby generator could not serve both the computer laboratory and the administration block. Consequently the lecture had to stop and the connection was made to the administration block on the request of the

Principal who said he had urgent work to be processed. This is a situation which is quite absurd since it involves a lot of interruptions and the better option could be to procure a generator with a larger capacity and possibly automatic model. This would reduce a lot on time wasting and motivate every person involved in the system.

The administrators, lecturers and employed graduates also responded during interviews that the technical constraints involved are outdated computers, computer breakdowns, UPS failure, upgrading of the system, computer viruses and power cuts. These are findings which relate to technical support: such as installation, operation, maintenance, network administration and security. This is what Sife A. S. et al (2007) continued to observe is an important part of the implementation and integration of ICT in education system. In most cases however, technical support is not available, which implies that trainers and students require some basic troubleshooting skills to overcome technical problems when using ICTs (p. 8).

Technical support is very vital if the computer system that an institution has is to run well without stress and this goes hand in hand with administrative support. It is the computer viruses that can cause break downs and system failures. As such provision of anti viruses that are continually updated could be of great relief. The findings from observation and interviews also revealed that infrastructure is generally poor and has not even been able to support internet connectivity. Based on questionnaires administered to the final year students these are also supported by findings in Table 4.6.

In reference to the responses presented in Table 4.6, 98% of the students are aware that there is no internet at college. The exceptional case of 2% who said internet exists could be because the student has never been exposed to the technology and he/she does not know what it is. If this is the case, then there is a serious reason as to why students need to be introduced to this technology. This is a finding which relates to what Balasubramanian, K., Okah, W., Ferreira, F., Kanwar A., Kwan, A., Lesperance, J., …de West, P. (2009) cited in UNESCO (2006:11) identified as weaknesses relating to ICT facilities which adversely affect the use of the technology for research purposes namely: poor infrastructure; few computers (a low ratio of computers to staff/ research students); and the high cost of connectivity which makes high-speed internet service unavailable.

The findings relating to technical support is also revealed in the conceptual framework, chapter one figure1.1 pointing to this support as a factor that might determine the extent to which ICT can be integrated into the training programmes. In light of the speed at which technology is advancing, the inability to have proper structures to support ICT training including provision of internet facility means that UCCs are lagging behind. The quality of training will remain questionable since those graduates who will be passed out will be bound to meet difficulties as they get exposed to the world of work. There is a lot that is missed out without exposure to internet connectivity. In addition, as long as this situation continue to prevail, handling of virus problems which affect the computer systems will not be easy. The installation of the internet would help in downloading of anti viruses, installing them and updating from time to time, hence security threats minimized.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter summary, conclusions and recommendations for improvement are presented based on the findings and discussions of the three objectives of the study.

5.2 Summary

The study was basically carried out to find out the extent to which ICT is integrated in the training programmes of UCCs. The study was called for since the labour market indicators have been pointing to unmet skills requirement in ICT amongst employees in Uganda. The researcher specifically looked at the level of ICT integration into the training programmes, the acceptability of graduates with ICT knowledge and skills by employers and constraints involved in the integration of ICT into the training programmes.

Based on the findings, it can be noted that the ICT infrastructure which is in place to support training is incapacitated and is not in a position to contribute to the attainment of desired level of training. The computers were found to be too few to cater for the students' numbers. The electricity supply to run the computers was noted to be very unreliable since it is associated with frequent power cuts. Above all, the computer laboratory was found lacking the internet facility and practical training in this area missing.

The software provided for training was found to be limited to Ms Office packages to offer basic ICT skills and Pastel as the only accounting software. Knowledge and skills of students and graduates in using technologies such as scanner, printer and internet amongst others were found to have been acquired from elsewhere other than from college during training.

The organization of the training showed inadequate time allocated especially for the practical aspect which is done only in the second year for all the training packages.

Findings pointed out that ICT training at college provides graduates with basic relevant knowledge and skills that make them acceptable to the employers because of improved efficiency, effectiveness, accuracy and speed in performing tasks. However, retraining of newly recruited UCC graduates was found to be a common practice since different organizations have different tailor-made programs for their operations. It was also found that training at school is presented in a different and quite complicated way compared to that at the workplace.

Constraints involved in ICT integration into training programmes was found to comprise of financial constraint that has resulted in charging students a nominal fee for computer services. Low administrative support also resulted in irregular and untimely servicing of computers. Manpower restraint included lack a systems administrator and inadequate staffing with limited qualification in handling ICT training. It was discovered that limited time for training forced some students to seek assistance from outside college at a cost. Other constraints were found to be outdated computers, computer breakdowns, UPS failures, computer viruses, frequent power cuts and limited generator capacity.

5.3 Conclusion

The study aimed at evaluating the integration of ICT into Business Education Training programmes in Uganda Colleges of Commerce. This was done with particular reference to the extent to which this integration has been achieved in UCC Soroti. In relation to this, the researcher has been able to draw conclusions based on the findings as presented below:

The ICT infrastructure characterized by the presence of one computer laboratory stocked with only 22 computers, unreliable electricity supply and lack of internet facility could adversely affect the level of training provision. This is compounded by limited software provided for training without due regard for the requirements in the job market. The limited time for training coupled with few computers that have to be shared means that learners do not get enough 'hands on' training to make them fully equipped with the necessary skills. This is an indication of low level of achievement in ICT training.

ICT knowledge and skills is considered relevant due to advancement in technology calling for modern work methods, tools and techniques that leads to attainment of efficiency and effectiveness. This makes the graduates more acceptable to employers than those without such skills. Since work places were found to have tailor made programmes designed for their operations that calls for retraining of newly employed graduates; it might mean that there is a gap in skills acquisition. In addition, the fact that training at college differs from that of the work places is an indication of lack of linkage of training provisions and the work places. However, training at college was found to provide a basis for the employers in accepting the graduates.

The inadequate provision of proper ICT infrastructure, software and other resources has to a large extent been linked to constraints involved in ICT integration into the training programmes ranging from financial, administrative, manpower, time and technical constraints. All these are problems noted to have adverse effect on the training and eventually the attainment of competencies required of graduates. Unless each of these is addressed, then training will continue to remain limited to undesirable levels.

5.4 Recommendations

Basing on the summary of findings highlighted and conclusions drawn above, it is here now recommended that:

1. The limited number of computers available for training in ICT affects the attainment of desired skills by the learners. It is therefore advisable for UCCS to plan for the procurement of more computers that can conveniently cater for the increasing student numbers. This can be done through linking up with the Ministry of Education and Sports and other donor organizations that can be supportive on this noble cause. It can also save the institution from over dependency on students' contributions which seems not to be showing significant impact.

2. The software available for training is mainly limited to Microsoft office packages to provide basic skills in ICT. However, it should be noted that the workplaces employ the use of more than these softwares. In a bid to achieve better training that suits the needs of employers, a variety of software to provide training in

different technologies that characterize the different work places such as scanner, internet and a printer should be put in place. The budget allocation for ICT training needs to be revised by the administration of the institution in order to address the problem.

3. While the organization of training is appreciated for offering theory, practical and general knowledge in the training, the curriculum should be reviewed to allow for more time for the practical aspect. This will enable learners get opportunity for receiving adequate 'hands on' experiences as they interact with the ICT tools-computers from time to time and for that matter achieve satisfactory mastery of skills.

4. Given that there are only 4 ICT lecturers who are not all fully equipped with the necessary skills, the college administration with support from the Ministry of Education and Sports should facilitate the lecturers to update their knowledge and skills in ICT. This can be through sponsoring some short courses, seminars and workshops so that the lecturers are better equipped with relevant skills. This will make them well situated to meet the needs of the learners and consequently those of the employers. The tendency of leaving the burden of updating skills on the individual lecturers will never cause any significant change.

5. The Education Service Commission in conjunction with Ministry of Education and Sports needs to recruit more lecturers for ICT training. This will make it possible for lecturers to handle the large student population conveniently and would result in the lecturers achieving efficiency in their duties.

6. The employment agencies need to be involved in both curriculum design and review since the college trains in a number of ICT skills that are not used in some workplaces. This will avoid a mismatch between training provision at college and the skills needs in the labour market. It will also eliminate the burden of retraining the graduates that is normally taken up by the employers.

7. The college administration should revise its budget allocation and prioritize funding for ICT services amongst others instead of relying only on students' contributions which have never yielded promising results. In a related effort, the Ministry of Education and Sports ought to address the issue of funding and support UCCS accordingly. If the task is left with the college administration alone then the problem of funding may never be minimized since ICT services and training are associated with high costs. It will also reduce the burden on the students who are charged a nominal fee to support ICT training.

8. The internet is now a tool that facilitates global interactions and UCCS should plan to have this facility installed in order to enhance training in ICT. The internet will promote communication on academic issues between the lecturers and students while at the same time aid research activities that are vital for skills acquisition in ICT. The availability of the internet would also save on the problem of computer viruses since the antivirus soft ware can always be downloaded and updated as and when needed.

9. The college administration should consider the procurement of a standby generator with a larger capacity that can be able to run all units of the college in

case of power cuts. This will solve the problem of unreliable electricity supply and stop the movement of a generator from one department to another in case of emergencies. The interruptions in ICT training processes will also be done away with.

10. The services of a systems administrator are key in the management of computer systems. The administration of UCCS should take a step to employ a systems administrator who should be able to manage computer breakdowns, UPS failures, upgrading of the system, computer viruses, general maintenance and repairs when necessary. This will avoid leaving the responsibility with the lecturers who may not be knowledgeable in putting everything right and who also need enough time to prepare for lectures.

5.5 Areas for further research

The main objective of this thesis grounded on experiential study and literature review from various sources has been the fulfillment of the requirement for the award of a Masters Degree in Vocational Pedagogy. However, the findings from this study should provide rich information that can be used to guide empirical researchers in the field of ICT training to raise questions from which data can be gathered. Some of the suggested areas of research are:

5.5.1 How can UCCs create linkages with employment agencies to make improvement in ICT training?

For UCCS to provide relevant training in ICT skills that matches the needs of the labour market, there is need to create linkages with employment agencies that provide jobs for

their graduates. This can be done by involving the employers in the curriculum design and review processes so that mismatch between training provisions at college and the requirements at workplaces is overcome. There is need to carry out empirical study on how best this relationship can be built.

5.5.2 What are the most effective methods of delivery that can be employed to impart ICT skills in UCCS?

Training in ICT skills is normally associated with resources constraints that can range from financial, manpower, technical and time constraints amongst others. These constraints normally affect the intended objectives of the training but other than focusing on these there could be other factors that need to be looked at. In the hope that these constraints can be overcome, there still remains a question as to whether the methods of delivery contribute to appropriate acquisition of relevant skills for the job market. This call s for a study to evaluate methods of delivery in ICT training that can be employed for improvement in the area.

REFERENCES

Amin, M. E. (2005) Social *Science Research. Conception, Methodology and Analysis*, Makerere University Printery, Kampala-Uganda.

Balanskat, A., Blamire, R. & Kefala, S. (2006) *The ICT Impact Report. A review of studies of ICT impact on schools in Europe*. Retrieved on .22/3/2012 from: http://ec.europa.eu/education/pdf/doc254_en.pdf

Balasubramanian, K., Okah,W. C., Ferreira, F., Kanwar, A., Kwan, A., Lesperance, J., Mallet, J., Umar,A.,&West,P. *ICTs for Higher Education.* http://unesdoc.unesco.org/images/0018/001832/183207e.pdf

Barifaijo, K.M., Basheka, B. & Oonyu, J. (2010) *How to Write a Good Dissertation/Thesis. A Guide to Graduate Students*. New Vision Printing and Publishing Company Ltd

Basim,A.,(2008) *Immersive approach to ICT in TVET*: Retrieved on 12/4/2012 from: http://ipac.kacst.edu.sa/edoc/2009/173461_1.pdf

Billet, S. (2001). *Learning in The Workplace: Strategies for Effective Practice.* Crown Nest, Australia: Allen & Unwin.

Bjerknes E, et al. (2002). *Experiential Learning In Learning and Counseling*: Vyautas Mangnus University, Luthuania, and Akershus University College, Norway.

Clarke,D.&Palmer,L.(2011) *Skills for Employability: The Role of Information & CommunicationTechnologies.*http://www.gesci.org/assets/files/Knowledge%20Centre/GESCI_Skills_Development_paper_May2011.pdf

Cort, P., Harkonen, A., & Volmari, K. (2004). *PROFF – Professionalisation of VET Teachers for the future.* Retrieved October 10, 2010, from CEDEP Panorama Series:http://www2.trainingvillage.gr/etr/publication/download/panorama/5156_en.pdf

Glen, F., & Shafika, I. (2007). *Survey of ICT and Education in Africa: A Summary Report, Based on53 Country Surveys.* Washington, DC: *info*Dev / World Bank. Retrieved from: http://www.adeanet.org/adeaPortal/adea/Biennale2008/Documentation/Papersfor presentation/07. Session 7/Parallel session 7D/Final PDF documents

Grosjean, G. (2006). Cooperative Education: Learning to Work - Working to Learn, and Trying to Make Sense of It All. In L. Mjelde, & R. Daly, *Working Knowledge in a Globalising World: From Work to Learning, from learning to Work* (pp. 83-104). Bern: Peter Lang.

Jager, A. & Reijswould, V. (2008) *Journal of Community Informatics. E-Governance in the Developing World in Action*: The Case of DistrictNet in Uganda. Vol. 4, No. 2. ISSN: 1712-4441. Retrieved on 23/2/2012 from http://ci-journal.net/index.php/ciej/article/view/355/408

Johanson,R.K.(2004) *Implications of globalization and economic restructuring for skills development in sub-Saharan Africa.* Retrieved on 19/4/2012 from: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/publication/wcms_079126.pdf

Jorgensen, C. H. (2008). School and Workplace as Learning Environments In Vocational Education and Training. In G. Philipp, & A. Heikkinen (Eds.), *Divergence and Convergencein Education and Work* (Vol. 6, pp. 171-195). Bern: Peter Lang.

Kolding, M. & Kroa, V. (2007) *e - Skills* — The Key to Employment and Inclusion in Europe. Retrieved on 17/4/2012 from: http://download.microsoft

Lasonen, J. (2010) *Worldwide Challenges of ICT in Education and Training.* International Journal of Vocational Education and Training Vol. 18, No. 1. Retrieved on 12/4/2012 from: http://www.iveta.org/members/index.php/Blog

Lave, J., & Wenger, E. (1991). *Situated Learning: Lgitimate Peripheral Participation.* New York: Cambridge University Press. Mjelde, L. (1995). Actvity Pedagogy: How does it really work? In A. Heikkinem (Ed.), *Vocational Education and Culture: European Prospects from Theory and Practice* (pp. 131-154). Erottajakatu.

Loo, (n.d.), *TVET Issues and Debates*, *NICHE strategy on Technical and Vocational Education and Training (TVET)* World Bank Institute (website accessed in February 2010). Retrieved on 17/4/2012 from: http://www.nuffic.nl/international-organizations/docs/niche/themes/labour-market/niche-tvet.pdf

Merrian, S. & Simpson, E. (2000). *A Guide to Research for Educators and Trainers of Adults.* 2nd edition, updated. Malabar, Florida: Krieger Publishing Company.

Ministry of Education and Sports (2011), *BTVET strategic plan, first draft:* Skilling Uganda, 2011-2020

Mjelde, L. (2006). *The Magical Properties of Workshop Learning* (Vol. 2 in series). (P. Gonon, A. Heikkinen, Eds., & R. Daly, Trans.) Bern: Peter Lang.

MTN (2012), *The Internet declared everyone's right by the United Nations*. (Advertisement in 2 minutes from 9.30 pm in series, NTV), Kampala, Uganda

Mureithi, G. W., (2009). *Technical, vocational education and training in Africa:* has it lost its significance? Moi University, Kenya. http://www.kmafrica.com/book/export/html/2067

Nilsson, L. (2008b). *How to organize vocational education.* unpublished.

Odiya, J. N. (2009) *Scholarly Writing: Research Proposals and Report Writing in APA or MLA* Publication Style; Makerere University, Kampala.

Oguzor, N. S. (2011) *Computer usage as instructional resources for vocational training in Nigeria:* Retrieved on 14/2/2012 from: http//www.academic journals.org

Okello, B. (2009). *Complexities and Contradictions in Vocational Education in Uganda.* Kampala: unpublished.

Onwuegbuzie,A.J.,& Leech,N.L. (2011) *The role of sampling in qualitative research.* Retrieved from: http://findarticles.com/p/articles/mi_hb3325/is_3_9/ai_n29219699/

Opdenakker, R. (2006) *Qualitative Social Research.* Advantages and Disadvantages of Four Interview Techniques in Qualitative Research Volume 7, No. 4, Retrieved on 23/2/2012 from: http://www.qualitative research.net/index.php/fqs/article/view/175/391

Rodrigue, J.-P. (2004). *Technology and Geographical Education: A Pragmatic View.* New York: Hofstra University, Hempstead.

Semwogerere, P. (2010). *Skills Development: Towards Meeting the Challenges in the Delivery of Quality Education and Sports.* Kampala: Ministry of Education and Sports.

Sennet, R. (2008). *The craftsman.* Penguin Books Limited, Great Britain.

Simiyu (2011) *Activities To Strengthen Skills and Employability through the Integration of ICT and E-Learning:* A Case of Chepkoilel University College, Kenya. Retrieved on 19/4/2012 from: http://www.unevoc.unesco.org/

Sukri,S.M., Shu'aibu, B., Yahaya, N., & and Yasin, M.A.(2011). African Journal of Business Management. *Effective integration of information and communication technologies (ICTs) in technical and vocational education and training (TVET) toward knowledge management in the changing world of work.* Vol. 5(16), pp. 6668-6673, 18 http://www.academicjournals.org/ajbm/PDF/pdf2011/18Aug/Saud%20et%20al.p

Tinio,V.L.(2011) *ICT in Education/Key Challenges in Integrating ICTs in Education.* http://en.wikibooks.org/wiki/ICT_in_Education/About_the_Author

Umoetteh, J. (2007) *Overview of ICT in Education.* Retrieved on 12/4/2012 from http://www.ciitconsulting.com/edesk/publicfolder/us_survey.pdf

Wiley, J., (2008, February 15) *European Journal of Dental Education*,Volume 12, Issue Supplement s1, Article first published online library: Retrieved on 25/09/2011 from http://onlinelibrary.wiley.com/doi/10.1111/j.1600-0579.2007.00482.x/pdf

Wright, W. (2011) *"It's a small world, but I wouldn't want to paint it"*. Retrieved on 23/2/2012 from: http://www.drtomoconnor.com/3760/3760lect03.htm

APPENDIX I
QUESTIONNAIRE FOR THE FINAL YEAR STUDENTS

Dear respondent

This questionnaire is meant to find out how much ICT has been integrated into the Business Education and Training (BET) programmes in Uganda Colleges of Commerce. The responses you will give are expected to contribute towards the improvement of training in BTVET institutions. The information provided will be treated with utmost confidentiality and for study purposes only. Your cooperation will be highly appreciated.

Demographic Information

Name of Institution: .....

Programme of study: .....

Year of study: .....

Gender (Male/Female): .....

Age group: 20 – 29 ☐ 30 – 39 ☐ 40 – 49 ☐ 50 – 59 ☐
60+ ☐

Specific Information

Section A: Level of ICT integration

Please, give your comments on the status of the ICT infrastructure and other resources offered for training by ticking the appropriate responses that best reflect your view.

1. Do you think the institution has a well furnished computer laboratory?
   Yes No
2. Is the computer laboratory equipped with internet facility?
   Yes No
3. Is there reliable electricity supply to run the computers at all times?
   Yes No
4. Does the college have a standby generator?
   Yes No

5. Among the software programmes listed below tick the ones you know are available for training of students in the college's computer laboratory.

   a) Ms Word
   b) Ms Excel
   c) Ms Access
   d) Ms PowerPoint
   e) Pastel
   f) Tally
   g) QuickBooks

6. Do you get "hands on" training during computer lectures?

   Yes No

7. Are you free to go back to the computer laboratory to practice whatever you learnt to gain mastery of the material taught?

   Yes No

8. Are you free to install any other software in the computers so that you can expand your knowledge on ICT?

   Yes No

9. Among the computer technologies listed below, tick those ones you are able to use without any difficulty.

   a) Scanner
   b) Printer
   c) Compact disks(CDs)
   d) Flash Disks
   e) Internet

10. Where did you learn it/them from? Tick the appropriate response.

    a) At college
    b) Private computer training centers
    c) During industrial training

If you have any other thing related to the availability and adequacy of ICT facilities offered for training in the College, please write it down in the space provided.

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Section B: Constraints involved in ICT integration

Please, respond to the following questions in relation to the limitations involved in ICT integration into the training programmes.

1. Do you think the ICT infrastructure available (e.g. computer laboratory and equipments) is suitable for contributing to your success?

   Yes No

2. Is there enough space to accommodate the computers?

   Yes No

3. Do you have well qualified lecturers in ICT training?

   Yes No

4. Do you have a reliable internet service provider?

   Yes No

5. Is there a nominal fee charged to improve ICT service?

   Yes No

6. Is there a systems administrator employed to manage the computer systems?

   Yes No

7. Is the antivirus software installed in all the computers available for training?

   Yes No

8. Do you think the time/ period allocated for training is enough for you to master the required skills in ICT?

   Yes No

Please, give any other comments concerning the limitations you have experienced in the course of training students in ICT in the institution

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APPENDIX II

INTERVIEW GUIDE FOR THE ADMINISTRATIVE STAFF

Section A: Level of ICT integration

1. Are there any kinds of administrative support given towards ICT integration into BTVET programmes?

2. What kind of ICT infrastructure do you have in place to support ICT training?

Section B: Acceptability of graduates by employers

3. Do you think the integration of ICT into the training programmes makes the graduates more acceptable to the employers?

4. If yes, give the possible reasons for this.

Section C: Constraints involved in ICT integration

5. What are the difficulties that you face as a result of integration of ICT into the training programmes?

6. How do you cope up with the challenges you face with this integration?

APPENDIX III

INTERVIEW GUIDE FOR LECTURING STAFF

Section A: Level of ICT integration

1. What are the information communication technologies that the learners have been exposed to? (Scanner, printer, DVDs, projector, CDs, Flash disks, internet)

2. What are the application software packages (practical skills) that the learners been introduced to?

Section B: Acceptability of graduates by employers

3. Based on what you offer in ICT training, do you think the graduates are more acceptable to employers than those without ICT knowledge? If yes, explain.

4. What are the strategies that you have put in place to make the graduates more acceptable to the employers?

Section C: Constraints involved in ICT integration

5. What are the ICT infrastructure related hardships that you meet in lecturing in ICT courses?

6. How do you overcome them?

APPENDIX IV

INTERVIEW GUIDE FOR THE GRADUATES WHO ARE ALREADY WORKING

Section A: Level of ICT integration

1. What information technologies were you introduced to during the training at college?

2. What application software packages (practical skills) did you learn during the course of training at college?

Section B: Acceptability of graduates by employers

3. Do you think the ICT knowledge and skills acquired at the institution makes you more acceptable to the employers than those without ICT knowledge and skills?

4. If yes, why do you think the graduates are more acceptable to the employers?

Section C: Constraints involved in ICT integration

5. What were the difficulties you met during training in ICT at the institution?

6. What do you suggest to be improved in the training in order to overcome those difficulties?

APPENDIX V

INTERVIEW GUIDE FOR EMPLOYERS

Section A: Acceptability of graduates by employers

1. Are UCC graduates with ICT knowledge and skills more acceptable to you than those without?

2. Do you think the UCC graduates you employ have enough ICT skills to enable them perform their tasks to your satisfaction?

3. If no, what is the knowledge and skills gap that you suggest should be addressed by the training institutions?

4. What are the ICT related challenges that you face by recruiting graduates who are knowledgeable in ICT?

Section B: Constraints involved

5. What do you think are some of the limitations the graduates faced during training in ICT at the institutions?

6. What do you generally suggest to be improved in ICT training by the training institutions?

APPENDIX VI

OBSERVATION CHECKLIST

Items	Comments
ICT infrastructure (computer laboratory, space and other facilities)	
Availability of internet	
Availability of power/electricity supply	
Number of students in ICT class	
No of computers	
Ration of learner to a computer	
Other ICT tools available	

APPENDIX V11

INTRODUCTORY LETTER -UGANDA COLLEGE OF COMMERCE, SOROTI

KYAMBOGO UNIVERSITY

P. O. BOX 1 KYAMBOGO
Phone: 041-285001/2 Fax: 041-220464, Kampala
Website: www.kyambogo.ac.ug

Kyambogo University Graduate School

Date: 23rd April 2012

To:
The Principal
UCC Soroti
P.O. Box 2

Recd 2/5/12

RE: LETTER OF INTRODUCTION

This is to introduce Ms. Adongo Milly Margaret
Registration No. 2010/U/HD/1232/MVP who is a student of Kyambogo University pursuing a Masters Degree in Vocational Pedagogy.
He/She intends to carry out a research on:
AN EVALUATION OF INTEGRATION OF INFORMATION COMMUNICATION TECHNOLOGY INTO BUSINESS EDUCATION AND TRAINING PROGRAMS IN UGANDA COLLEGES OF COMMERCE
as partial fulfillment of the requirements for the award of the Degree in Masters of Vocational Pedagogy.

We therefore kindly request you to grant him/her permission to carry out this study in your organisatio
Any assistance accorded to him/her shall be highly appreciated.

Thank you.

Yours Faithfully,

KYAMBOGO UNIVERSITY 23 APR 2012 OFFICE OF THE DEAN

Sr. Dr. F. Nakiwala
AG. DEAN, KYAMBOGO UNIVERSITY GRADUATE SCHOOL

APPENDIX VIII

INTRODUCTORY LETTER – SOROTI DISTRICT LOCAL GOVERNMENT

KYAMBOGO UNIVERSITY

P. O. BOX 1 KYAMBOGO
Phone: 041-285001/2 Fax: 041-220464, Kampala
Website: www.kyambogo.ac.ug

Kyambogo University Graduate School

Date: 23/04/2012

To:
The Personnel officer
Soroti District

Received. Permission is hereby granted.
7/5/12

PRINCIPAL PERSONNEL OFFICER
SOROTI DISTRICT
LOCAL GOVERNMENT
P. O. BOX 61, SOROTI

RE: LETTER OF INTRODUCTION

This is to introduce Ashayo Mary Margaret
Registration No. 2010/M/HD/222/MVP who is a student of Kyambogo University pursuing a Masters Degree in Vocational Pedagogy.
He/She intends to carry out a research on:
AN EVALUATION OF INTEGRATION OF INFORMATION COMMUNICATION TECHNOLOGY INTO BUSINESS EDUCATION [illegible]
as partial fulfillment of the requirements for the award of the Degree in Masters of Vocational Pedagogy.

We therefore kindly request you to grant him/her permission to carry out this study in your organisation Any assistance accorded to him/her shall be highly appreciated.

Thank you.

Yours Faithfully,

Nakiwala

KYAMBOGO UNIVERSITY
23 APR 2012
OFFICE OF THE DEAN

Sr. Dr. F. Nakiwala
AG. DEAN, KYAMBOGO UNIVERSITY GRADUATE SCHOOL