DIGITAL LITERACY AND TEACHER EDUCATION IN UGANDA: THE CASE OF BONDO PRIMARY TEACHERS' COLLEGE (PTC)

by

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Abstract

Claims about the potential of Information and Communication Technology (ICT) to transform education in the less developed countries of the world abound. This qualitative case study, which took place at Bondo (*pseudonym*) Primary Teachers' College (PTC) in Uganda, from April to December 2008, was guided by two specific research questions, (1) What is the relationship between ICT policy and educational practice in Uganda? (2) To what extent do teacher educators use ICT in their professional practice and what challenges do they face in developing digital literacy? To address question one, the researcher did a content analysis of the National ICT policies and held a key informant interview with the ICT minister in Uganda. In order to address question two, the researcher drew on data collected from a sample of six teacher educators using questionnaires, focus group discussions, online group discussions, and journal reflections. The study found that at policy level, Uganda has made significant progress in systematizing the integration of ICT in education. The introduction of ICT training programs in PTCs has received positive response from the teacher educators, who are eager to use ICT in their professional practice and to develop their digital literacy skills. However, the study established that the teacher educators only use ICT in their professional practice to a limited extent, due to factors such as limited Internet access points at the PTC and in their communities. Other challenges include inadequate training and lack of support for professional development, cultural constraints, and irrelevant materials from the Internet. Another major concern is that ICT initiatives in Uganda are geared more towards accessing global information than using ICT for knowledge production and wealth creation. It also emerged that ICT is still being used to perpetuate

teacher-centered, examination-oriented, information-based teaching and learning in PTCs. The study concludes with a recommendation for more qualitative case studies on the possibility of incorporating ICT programs such as the e-Granary Digital Library, which do not rely on connectivity, as a basis for ICT and digital literacy skills development.

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Dedication

I dedicate this study to my dear mother Irena Zinzoru and my father Steven Acema who sacrificed everything they had to send me to school in hope of giving me a better future.

CHAPTER 1

BACKGROUND TO THE STUDY

1.1 Introduction

This study on "Digital Literacy and Teacher Education in Uganda: The Case Of Bondo Primary Teachers' College" is part of a larger collaborative research project between a team of researchers from the University of British Columbia (UBC),[1] Canada and colleagues in Uganda[2]. The study investigates how web-based educational resources can enhance teacher development and improve classroom instruction in schools in East Africa.

The educational research, which the UBC team has conducted in the developing world in the last 15 years, has been designed not only to advance research and scholarship, but also to help develop the capacity of the local research participants and enhance education practice.[3] They do not only wish to identify educational problems and document pedagogical challenges but they also seek to ensure that the research project itself provides opportunities for capacity building. This created an opportunity for me to come to UBC to pursue an M.A in Literacy and Language Education with a focus on digital literacy and teacher education.

My study builds on a major research study conducted by USAID in Uganda on "Information and Communication Technology (ICT) for Teacher Professional Development in Uganda" (USAID, 2006). The objectives of this research were to

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[1] The team from University of British Columbia included Dr. Bonny Norton, Dr. Maureen Kendrick and Dr. Margaret Early who all teach in the Department of Language and Literacy Education, UBC as well as Ms. Lauryn Oates and Ms. Carrie-Jane Williams who are graduate students in the same department.
[2] The Ugandan contingent includes Dr. Juliet Tembe of Mbale Islamic University in Uganda; Dr. Harriet Mutonyi of Uganda Martyrs' University, and myself, Mr. Samuel Andema from Kyambogo University.
[3] This was stated by Bonny Norton and Maureen Kendrick in their proposal for the Hampton project.

determine if ICT makes a difference in the professional development of teachers in 16 of Uganda's 47 Primary Teachers' Colleges (PTCs), and what issues would need to be considered in a potential scaling up of ICT activities in the country. The study found out that while there was much enthusiasm for ICT in education, (i) ICT training for teacher educators is an urgent priority because they are well-positioned to impart ICT skills to the teachers whom they prepare; (ii) teacher educators need to have access to pre-selected key resources such as web-based classroom materials to optimize time surfing the Web; and (iii) teacher educators should form a network so that they can share useful resources. The study concluded that the more proficient teacher educators are with the use of ICT to identify materials and resources relevant to the Ugandan context, the more effective they will be in the training of teachers for Uganda's burgeoning primary school population. This study is consistent with the findings of another study, the NEPAD (New Partnership for African Development) E-Learning Initiative, which found out that many Internet materials are not relevant to the African context (Musamali, 2006)[4].

In their study on "ICT on the Margins: Lessons for Ugandan Education" Mutonyi and Norton (2006) concluded that if ICT is to play its part in achieving the Millennium Development Goal of Education for All by 2015, there is an urgent need for collaborative partnerships between a wide range of stakeholders at both local and global levels. Teachers and teacher educators constitute an important category of the stakeholders in education. They are the interface between policy and practice. They are the implementing agents of educational policy. Their interpretation of policy and its translation into professional practice is pertinent in determining the success or failure of policy in

[4] For further detail, refer to Bonny Norton and Maureen Kendrick's Hampton Project proposal document – an unpublished document.

education. As the studies cited above have shown, there is need for more research on ICT and teacher education to better understand how ICT can be relied on to achieve effectiveness and efficiency in the delivery of education in the country. My research is therefore a response to such concerns.

1.2 Research Problem

As signatory to international commitments like Education for All and the Millennium Development Goals that seek to democratize education in order to address social injustice and achieve equity in the provision of education in the country, Uganda has taken bold steps to fulfill its commitments. In 1997, Uganda introduced Universal Primary Education (UPE), which abolished school fees and opened a window of opportunity for children from poor families, especially girls and children with disabilities, to go to school. With the introduction of UPE, enrollment figures rose from 2.5 million in 1996 to 6.8 million in 2000 (Ministry of Education and Sports, 2001a, p. 1). In 2006, the gross enrollment ratio (the proportion of pupils attending primary school from grade one to grade seven) to the number of children aged 6 – 12 years in the entire population, was 112.5% (Ministry of Education and Sports, 2007b, p. 2). The dramatic increase is threatening to compromise the quality of education in the country. In 1999, the Uganda National Examination Board (UNEB) conducted a study to examine students' achievements in English Language and Mathematics. The study revealed that students performed poorly (Uganda National Examination Board, 1999). For example, in reading and writing, only about 20% at Primary 3 and much less than 15% in Primary 6 performed at a level judged to be adequate.

In 2004, the Education Standards Agency (ESA), which is the body that oversees the standards of education in Uganda, did another study on pupils' achievement in areas of literacy, numeracy and life skills (Education Standards Agency, 2004). The study reported that pupils performed poorly in literacy skills. Some of the major factors cited as causes of the poor performance in literacy were lack of qualified teachers, poor teaching methods and inadequate teacher preparation in PTC" (Education Standards Agency, 2004, p. 98).

In order to face the challenges arising from the dramatic increase of children in schools and maintain the quality of education in the country, government has embarked on the promotion of modern technology in teaching and learning. It is hoped that modern technology will facilitate effective teaching and learning in schools. Several initiatives have been undertaken to equip schools and universities with computers. Computer laboratories have been established with Internet connectivity in PTCs to improve the quality of teacher education in Uganda. Colleges have been connected to encourage the sharing of resources among colleges. These reforms are driven by the belief that no education can be better than the quality of its teachers, nor can a country be better than the quality of its education.[5] In their study on "ICT on the Margins: Lessons for Ugandan Education", Mutonyi and Norton (2007) recommend five lessons important for curriculum planning and policy development; namely: (i) the need to have detailed empirical case studies that can inform policy and curriculum development; (ii) the need to recognize local differences and inequalities in ICT policy and curriculum development; (iii) to promote professional development of teachers' competencies and

[5] This is how the then Minister of Education Hon. Amanya Mushega summed up Government position in the Education Policy Review Commission Report of 1989. Details can be found in the 1992 Government White Paper on Education Policy Review Commission Report, under the Ministerial Statement, page, Xiii

skills in ICT use; (iv) the importance of integrating in and out of school digital literacy practices; and (v) the need to consider how global software can be best adopted for local use.

1.3 Purpose of Study and Research Questions

The main purpose of the present study has been to examine how teacher educators in Uganda use ICT in their professional practice and to identify the challenges the teacher educators face in developing digital literacy skills. In other words, I was interested in finding out the extent to which teacher educators use ICT in their professional practice and the challenges they face in developing digital literacy skills. For the purposes of this study, the use of the term ICT relates to computer hardware and software used for communication purposes. Digital literacy will be used to refer to the range of skills and knowledge required to use ICTs to generate, locate, evaluate, and use information. Because there is considerable overlap between these two terms, I sometimes use the terms "ICT" and "digital literacy" interchangeably in the thesis. There were two main questions, namely:

1. What is the relationship between ICT policy and educational practice in Uganda?
2. To what extent do teacher educators use ICT in their professional practice and what challenges do they face in developing digital literacy?

1.4 Overview of Thesis

I have divided the thesis into six chapters. Chapter One is introductory and provides a background to the study. It spells out the setting where the research took place, the research problem, the purpose of the study and the research questions. Chapter Two articulates the theoretical framework that informs the study. It also contains a review of

the related literature, which links the study to the existing body of knowledge on the subject, namely, digital literacy and teacher education. Chapter Three describes the methods and procedures that were used to collect data. Chapter Four is a description of the relationship between ICT policy and educational practice in Uganda, whereas Chapter Five is an examination of the digital literacy practices of teacher educators at Bondo and the challenges they face in using ICT in their professional practice. Chapter Six contains the major findings of the study, conclusions and recommendations.

CHAPTER 2

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

2.1 Introduction

In this chapter, I will make a case for the need to carry out research on ICT and teacher education in developing countries, focusing on Bondo Primary Teachers' College in Uganda. I will begin by examining the promises of ICTs, and digital literacies and highlight the importance ascribed to ICT for national development broadly, and improvement of the quality of education, more specifically. While agreeing that ICTs may have transformative potential to promote education in developing countries, I will argue that the much-hyped potential may not be realized if the major focus of promoting ICTs in a developing country like Uganda is to access but not to produce information. This line of argument will help me to explore the relationship between ICT and teacher education in Uganda, the extent to which teacher educators use ICT in their professional practice, and the challenges they face in using ICT to develop digital literacy skills. I will frame my argument within the New Literacy Studies' perspective of viewing literacy as a social practice situated in a specific sociocultural context.

2.2 The Promises and Perils of Information Communication Technology

ICT has become one of the most common terminologies in development discourse. ICT is considered as the primary force in socioeconomic transformation. In recognition of the role information and communication plays in our lives and societies, the United Nations—with UNESCO as the lead agency—held the World Summit on the Information Society (WSIS) in 2003 and in 2005. In 2003, 175 countries were represented by more than 11,000 participants at the Summit, which adopted the Geneva

Declaration of Principles and the Geneva Plan of Action (2003). In the Declaration, participants voiced their commitment to a people-centered, inclusive and development oriented information society and acknowledged that ICTs have immense impact on virtually all aspects of human life (Tamukong, 2007). The World Summit on the Information Society Declaration of Principles asserts:

> Everyone should have the necessary skills to benefit fully from the Information Society. Therefore, capacity building and ICT Literacy are essential. ICTs can contribute to achieving universal education worldwide, through delivery of education and training of teachers, and offering improved conditions, for lifelong learning, encompassing people that are outside the formal education process, and improving professional skills (UNESCO, 2003).

In developing countries in general and Africa in particular, ICTs have been seen as the panacea to solve the persistent problems of underdevelopment. Steps taken to embrace ICT for socioeconomic transformation range from enactment of ICT laws and policies to the establishment of fully-fledged ICT Ministries to spearhead the promotion of ICT for national development. Governments and development partners are investing many resources to initiate ICT projects in sectors such as education, health, tourism, trade and commerce, agriculture and environmental management in the belief that this can lead to social transformation and improvement in the quality of life for ordinary people.

In his study on "The African Challenges: Internet, Networking, and Connectivity Activities in a Developing Environment" De Roy (1997) identifies the networking development projects and information technologies in Africa as coming from three

different zones; namely, the commercial sector, the international institutions and Africa itself.

Commercial projects use two types of technology: satellites and fibre optic cables. A large number of geostationary satellites and low-earth orbit satellites are launched to provide global coverage, remote communications, low-cost telephone and global Internet services. Among the different satellite projects are Motorola's McCaw, Globalstar from Loral and Qualcomm, Teledesic from Microsoft and McCaw and Spaceway from Hughes Communications.

Among the projects using fibre optic cable, AT&T's Africa One is the most publicized. Africa One is a project to encircle the continent with a fibre optic cable network. In this project, a 32,000-kilometer submarine cable will ring the African continent from the Mediterranean Sea around Cape Horn and up to the Red Sea. The cable will ultimately provide 2.5 gigabits/s link to 41 coastal nations. The second step of the project will attempt to link all African nations through the development of a regional network that will integrate the existing infrastructure. The third step of the project will connect the fibre optic cable to the information superhighway. This project, if pursued successfully, could yield tremendous advantages to enhance connectivity in schools and universities in Africa. It could also address the problems of small bandwidth and slow speed.

Among the international organizations, the World Bank is playing a major role in the dissemination of information technology by providing funding and training under the Information for Development Program (InfoDev). The program aims to show governments and decision makers the economic impact of communication and

information dissemination technologies. It also seeks to provide training and grants to support ICT initiatives in developing countries. The objective is to help developing countries fully integrate into the information economy.

An international effort led by Africans is also underway, an effort that will help their leaders to be aware of the impact of electronic networks and information technology on the development of their countries. This effort is illustrated by the measures taken by African leaders in May 1995 at the UNECA conference of African Ministers Responsible for Economic and Social Development and Planning. A resolution entitled 'Building the Information Highway in Africa' was signed by the Ministers who are focusing their attention on the African information superhighway as a tool for planning and decision making via the building of national information and communication networks and the creation of a group of African experts, known as the High Level Working Group on Information and Communications Technologies.

In addition, several African countries are taking voluntary steps and actions to democratize and reform the telecommunication sector. These changes are expected to allow greater participation of the private sector and privatization of companies, along with opening of the national market to competition, separation of postal services and telecommunication services, and the creation of regulatory organizations.

De Roy (1997) argues that ICTs play an important role in a variety of sectors such as government, research, education, health, statistics, agriculture, natural resources, development, planning, telecommunications, economy, cooperation and international organization. According to him, electronic networks will allow Africa access to information that was not previously available on the continent. He asserts that with

electronic networks, databases, centers for scientific documentation and publications can be browsed and searched with ease through the existence of electronic networks. The best libraries in the world, De Roy says, will become available with a few keystrokes, from any location on earth allowing the acquisition, use and exchange of information. Electronic networks, he contends, will permit African scientists to repatriate an important volume of data and analysis originally obtained from African sources that have accumulated in research centers and libraries in countries of the North.[6]

While I agree that ICT may have the potential to transform society through the rapid, free flow of information globally, I would argue that the transformative potential of ICTs especially in non-Western contexts might be over-exaggerated and largely based on assumptions, especially in the field of education. Computers and the Internet are digital tools for constructing meaning and communication. They are part of an evolutionary process of the signs of meaning making and communication within a definite historical sociocultural context of Western Societies. Their application in a nonwestern sociocultural context may not necessarily yield the same results as they would in a Western socio-cultural context. Computer training programs going on in developing countries like Uganda largely tend to focus on teaching the trainees to simply access already existing information on the Internet or to carry out basic word processing functions. Hardly any mention is made of the skills to generate new knowledge and uploading it onto the Net for the rest of the global world to consume. This will perpetuate dependence syndrome among the trainees, stifle their creativity and innovation, and undermine local knowledge.

[6] The North is used to refer to the developed countries most of which happen to be in the northern hemisphere specifically Western Europe and North America.

2.3 Theoretical Framework

I will frame my argument within the New Literacy Studies (NLS) framework, which sees literacy as situated social practice embedded in a cultural and ideological context (Prinsloo, 2008; Street, 1984, 2001). The New Literacy Studies is an emerging school of thought from a body of independent yet conceptually linked work produced over the last two decades across a number of disciplines, including anthropology, history, psychology, and sociolinguistics all emphasizing a social approach to literacy research (Barton & Hamilton, 1998; Barton, Hamilton, & Ivanic, 2000; Gee, 1996; Heath, 1983; Scribner & Cole, 1981; Street, 1984).

The New Literacy Studies seeks to direct our attention towards the understanding that there is a need to move beyond limited psychological accounts of literacy to ones that capture the complexity of literacy practices in society (Snyder & Bulfin, 2008). As opposed to looking at literacy as a set of discrete skills easily transferable from one person to another, the sociocultural approach focuses on examining literacy practices and events by considering the role of literacy in people's everyday lives (Barton & Hamilton, 1998; Pahl & Rowsell, 2005; Prinsloo & Breier, 1996; Snyder, Angus & Sutherland-Smith, 2002; Street, 1995; 2001).

As Coiro, Knobel, Lankshear, and Leu (2008) have noted, the space of New Literacies is highly contested. Some authors conceive New Literacies as new social practices and conceptions of reading and writing (Street, 1998). Some see New Literacies as important new strategies and dispositions required by the Internet and emerging with new technologies (Leu Kinzer, Coiro, & Cammack, 2004). Others see New Literacies as new discourses (Gee, 2003) or new semiotic contexts (Kress, 2003; Lemke, 2002) made

possible by technologies. Still others see literacy differentiating into multiliteracies (New London Group, 1996) or multimodal contexts (Hull & Schultz, 2002), and some see a construct that juxtaposes several of these orientations (Lankshear & Knobel, 2003; 2006).

My conceptualization of ICTs and digital literacy in this study is rooted in Prinsloo's (2008) and Street's (1984, 2001) notion of literacy more broadly; both conceptualize literacy as situated social practice embedded in people's social, cultural and power relations. Street (2001) in particular, challenges the representation of local people in villages as "illiterate", backward villagers. He argues that not only is there a wealth of literacy going on in the villages but there are also different practices associated with literacy (e.g., churches and mosques, schools, markets, travels, meetings, ceremonies). He observes that dominant voices characterize local people as "illiterate" while on the ground ethnographic and culturally sensitive observations indicate a rich variety of literacy practices.

The same argument could be made of the ICT projects going on in teacher education programs, broadly in Africa, and specifically in Uganda. The programs are devoid of local knowledge and local experiences. The trainees in these programs are assumed to have no digital literacies when they enroll for ICT training courses and programs despite the fact that these people have mobile phones, TV sets, VCD and DVD players, radios, cameras, and recorders in their houses. Their daily interactions with these tools are rarely recognized and integrated into the training programs they receive. The trainers make little effort to incorporate people's daily experiences with locally available digital tools, which constitute their literacy practices in real life. Hence, the trainings

become abstract and de-contextualized, and people soon lose interest in them. As Street (2001) asserts:

> In many cases literacy campaigns fail to take off – few people attend classes and those who attend drop out precisely because they are the literacy practices of an outside and often an alien group. Even though many people may want to change their literacy practices and take on board some of those associated with Western world or urban society; a crude imposition of these literacies that marginalize and denies local experiences is likely to alienate even those who might have been interested initially (p. 7).

I agree with Street's (2001) argument that good educational practice today requires facilitators to build upon what learners bring to class, to listen—not just deliver—and to respond to articulation of 'need' as well as make their own 'outsider' judgment of it. Indeed, as Wright (2001) observes, the innovations and adaptations which many teachers in the developing world have already devised within the constraints of their situation need to be 'mined'- i.e., scrutinized for negative and positive attributes, adjusted accordingly, tested and incorporated into more realistic teacher training, thereby integrating the best from their traditions. Otherwise, the much-cherished modern technologies and the state of art methodologies from outside the context may actually lead our teachers, teacher educators, and the learners to being disempowered by the very things they were led to believe would liberate them.

According to Street (2001), in developing contexts, the issue of literacy, including computer literacy, is often represented as simply a technical one whereby people need to be taught how to decode letters and they can do what they like with their newly acquired

literacy after that. He refers to this approach as an "autonomous model" of literacy. Street explains that the autonomous model works on the assumption that literacy in itself—autonomously—will have effects on other social and cognitive practices. The model, however, disguises the cultural and ideological assumptions that underpin it and that can then be presented as though they are neutral and universal. He proposes the ideological model, to which he subscribes, as an alternative because he believes it offers a more culturally sensitive view of literacy practices as they vary from one context to another.

Street (2001) contends that, "engaging in literacy is always a social act even from the outset" (p. 8). The ways in which teachers or facilitators and their students interact is already a social practice that affects the nature of literacy being learnt and the ideas about literacy held by the participants, especially the new learners and their positions in relations of power. It is not valid to suggest that literacy can be given neutrally and then its social effects only experienced afterwards. Street's arguments resonate with others such as Heath (1983), King (1994), Doronilla (1996), Robinson-Plant (1997), Hornberger (1998) and Kalman (1999). They share his view that the autonomous model on which much of the literacy interventions of the 1980s and 1990s were based was not an appropriate intellectual tool either for understanding the diversity of reading and writing around the world or for designing the practical programs this required.

Street (2001) encourages us to focus more on how people take hold of literacy than talking about the impact of literacy. The ideological model addresses not only the cultural meanings but also the power dimensions of literacy. Street (2001) states: "It seems to me quite impossible to address the issues of literacy without addressing these issues of power" (p. 9). In the context of Uganda, we seem to have taken it for granted

that adopting the use of modern technology per se will automatically lead to an improvement in the quality of education in schools and colleges. Instead, we need to examine the influence of modern technology on the teachers being trained to use these technologies. What power relationships does digital literacy engender in the local context? How do the trainers position themselves during training sessions and how does it affect the trainee's ability to function with the new technology? To what extent do the people trained take hold of the skills and knowledge they have acquired? What challenges do they face in trying to function with the new skills in the local context? How can ICT best be integrated into the teaching and learning going on in schools and colleges in Uganda? These are some of the questions that need to be foregrounded when discussing digital literacy in a non-Western context.

According to Street (2001), the concept of literacy practices attempts both to handle the events and the patterns around literacy and to link them to something broader of a cultural and social nature. This means the context in which people practice literacy of any kind is very important for any meaningful analysis of their literacy practices. The concept of literacy practices recognizes the fact that we bring to literacy events, concepts, and social models about what the nature of the event is, what makes it work and what gives it meaning. Thus, to understand the extent to which the teacher educators at Bondo Primary Teachers' College (PTC) use ICT in their professional practice, it is not enough to limit the discussion to what they are able to do or not able to do with computers and the Internet in their teaching practice. Instead, we must go beyond and integrate into the discussion the historical, social, cultural, economic and ideological contexts in which they were trained and in which they operate.

The ideological model of literacy begins from the premise that variable literacy practices are always rooted in power relations and that the apparent innocence and neutrality of the autonomous model serves to disguise the ways in which such power is maintained through literacy. As Street (2001) rightly observes, there are no genres of power as such, but only culturally based ways of knowing and communicating that have been privileged over others. Whereas many educators and policy makers see digital literacy skills simply as a neutral skills to be "imparted almost injected in some medically based discourse to all in equal measure" (p. 13), the ideological model recognizes that educational policy and decision making have to be based on prior judgments regarding which literacy to impart and why.

2.4 Widening the Definition of Literacy

Cope and Kalantzis (2000) seek to broaden the understanding of literacy and literacy teaching and learning to include negotiating a multiplicity of discourses to account for the culturally and linguistically diverse and increasingly globalised societies, as well as to account for the multifarious cultures that interrelate and the plurality of texts that circulate. They argue that literacy pedagogy must account for the burgeoning variety of text forms associated with information and multimedia technologies. To them curriculum is a design for social futures whereas teachers and school managers are designers of the learning processes and environments. Their writing, however, is based on studies done in Western contexts. There is a need to include non-Western contexts in research on digital literacies and ICTs. I am specifically interested to find out the extent to which teacher educators in Kampala, Uganda are designers of the learning process with respect to ICT use for professional practice.

As Cope and Kalantzis (2000) have argued, educational research should become a design science that studies how different curricular, pedagogical, and classroom designs motivate and achieve different sorts of learning. The notion of design connects powerfully to the core of creative intelligence the best practitioners need in order to be able to continually redesign their activities in the very act of practice. I strongly believe that there should be a reciprocal relationship between policy and classroom practice. In my view, research should be at the center of this relationship between policy and practice. Teachers and literacy instructors are in a better position to tell what works and what does not work. They are the agents of policy implementation and they too need to be involved in policy formulation through empirical research.

Drawing from recent works in cognitive science, social cognition and sociocultural approaches, Cope et al (2000) argue that if our primary goal as educators is a degree of mastery in practice, then immersion in a community of learners engaged in authentic versions of such situated practice is necessary. It would therefore be of interest to examine the dynamics of digital literacy practice in a teacher education setting such as Bondo PTC. Human knowledge, Cope and Kalantzis believe, when applicable to practice, is primarily situated in sociocultural settings and heavily contextualized in specific knowledge domains and practices.

Kress (2000) looks at the recent changes in the communication landscape and observes that over the last three decades a revolution has taken place in the area of communication. He asserts that the effect of this revolution in the communication landscape has been to dislodge written language from the centrality ascribed to it in public communication. He gives as an example the prominence of the visual and music in

public communication. He identifies the forces behind the changes in the communication landscape as the emergence of multiculturalism and technological advancement.

Kress proposes a fresh agenda in the domain of communication and representation for a theorization and description of the full range of semiotic modes in use in a particular society. He argues for a full understanding of the affordances and limitations of the modes especially their present use in society, their interactions and interrelations with each other, and an understanding of their place and function in our imagination of the future. He provides a basis for further research on the affordances and limitations of the New Literacies including ICT and digital literacies in non-Western contexts and cultures. I would therefore like to explore what teacher educators say are the affordances and limitations of the web-based resources in the teaching of English as a second language in the Ugandan context. It is not enough for us to continue to rely on the discourse emanating from Western scholars. We would like to hear the voices of teacher educators, in Uganda and elsewhere, in the discourse.

In their study on "Multimodality and English Education in Ugandan Schools" Kendrick, Jones, Mutonyi, and Norton (2006) observed that the concept of multimodal ways of communication, though very much in vogue in literacy studies, is not a new model within Ugandan communities. In many parts of Uganda, they noted, indigenous knowledge and ways of communicating have been integrated into non-formal learning contexts, particularly in adult learning programs. However, within the formal school system, they found that teachers are often constrained in their ability to recognize alternative or indigenous modes of representing and communicating knowledge due to a strong emphasis on examinations, teaching to the curriculum, and lack of resources and

teacher training. Questions need to be asked as to whether teacher educators in PTCs are facing similar constraints in their efforts to use ICT in their professional practice. I believe there is need to examine these constraints in order to realize the transformative potential of ICT in education in general and in teacher education specifically.

Stein (2008) examines how some key ideas and concepts from multimodal social semiotics have been taken up in educational research and applied to specific aspects of teaching and learning. She argues that modes are culturally shaped resources for meaning making and representation. She believes that signs for meaning making and representation are never neutral but culturally produced and motivated. Stein emphasizes the importance of developing students' flexibility across knowledge domains in relation to modes, genres, and discourses as well as developing their critical literacy and inquiry. To achieve these effectively, Stein proposes that teachers need to extend their subject knowledge in relation to modality and multimodal texts, and their pedagogical knowledge in terms of how to use multimodality to improve students' learning. She concludes with a strong recommendation for New Literacies in teacher education curriculum and further research in aspects of multimodality that are not yet sufficiently clarified. The use of computers and the Internet in the teaching of English as an additional language in a non-Western country like Uganda is one such area where research is needed to discover if ICT and digital literacy have something to offer for the discourse on the subject.

Following my review of the literature, I conclude that while Uganda has made the right decision to embrace ICT for transforming education, our policies and programs, let alone our practices, are not well aligned to achieve this goal. In most of the literature I have reviewed on the role of ICT in education, much emphasis seems to be placed on

training teachers to access information but not to produce information. While it is good for the teachers and teacher educators in Africa to be able to access information from the Internet, it is not enough for them to stop at accessing information. They must also be able to produce information and articulate their own views on pertinent issues in the teaching profession. If teachers in developing countries like Uganda are only going to be able to retrieve information, it means they are always going to be at the receiving end of global discourse. This will simply perpetuate Western domination, suffocation of indigenous knowledge production, and local creativity. With electronic networks, a large number of scientists and African researchers should be able to make their writings known and distribute them electronically to a much wider audience. Thus electronic communication networks should be made to permit acknowledgement of African scientific production, contributing to the emergence of an African scientific community.

Drawing on research carried out in contexts of social inequality in South Africa and on the orientation to literacy studies focusing on literacy as situated practices (Prinsloo & Brier, 1996; Street, 1984; 2005), Prinsloo (2005) argues that despite their global impact, New Literacies are best studied as "placed resources" with local effects. He develops his case by further drawing on social models of literacy, language and communication. He examines data from a structured, high technology workplace in Cape Town townships, and from examples of young children's school encounters with computers in Khyaelitsha, Cape Town, to develop and illustrate his argument. He concludes that the New Literacies do not have an intrinsic resourcefulness. Their resourcefulness depends on the context in which they are placed. The resourcefulness of ICTs is not universal, instead, it depends on the socio-cultural context in which they are

placed. According to Prinsloo, this view is often obscured by much that is taken for granted in discussions of the New Literacies in well-resourced contexts in the Western world.

Prinsloo goes on to recommend situated research to establish whether the New Literacies offer opportunities for particular users as opposed to relying on assumptions. The study shows that computers operate as exotic and dysfunctional resources when they are inserted into an educational context where they do not have a significant part to play in relation to the social and technological practices that characterize that context. Understanding the Ugandan context is a response to Prinsloo's call for situated research on New Literacies. My study focuses on examining the extent to which teacher educators in the Ugandan context use ICT in their professional practice and the challenges they encounter in using ICT to develop digital literacy.

Mushengyezi (2003) observes that African governments and their development partners often tend to extrapolate communication strategies from the developed world and apply them wholesale in local environments in Africa that are quite unique. He argues that such communication strategies do not often affect the rural masses for which they are meant because they are not contextualized to the local settings, cultural dialectics and worldviews of the people. While recognizing that there is need to develop and keep abreast with new technologies like computers and the Internet, he suggests that, indigenous media forms should be made versatile and relevant through hybridization. Even though his article does not directly address the issues of classroom instruction, I still find his critique of digital tools as a matter of interest primarily because it reflects the

Ugandan context quite well. His article provides a middle ground for the tensions between modern technology and indigenous media.

Ramanathan and Morgan (2007) review a number of articles in language policy that seek to emphasize the importance of micro-studies in understanding the real dynamics of the interpretation and application of language policies, including ICT policies and in the classroom situations. They argue that prior research in the area of language policy and planning has been focused primarily on macro decision-making and the impact of national, local and institutional policies in educational settings. They observe that only recently have scholars begun to examine everyday contexts in which policies are interpreted and negotiated in ways that reflect local constraints and possibilities. Further, they argue that single cases afford glimpses into complex interplay between policies, pedagogical practices, institutional constraints and migrations. According to Ramanathan and Morgan (2007), our individual and collective existence does not occur in pristine spaces within which we place individuals, institutions, and policies, but inside a fluid set of social relations with the emergent possibility of change. Locality, they argue, is not just the end-point of top-down directives but also the genesis of bottom-up initiatives, which cumulatively and over time transform traditional flows and frame works of decision-making (Ramanathan & Morgan, 2007).

Ramanathan and Morgan encourage us to shift our gaze away from viewing language policies as entities that happen to people or that create hierarchies to realms where we start thinking more about what we can do with policies in the contingencies of our work. We need to consider policies (whether ICT policy or language policy) as complex multifaceted signs that have distinctive socio-historical formations, whose

interpretations and enactments rest in our hands, and are always contextual and negotiated. Signs, like policies, signify but never autonomously. They draw their life force from humans who claim and appropriate them into their respective domains (Ramanathan & Morgan, 2007). Thus, there is a need to examine how the ICT policy environment in Uganda is impacting the teacher educators' use of ICT in their professional practice and the challenges they face in using ICT to develop digital literacy skills.

Kern (2006) explores the discourse on the unprecedented evolution of communication technology, which has totally changed language pedagogy and language use, thus enabling new forms of discourse, new forms of authorship, and ways to create and participate in communities. Some of the central questions in Kern's article are: How do these changes affect the ways we learn, use and teach language? How are people socialized into electronic literacy practices and communities? What communicative, cognitive, and social strategies do people use in computer-mediated environments? What are the multi-media interpretations and authoring abilities that people acquire, and how do they acquire them? What are the implications of electronic literacies for curriculum?

Kern argues that as language educators, our job is to reflect on norms and explore their underpinnings, their contexts of operations, and their implications. She concludes that technology offers us a means by which to make the familiar unfamiliar, to reframe and rethink our conceptions of language, communication and society. It is through this process, she contends, that we can best decide how we can and should use technology in language learning and teaching. The issues, which Kern raises in this article, are pertinent to a better understanding of how teacher educators take hold of ICT in their professional

practice. In that, they help us to appreciate the need for further investigations in the use of web-based resources in local situations. In the course of professional practice, we need to find time to engage in some reflection and self-examination. Reflexivity is an important aspect of the teaching profession. Teachers need to be involved in case studies to be able to take account of their own practices and improve on the way they practice their pedagogy. Reflexivity was a core component of my interest in exploring teacher educators' experiences using digital tools in the execution of their professional duties.

Bowers (2000) lends a scathing attack on computer enthusiasm. He argues that the subjective, de-centered attitudes hailed by computer enthusiasts as personally liberating are in reality culturally and environmentally destructive, and reducible to a devil-may-care individualism (Bowers, 2000). He also adds to the list other attitudes that are reinforced by computer use—moral relativism, a disregard for local knowledge, anthropocentricism and other such demeanors. According to him, technology is a carrier of culturally specific sets of values and worldviews. He believes that experience with particular forms of technology strengthens certain attitudes while cloaking the possibility of ways of thinking. He says the experience of computers is the replacement of local knowledge with data. He is particularly concerned with how technology affects language and thought patterns. His article, although critical of technology, helps us to not take anything for granted in our bid to use technology in second language learning. We must be aware of the sensibilities of employing technologies like computers as pedagogical tools to enhance learning. It is even more intricate when reference is made to the teaching of English in a country like Uganda where English is still in many ways regarded not

only as a second language but also as a foreign language despite the status assigned to it as official language by law.

2.5 Uganda's Experiment with ICT in Teacher Education

In 2006, the United States Agency for International Development (USAID) conducted a study in Uganda with the objective of finding out if ICT makes a difference in the professional development of teachers in 16 of the Uganda's 47 Primary Teachers Colleges and what issues would need to be considered in a scaling up of ICT activities (USAID, 2006)[7]. The findings of the study highlighted three aspects as priority areas; namely training, access to Internet resources and networking among teacher educators. Based on the findings of the USAID study and other similar studies, steps have been taken to improve the quality of education in the country through ICT training initiatives, yet things seem to be only getting worse. There is a concern over the declining performance in students' achievement in national examinations as shown in a recent newspaper story by Tabu Butagira and Grace Natabaalo, which appeared in Uganda's Daily Monitor of January 17, 2009. The article reported:

> At least 89,306, nearly a fifth of the 463,631 candidates who sat Primary Leaving Examinations (PLE) last year, flatly failed all the four papers; English, Mathematics, Social Studies and Science, highlighting the highest failure rate in the three years. In the 2008 results released yesterday, officials said only 17,021 pupils passed in division one with as many as 10,666 of them boys and 6,355 girls. This number of grade one is just about half of the 31,969 pupils who obtained the top grade in 2007, showing more than 50% decline in absolute

[7] Reference to Bonny Norton and Maureen Kendrick – Hampton Project Proposal document, not dated.

figures since the number of registered candidates grew from 404,985 the previous year to 463,631 last year.

It may not be easy to establish the real cause of the persistent decline in students' performance but one thing that we can do is to start researching into programs that have been initiated to particularly address the concerns about the quality of teacher education. The introduction of ICT in teacher education is one such program. My interest in examining the extent to which the teacher educators use ICT in their professional practice and the challenges they face in trying to use ICT to develop digital literacy is consistent with the concerns being raised. We need to find out how the teacher educators are taking hold of ICT to enhance their professional practice.

2.6 Summary

In the literature reviewed in this chapter, I began by observing that ICT has become one of the most common subjects of discussion in development discourse. In developing countries, broadly, and in Africa specifically, ICT has been seen as the panacea to our problems in education. Many African countries are under enormous pressure from foreign governments and multinational companies to formulate national policies and programs to promote ICT for national development. In Uganda, an ICT Ministry has been established to spearhead the promotion of ICT to realize its vision of transforming the country into a knowledge-based society.

I agree with the ICT enthusiasts that ICT and digital literacy may have the potential to transform our economies and systems of education. However, I have contested that the Western model based on the mere transfer of digital literacy skills—as was the case with earlier literacy interventions transplanted from the Northern

hemisphere to the Southern hemisphere without an adequate understanding of the local literacy practices and the sociocultural contexts—may not lead to the full realization of that potential. I have noted that much of the emphasis in most of the ICT interventions in education have stressed the need to equip participants with digital skills to access information from the Internet. Little or no emphasis is being placed on the need to develop participants' capacity to generate knowledge for global consumption. Similarly, participants are not being prepared to critically evaluate the volumes of information they are likely to encounter on the Web for their authenticity and relevance in local contexts. The foreign governments and the multinational companies that are behind the push for ICT in Africa in general and Uganda more specifically might be more interested in simply creating markets for their ICT products than genuinely helping the country to transform socially and economically.

I have framed my argument within the New Literacy Studies framework, which sees literacy as a social practice situated in a sociocultural context (Barton & Hamilton, 1998; Barton, Hamilton, & Ivanic, 2000; Gee, 1996; Heath, 1983; Prinsloo, 2008; Scribner & Cole, 1981; Street, 1984; 2003; 2005). I have drawn primarily from Street's (2001) ideological model, which starts from the premise that literacy is a social practice, not simply a technical skill; it is always embedded in socially constructed epistemological principles. It is about knowledge and power. Literacy is always contested, both in meaning and in its practice; hence particular versions of it are always ideological and rooted in particular worldviews and the desire for that view of literacy to dominate and to marginalize others. The historically privileged position ascribed to written language since the spread of Western civilization and the dominance of the English language in formal

education is a case in point. The push for ICT and digital literacy in developing countries, if not carefully scrutinized, may reproduce further Western domination and stagnation of progress in developing countries.

I therefore conclude that for the transformative potential of ICTs to be fully realized in education in developing countries like Uganda, a number of issues need to be taken into consideration: (i) effort must be made to understand and integrate local knowledge and local literacy practices into intervention programs; (ii) interventions should not only focus on equipping people with digital skills to access information from the Web but participants' generative and productive capabilities should also be developed to contribute local knowledge to the global discourse; (iii) programs must be culturally and ideologically sensitive to the local situation; (iv) in-depth ethnographic case studies should inform digital literacy intervention initiatives in local contexts; (v) the project beneficiaries must be involved in all stages of such programs, from inception, through to planning, implementation, monitoring and evaluation, in order to assume full ownership of such programs and guarantee their sustainability. In the next chapter, I will describe how the study was conducted, the methods and procedures used for data collection, data analysis, and a the rationale for choosing those methods.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the methodology and techniques used to collect data in the study. The data in this study were collected using qualitative study techniques, namely document analysis, questionnaires, focus group discussions and journal reflections. My choice of these qualitative study techniques of data collection was based on the nature of my study and the type of research questions the study was trying to address. The first research question sought to map the ICT policy environment in Uganda with a focus on digital literacy education. More specifically, it sought to examine how digital literacy education at Bondo PTC is situated in the current ICT environment in Uganda. The second question sought to examine the extent to which the teacher educators are using ICT in their professional practice, and the challenges they experience in trying to use ICT in digital literacy development.

In order to have a sense of how the educational needs are being addressed in the current ICT policy environment in Uganda, I chose to examine the policy documents, ministerial statements, official reports, media reports and research reports. Further, I reviewed previous studies done on the subject of ICT and education. This helped me to get a sense of the national vision for ICT integration in the country. Further still, I held a key informant interview with the Minister of ICT. I felt the interview was necessary because it would help me to get some insights on the interpretation of the policy and the practical steps government is taking to promote ICT in education. The use of these different methods for data collection helped me to corroborate and augment evidence

from alternative sources and enhance the validity and reliability of my conclusions. I drew on Wolcott's (1994) mnemonics of three E's in (ethnographic) qualitative data collection, which emphasizes: *experiencing* (participant observation), *enquiring* (interviewing), and *examining* (studying documents).

In addition to analyzing relevant documents and interviewing the ICT minister, I also took advantage of my sociocultural background as a Ugandan scholar studying at a Canadian university to infuse into the discussion my personal account of some of the changes I have witness from childhood. I was born in Uganda in the a small village called Inia Village which is located at the eastern slopes of Ujukua Hill in Terego County, Arua district. The village, incidentally, derives its name from the Lugbara language word "Ini" which means darkness. The village is surrounded by mountains, hills and rivers, which effectively cut off the inhabitants from communicating with the rest of the world. The people in my village were therefore believed to be living in darkness because of its remoteness. I grew up observing some of the changes that have taken place in the communication landscape in the village and the rest of the country. Moreover, I come from a predominantly oral society where information and culture is passed from one generation to another by the word of mouth through storytelling. I felt drawing on that sociocultural background and using my lived experiences as starting point would enrich my study. The use of personal experiences as starting point in research is supported by scholars like van Manen (1990) and Merleau-Ponty (1962), who argue that one's personal experiences are immediately available to oneself in a way that no one else's are (van Manen, 1990). I also discovered, in the course of reviewing the available literature on the subject of my study, that few Uganda scholars have done studies on ICT and

teacher education. Thus, adding my own voice as a Ugandan scholar at a Canadian University was an important contribution.

With respect to the second research question, which was "To what extent do the teacher educators use ICT in their professional practice and what are the challenges they face in developing digital literacy?", I used four qualitative study techniques of data collection, namely questionnaires, online group discussions, journal reflections, and document analysis. I chose to use these qualitative study techniques because I was interested in getting the teacher educators' accounts of their use of digital literacy in the context of their professional practice at the college setting. I felt these qualitative study techniques would enable me to study the participants' actions and accounts in everyday contexts, rather than under conditions created by me as a researcher. In addition, my study had a single setting with a very small group of only six participants to facilitate an in-depth study; these factors made my study ideal for the use of these qualitative study techniques. Details on how each technique was used are highlighted in the subsequent sections of this chapter.

3.2 Site and Sample Selection

The selection of the site and sample for my study was done in the course of designing the larger study of which mine was a part (see introduction under Chapter 1 above). There was need to have both urban and rural colleges included in the larger study. Bondo PTC happened to be the most urban of all the colleges because of its location in the capital city, making it an appropriate choice for inclusion. It has a cosmopolitan student and staff composition with diverse sociocultural backgrounds.

Thus, the college was chosen because of its typicality as a large, urban college with students of diverse sociocultural backgrounds.

The college offers Grade III Certificate Course for secondary school students who wish to train as primary school teachers. These are commonly known as pre-service students. In addition to the regular Grade III Certificate, the college also hosts a national outreach program known as Teacher Development Management System (TDMS). Through this program, it offers in-service training for people who are teaching in schools without professional teacher training qualifications. These categories of students receive training during holidays for a period of four years before they are awarded Grade III teaching certificates. The TDMS program has a component for head teachers' management training and community mobilization and another component for continuous professional development for tutors, teachers, head teachers, students and pupils. In addition to the pre-service and in-service programs, the college also hosts a Diploma in Education – Primary, External (DEPE) Program of Kyambogo University. This program commonly known as DEPE provides an opportunity for Grade III teachers to upgrade to Grade V. In addition to these, an Information and Technology (IT) skills training course has also been introduced covering areas such as: Introduction to computers and the Internet, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Inspiration, website designing and project-based learning. This training is provided to both students and members of staff at no cost.

3.3 Research Participants

According to Hammersley and Atkinson (2007), the selection of participants may sometimes be undertaken in terms of fairly standard 'face-sheet' demographic criteria.

Depending on the particular context, one may select by reference to categories of gender, race, ethnicity, age, occupation, educational qualifications, and so on. In my case, I was interested in selecting only English language teacher educators at Bondo PTC. Interestingly, there were six language teacher educators at the college. I involved all of them in the study. They included five women and one man.

The participants were all experienced teacher educators who had taught at primary, secondary, and tertiary levels of education in Uganda. Five of them started their teaching careers as Grade III teaching certificate holders and taught in primary schools. One started as a Grade II[8] teaching certificate holder before upgrading to Grade III. All completed a Diploma in Teacher Education commonly known as DTE at Kyambogo University in Uganda. They all had Bachelor of Education degrees. Five had either completed or were about to complete Masters Degrees in Arts, Education, Science or Human Resource Management. Only one of them had not undertaken basic training in ICT as shown in the table on Participants' educational and ICT training backgrounds (see Table 3.3.1).

Besides teaching at the college, nearly all the participants had other responsibilities either at the college itself or in outreach programs such as the Teacher Development and Management System (TDMS). None of the teacher educators stayed at the college because the college does not have enough residential houses for staff. They all

[8] Grade II teachers were recruited right from Primary schools to go and train as primary school teachers mostly in the 1960s, 1970s and parts of 1980s. During those years teaching used to be a prestigious profession in Uganda and the grade II teachers trained for three years before they qualified to teach in the primary schools. That crop of teachers were known for their dedication, hard work, excellence and professionalism. However later in 1980s, the program was phased out to give way for the Grade III Certificate course.

operate from their places of residence far from the college, and hence, spend much time travelling to and from the college.

The participants experienced the system of education as students in Uganda. They know what the system is like right from the primary through to the tertiary level, how the system operates, what is expected of teachers by the parents and the public, what is valued and what is not valued. As will be discussed in the next chapter, this has had a significant influence on their career goals and pedagogical practice including the extent to which they use ICT in teaching in their professional practice.

Table 3.3.1. Participants' educational and ICT training backgrounds:

Participant	Gender	Age	Education	Subject	ICT Training Background
Jalia	Female	47	MA, BED, DTE, Grade III Grade II	English	Connect-Ed, Harvard online course, (MA Course unit at MUK
Hella	Female	45	MED, BED, DTE, Grade III	English	Connect-Ed., Harvard unit online learning course, Introduction to computers as course unit at MUK
Harriet	Female	39	MED, BED, DTE, Grade III	English	Connect-Ed., Introduction to computers in education as MA course unit
Aisha	Female	34	MSC (HRM), BED, DTE	English	Introduction to computer studies as course MSC unit
Kamuli	Male	41	BED, DTE, Grade III	English	No training
Janene	Female	47	MED, BED, DTE, Grade III	English	Introduction to computers at Entebbe (Internet café)

3.4 Research Design and Method of Data Collection

The study was originally designed to begin with fieldwork where I would be collecting data at the research site from April 2008 up to August 2008. However, due to unforeseen problems I could not complete the data collection process until December 2008. Details of the specific activities are explained in the table 3.4.1 in the time line below.

Table 3.4.1: The time line

Date	Activity
March 25, 2008	• Visited research site (Bondo PTC) to seek permission to conduct study at the college but didn't find administrators.
April 2, 2008	• Visited Bondo PTC for the second time to seek permission • Talked to deputy principal who granted permission • Deputy principal offered to inform participants • Agreed to have meeting with participants on 07.04.2009
April 7, 2008	• Maureen Kendrick and I met participants at Bondo • Briefed participants on the entire research project • Gave participants consent forms to fill for their consent • Administered Questionnaire 1
April 7-8, 2008	• Collected questionnaires from participants • Held individual interviews to seek clarifications
April 9, 2008	• Held focus group discussion where participants shared with us their experiences with the use of ICT in their professional practice
June 12, 2008	• Met participants to determine why their participation in the online discussion was low, and learnt that many participants lacked skills to register for online discussion as it was their first time to engage in an online discussion
August 11, 2008	• Bonny Norton and I met participants to share their experiences on the use of ICT in the previous months
August 14, 2008	• Bonny Norton and I interviewed the ICT Minister at the ICT Ministry Headquarters in Uganda • Briefed the minister on our research project
November 2008	• E-Granary workshop at Bondo PTC in Uganda • Administered exit questionnaires
Sept. 2008–Feb 2009	• Preliminary data analysis (Coding and labeling of data)
March – June 2009	• Data analysis and report writing
June 30, 2009	• Defense of thesis
July 2, 2009	• Submission of thesis

3.4.1 Stage 1: Field Visits, Questionnaire 1 and Focus Group Discussions

Once the preliminary consultations and arrangements had been made with the research team at the University of British Columbia, the next step was for me to gain access to the research site and seek permission to carry out research at the college. On March 25, 2008, I visited the college with the hope of meeting the principal tutor to seek his permission to conduct research at the college. Unfortunately, I was informed by his secretary, who looked rather protective of her boss, that all the tutors, including the principal tutor, had gone for a supervision exercise in schools and colleges and would only come back the following week.

I visited the college again on April 2, 2008 and managed to meet the deputy principal in charge of outreach programs, who incidentally happened to be my former student and a colleague with whom I had worked before. This made things easier for me. After I briefed her about the research project, she welcomed the research readily and offered to brief the principal about the project on my behalf. She also offered to mobilize the participants, including herself. The recruitment of the participants into the study was therefore relatively easy because of the professional relationship I had with the deputy principal.

On April 7, 2008, Maureen Kendrick and I had a meeting with the participants to brief them on the project and to begin data collection. We made clarifications where necessary. We asked participants to very carefully read and sign consent forms. We then administered Questionnaire 1 (see Appendix A). The questionnaire mainly sought to capture information on participants' personal background, ICT training, access to ICT,

and the extent to which participants were able to integrate ICT resources into their teacher education classes in language education.

On April 7 – 8, 2008, we collected the questionnaires and used the information provided in them to prepare a set of interview questions. We then proceeded to hold individual interviews with the teacher educators to clarify the information they provided on the questionnaires. This helped us to put the data they provided in proper perspective.

On April 9, we held a focus group discussion with the teacher educators. Krueger (1994) suggests that for complex problems, focus group size should be kept to no more than about seven participants. In our case, six teacher educators participated in the focus group discussions. The meeting lasted for approximately 3 hours. The meeting was very interactive. The informal group discussion atmosphere of the focus group interview structure was intended to encourage participants to freely express any ideas, views and opinions they had. Thus, participants were eager to share with us their experiences with the use of ICT in their professional practices. We established a collegial relationship with the participants and gave each participant an opportunity to say whatever they wanted to share on the subject of ICT in teacher education. In this group discussion, the teacher educators were able to openly share with us, and the entire group, their responses to the questionnaire. They provided detailed information about how they tried to use ICT in their teaching and the challenges they faced. Thus, the focus group was a useful strategy for triangulation (Berg, 2007). During the focus group discussions, I was able to probe into responses that were not clear in the first instance. I used the data from the focus group discussions to corroborate evidence gathered through questionnaires.

The focus group discussion was also used to further explain the research project in more detail and to solicit the input of the participants in shaping the design and outcome of the research. For example, in the course of our interactions with the participants, we came to learn that the Internet at the college lab had been disconnected due to non-payment of the connectivity fee. The college was expecting to receive money from the Ministry of Education to clear the payment. Unfortunately the money was not forthcoming. We had assumed that there was Internet connectivity at the college and designed much of the data to be collected from online interactions. The lack of connectivity was a set back in the study. It forced us to review our strategy as explained in Stage Two below.

3.4.2 Stage 2: Online Group Discussions

As Hammersley and Atkinson (2007) have observed, digital technology has expanded the notion of what constitutes a "field." Virtual fields and virtual fieldwork are not only now possible but also assuming increasing significance in a social world that is simultaneously global and digital. As such, studies on digital life are now an important aspect of contemporary social research. Therefore, my choice of the use of online group discussion approach was not only appropriate to address main research questions but it was also consistent with the current trend in virtual community studies.

According to our original plan, from April 14 to August 11, 2008, the teacher educators would document their personal and professional Internet use through journaling and artifact collection (i.e., documents printed from the Internet). At the end of every week, the teacher educators were to bring forward for online discussion a critical incident from their reflections. We set up a forum for participants to hold online discussion

through Google groups. It was hoped that following a careful review of the participants' journals, artifacts and online discussions, I would identify a key issue for discussion during a face-to-face fortnightly focus group meetings with the participants. Unfortunately, many participants could not register for the online group discussions. I wondered what the problem could be.

On June 12, 2009, I held a meeting with the participants to try to understand why there was an absence of participation among the teacher educators in the planned online group discussions. Participants revealed a number of reasons to explain the lack of active participation in the online discussions. The reasons given ranged from lack of access to Internet to lack of basic skills to complete the online registration process. The online requirement of the data collection process revealed many of the inherent challenges of using and integrating ICT in professional practice in the Ugandan context.

The difficulties we experienced in using the online method of data collection become an important learning experience for the researchers. Nevertheless, the few who managed to register made very useful contributions to the data collected. We then decided to ask participants to make journal entries to be shared with others via email as attachments. Still a few participants had difficulties in doing that. Eventually we asked them to make their entries in hard copies, which all became vital sources of data for the study. Participants made journal entries once in a month from April to December 2008, though some participants occasionally took more than a month to submit their entries due to personal reasons. Due to these ongoing challenges, some of the teacher educators were able to participate more actively than others and consequently there is a greater representation of their responses in Chapter 5.

3.4.3 Stage 3: Key Informant Interview

On August 14, 2008, Bonny Norton and I scheduled a key informant interview with the Minister of ICT in Uganda. The interview was took place at the Ministry video-conference room in Kampala. The main purpose of the interview was to understand the Ministry's strategic vision for the development of ICT in the country in general and education in particular. We also wanted to share with the minister and government information about our ongoing study and other research initiatives in Uganda and Africa more broadly. The interview yielded very useful data especially in relation to the steps government has taken to promote ICT in the country. The interview was also essential to corroborate evidence gathered from alternative sources of data.

The Minister briefed us about the government's perspective on the role of ICT in the creation of a knowledge-based society in Uganda, the practical steps they have taken to create a legal framework conducive for attracting private investment in the telecommunication sector, as well as the ongoing ICT initiatives in government ministries, schools, colleges and universities.

3.4.4 Stage 4: Questionnaire 2 and e-Granary Workshop

Originally, we had planned to complete the fieldwork and data collection by August 2008. However, this had to be rescheduled because the participants were involved in a number of other programs at the college and in the outreach centers. It was decided in collaboration with research participants that data collection would continue through to the month of December 2008.

From August to November 2008, I engaged in preliminary analysis of data we had collected through Questionnaire 1, the field visits, focus group discussions, informal

meetings, interviews, and artifact collection. During this period, I identified themes across the different data sets and coded and labeled emerging themes and concepts (Glaser & Strauss, 1967; Lincoln & Guba, 1985). I also identified gaps in the data, which needed addressing through further data collection. Consequently, in consultation with my supervisors we then designed a second questionnaire to complete the data collection process. The main purpose of the Questionnaire 2 (see Appendix B) was to seek further clarification from the participants on some of the issues they had raised and capture any new issues that may have emerged. It also aimed at soliciting participants' recommendations on the way forward for the integration of ICT in language teacher education in the context of their local context, at the college in particular and Uganda in general. The questionnaires were administered after a training workshop in which the teacher educators had just been introduced to e-Granary digital library commonly known as "Internet in a box". We therefore asked them to include their views on the possibility of integrating the e-Granary as an educational resource in teacher education in Uganda. I will talk more about the e-Granary digital library in Chapter Five.

3.5 Data Analysis

With regards to my first research question which focused on ICT policy in Uganda in relation to education, I mainly used content analysis (Carley, 1990) which involved a careful, detailed, systematic examination of the National ICT policy in Uganda (2003), Ministerial Policy Statement for Ministry Information and Communication Technology (2008-2009) financial year, in an effort to identify patterns and themes. I used color-coding to label emerging themes from the text, which I then organized for easy interpretation of government's understanding of ICT and its role in

education broadly and teacher education, in particular. To achieve triangulation, I transcribed the key informant interview with the ICT Minister into a written text for analysis. My analysis also draws on some of my own lived experiences with the technological changes in Uganda, which none of the methods I chose for data collection would have captured. The use of personal experiences as starting point in research is supported by scholars like van Manen (1990) and Merleau-Ponty (1962), who argue that one's personal experiences are immediately available to oneself in a way that no one else's are (van Manen, 1990).

As regards question two on the extent to which the teacher educators use ICT in the development of digital literacy skills, examined the data collected in the form of field notes, questionnaires and journal reflections to look for patterns. All data were analyzed and coded using a constant-comparative method (Glaser & Strauss, 1967; Lincoln & Guba, 1985). I color-coded the data, organized them under themes such as responses towards ICT, ICT access time, reasons for ICT use and challenges faced, which I later on used to present my findings. I achieved triangulation by corroborating data the teacher educators provided through the different sources of evidence.

3.6 Limitations of the Study

There are three main limitations of my study. One relates to the setting. The setting for my study was an urban setting, which cannot be compared to a college in rural area. Thus, the findings of the study may not adequately depict what happens in rural colleges in Uganda in some aspects. Secondly, the fact I have worked with some of the participants before, and they see me as a colleague, may have influenced the way they responded to some questions. Finally, the fact that I did not have an opportunity to

observe the participants in class but largely depended on what they told me could have denied me the opportunity to confirm some of the claims participants made. Nevertheless I believe these limitations do not necessarily compromise the over-all reliability of the findings of my study as I tried to use alternative sources of data collection to minimize the shortcomings.

3.7 Ethical Considerations

I took care of ethical considerations by giving participants detailed information on the research and inviting questions of interest to them with regards to the potential risks and benefits. I made sure they gave voluntary consent to participate in the study and also made sure that they knew that if any participant wanted to withdraw from the study they were free to do so with out any preconditions. After writing the report, I made sure I sent them soft copies of the draft report to read through and find out if it was a fair representation of their views. In order to safeguard participants' privacy, we agreed that I would use pseudonyms instead of their real names in the report. A member check was also completed; all participants were provided an opportunity to read and respond to the thesis.

3.8 Summary

In summary, therefore, my research was basically a qualitative study in which I mainly used qualitative study techniques. I began by examining policy documents on ICT and teacher education, ministerial statements, official reports and media reports in order to have a better sense of the relationship between ICT policy and educational practice in Uganda. I also drew on my personal experiences as a Ugandan scholar who was born in the country and who did not only witness but also experienced some of the major changes

in the information and communication sector in the country. I also had an added advantage of being a lecturer at Kyambogo University, which is in charge of teacher education in Uganda. In terms of fieldwork, I used questionnaires, focus group discussion, online group discussion and key informant interview for my data collection. The uses of various methods of data collection made it possible for me to triangulate my findings to establish consistencies in order to guarantee their validity and reliability.

In the next chapter, I will describe the relationship between ICT policy and educational practice in Uganda. I will give a historical context of the evolution of ICT policy in Uganda and highlight some of the practical steps that have been taken to integrate ICT in education, with teacher education as the primary focus.

CHAPTER 4

ICT POLICY AND EDUCATIONAL PRACTICE IN UGANDA

4.1 Introduction

This chapter addresses the first research question, which seeks to examine the relationship between ICT policy and educational practice in Uganda. In order to explain the relationship between ICT policy and educational practice in the Uganda, I will begin by reflecting on my childhood memories of some of the major changes in the information and communication landscape that I witnessed while growing up in Uganda. I will present the historical context in which the current ICT infrastructure evolved. Thereafter, I will highlight key aspects of the national ICT policy framework before outlining how educational needs have been addressed through ICT use broadly and in teacher education more specifically, and draw on the key informant interview with the ICT Minister in Uganda. I will also draw content analysis of three key policy documents: the National ICT Policy, 2003; the Draft Policy for Information and Communication Technology in the Education Sector, 2005; and the Ministerial Policy Statement for the Ministry of Information and Communication for the 2008/2009 financial year. I conclude the chapter with a discussion on some of the salient issues emerging from my data analysis.

4.2 Personal Childhood Memories

In my over thirty years of existence, I have never seen such profound changes in any aspect of the Ugandan society as I have seen in the information and communication sector. When I was still a little boy running around with patched shorts, and bare chest, for that was the way of life in the village, my parents used to tell us stories of the mode of communication used by the colonial administrators. We used to laugh when my father

narrated that during the colonial period the chiefs had some special people in their palaces that would run several kilometers holding letters tied on sticks from one parish to another to deliver official communication. It sounded very strange and funny to us. We would ask all sorts of questions to try to understand how the system worked. We would ask what kinds of persons were the runners? Didn't they get tired along the way? How were they chosen? Did they enjoy what they were doing? We would ask what if the runner was caught up by rain in a place where there were no houses and the letter was soaked by rain. My father would tell us that under no circumstance would the runner allow himself to be soaked by rain because the consequences of allowing himself (the runners were usually men) to be soaked by rain were extremely unbearable including the possibility of being put before a firing squad.

When I joined school in the 1980s, the postal services were already in existence. Once or twice in a month, the headmaster would go to the district headquarters and come back with a bag of letters. The names of the people to whom the letters were addressed would be read aloud during the morning assembly and students who knew the owners would be asked to collect the letters. It was very prestigious for a student to collect a letter for a person he or she knew. During break time, the rest of the students would gather around such a student to admire the letter, usually in brown khaki envelops. The student looked special. He or she was associated with the postal services, which seemed very sophisticated at that time. Many of us could not imagine a system of communication better than the postal services. It was great! One day my aunt, who was also a teacher at Arua Demonstration School, sent my father a letter. When they read his name, I thought I had heard it wrong because I did not expect my family to be in the category of those who

used such a modern system of communication. He was a peasant farmer who had nothing to do with letters, which were things for people working in offices. The headmaster had to pronounce the name three times before I gathered courage to go for the letter. At break time that day, I was swarmed by students curious to see or touch the letter. Many students wanted to become my friend. Some students tried to bribe me into friendship with gifts ranging from roasted potatoes to pencils and books just to be allowed to touch the letter. All of a sudden, I became the centre of attraction among not only students but also teachers. Shortly after that, I was made a class monitor and the following term I became a prefect largely because, I believe, of my association with the "modern" system of communication. I was perceived to have connections with the civilized world, which enhanced my identity and increased my influence at school. I started receiving preferential treatment.

Another incident, which I cannot forget in relation to personal experiences of the changes in the field of communication in my lifetime, was the day my father managed to buy a radio, which was the first of its kind in the whole village. In fact, he bartered the radio with six goats four of which were given to the owner instantly and the remaining two were yet to be born in a few weeks time. The coming of the radio into the village was like a miracle! When news of the radio started circulating in the village, it was like a mystery. Someone who has lived in a rural village would know what I am referring to. The news swept the village like bush fire. All sorts of people—the young and old, men and women—descended on us demanding to see the thing for themselves. An old man commonly known as "baba" because of his advanced age made the crowd burst into laughter when he curiously asked if my father had not brought home what he referred to

as the "white people's ghosts" to come and finish them (the village) off. Another man begged my father to open the radio so that he could see those tiny human beings talking inside the radio with such loud voices. They strongly believed that those were actual human beings talking inside the radio but they wondered how grown up people could hide inside such a tiny thing and talk in a very clear voice. Nevertheless, the radio soon became a major source of information in the whole village. Teachers and civil servants would converge at home to listen to news, announcements and entertainment. The school clock was adjusted using the time announced on the radio. People with watches, especially teachers, also relied on the radio to adjust their time. The radio started having an impact on people in the village. Any information passed through the radio was treated with respect and given all the upmost attention, especially if such information came from a government official. The phrase "The radio said... The radio said...." became common in the village.

People started growing cash crops particularly cotton and tobacco to raise money for buying radios. Unexpectedly the radio became an instrument of transformation in the village. With time, more people managed to acquire their own radios and the information and communication landscape was dominated by Radio Uganda for many years. Eventually the radio became ordinary. The excitement it generated throughout the whole village slowly disappeared as the number of radios in the communities increased and people got used to it.

Besides being a source of information and entertainment, the radio was also effectively used as a medium of instruction for education programs in different subject areas using different languages. One of my favorite programs on Radio Uganda was a

storytelling program in Lugbara, my mother tongue. I loved the program so much because nearly all the stories read on the radio were the very stories we used to tell around the fireplace during moonlit nights in the village (though I sometimes felt that I could tell the stories better than those people on the radio did). I was not the only person who enjoyed the stories on the radio programs. At school, other students also reported that they too enjoyed the stories. We would compete in trying to narrate the stories we heard the previous day. Educational programs such as the Sunday Literature Club became common on the national radio in the 1980s. Prominent authors and teachers of literature were brought to discuss topical issues on radio for the benefit of students in the countryside. We gave ourselves names after the famous program presenters on the national radio. Nicknames like Collins Bolingo Nyale, Josh Ajabo, Char Char Charles Korototo Agondua, Avua Lino and Baale Francis were common among children in schools because of the influence of the radio as a medium of communication in the 1970s and 1980s. However, the problem with the radio programs was that it was not possible for the program presenters to get instant feedback from the listener. Radio programs were not as interactive then as they are today where listeners can make direct telephone call during radio programs. The presenters therefore could not gauge the impact of their presentation on the listeners. Otherwise, they were touching the lives of many people especially young people deep down in the villages.

Currently another unprecedented change, the explosion of digital tools like computers, mobile telephones, and the Internet as part of the information and communication landscape is unfolding before our eyes. Before the emergence of mobile telephones in Uganda in the mid 1990s, we continued to rely on postal services and

Radio Uganda for distant communication. I recall how we would get excited about sending a letter home and receiving a reply within a month. That seemed fast. We would gather in groups and talk about how fast the post office had become. Each person would always want to tell their personal experience of receiving a reply to their letter within a month. Alternatively, if the message we wanted to send home was very urgent we would sacrifice a few shillings for a radio announcement. Today, things have changed and changed fundamentally. The postal service and Radio Uganda have almost run out of business. Mobile telephones and the Internet have taken over. Hardly any one now talks about sending letters and making radio announcements for ordinary communications the way we did in the 1980s and parts of 1990s.

The Internet in particular has brought unprecedented dimensions to both the speed and scale of change in the global communication landscape. These changes in the information and communication landscape in Uganda brought about by the explosion of digital communication have profound implications for teaching and learning in schools and institutions of learning. In the ensuing discussion, I will examine briefly the historical context of the evolution of the current ICT environment in Uganda as well as the practical steps Uganda has taken to embrace ICT generally and in education specifically.

4.3 The Historical Context

The current ICT environment in Uganda, in my view, is a result of the convergence of both external and internal factors. Internally, the perennial problems of underdevelopment such as biting poverty, high illiteracy rates, political instability, rampant unemployment, low productivity, inequality and disease have always kept Uganda searching for solutions to transform its economy. Externally, the International

Monetary Fund (IMF) and the World Bank were pushing for structural adjustment policies of liberalization and privatization as a precondition for lending aid to developing countries. In the case of Uganda, the critical incident leading to the changes in the communication landscape was the dismantling of government-owned Uganda Post (UP) and Telecommunications Corporation (UP & TC), the take-over of the telecommunication services by Uganda Telecom and the subsequent privatization of Uganda Telecom in 1996.

The privatization of Uganda Telecom was followed and reinforced by legislative enactments. These included the Electronic Media Statute of 1996 and the Communications Act of 1997, for which the objective was to increase the penetration and level of telecommunication services in the country through private sector investment. There was also the Rural Communications Development Policy of 2001, which aimed at providing access to basic communication within reasonable distance to all Ugandans. These enactments provided the initial legal framework that triggered the inflow of private foreign investment into the telecommunication sector in the country. Prior to 1996, Uganda's communication infrastructure was among the least developed in Africa (Ministry of Works, Housing and Communication, 2003). However, because of the liberalization policies adopted in the 1990s, the ICT infrastructure situation in the country between 1996 and 2004 changed as illustrated in the table below:

Table 4.1 Growth in ICT Infrastructures 1996 – 2004

SERVICES PROVIDED	1996	1998	1999	July 2000	Feb 2001	July 2001	2002	2003	2004
Fixed Lines Connected	46,000	56,000	58,000	58,000	61,000	56,149	59,472	56,793	71272
Mobile Subscriber	3,500	40,000	70,000	140,000	210,000	276,034	505,996	777,563	987 456
National Telephone Operators	1	2	2	2	2	2	2	2	2
Mobile Cellular Operators	1	2	2	2	3	3	3	3	3
Internet Access Service Providers	2	7	9	9	8	9			
Internet/Email Subscribers (Wireless Access)				500	1200	6500**	6,500	7024	8000
Internet/Email Subscribers (Dial-up)				4,000	4,500				
VSAT International Data Gateways				4	8	8	8	8	8
Public Internet Service Providers (Cafés)		3	8	14	24	49	17	18	18
Public Payphone Licences		7	13	19	18				
Paging Service Providers	2	3	3	3		3			
FM Radio Stations	14	28	37	40	100	110	117	125	129
Television Stations	4	8	11	11	19	20	22	23	25
Private Radio Communication Operators	453	530	688	688	770	1210			
National Postal Operators	1	1	1	1	1	1	1	1	1
Courier Service Providers		7	8	10	10	10	11	19	19

Source: Uganda Communications Commission (UCC) http://www.ucc.co.ug

The trend depicted in the table above shows a significant growth in communication and ICT infrastructure in Uganda between 1996 and 2004. For example, fixed telephone lines connected grew from 46,000 in 1996 to 71,272 in 2004, which translates to a 54% increase. The number of mobile subscribers grew from a mere 3,500 in 1996 to 987,456 in 2004, an increase of 28,113%. Internet and email subscribers using wireless facility grew from 500 in 2000 to 8,000 in 2004, which translates to a 150,000% increase.

By 2008, there were over 5.3 million telephone subscribers in Uganda and telecom operators grew from three to five within a space of just one year (Ministry of Information and Communication Technology, 2008). The phenomenal growth in the information and communication infrastructure in Uganda has compelled government to take appropriate steps to streamline the integration of ICT into the different ministries and sectors of the Ugandan society. In the following section, I highlight some of the major developments leading to the current state of ICT in education in Uganda.

4.4 National ICT Policies

The national ICT Policy in Uganda was established in 2003. The ICT policy framework document envisions a Uganda where national development, especially human development and good governance, shall be sustainably enhanced, promoted and accelerated by efficient application and use of ICT, including timely access to information (Ministry of Works, Housing and Communications, 2003). Objective # 2 of the ICT policy focuses on literacy improvement and human resource capacity building with strategies that include:

1. Integrating ICT into mainstream educational curricula as well as other literacy programs to provide for equitable access for all students regardless of level
2. Developing and managing ICT centres of excellence to provide basic and advanced ICT training
3. Setting up mechanisms that promote collaboration between industries and training institutions to build appropriate human resource capacity.
4. Promoting the twining of training institutions in Uganda with those elsewhere to enhance skills transfer (Ministry of Works, Housing and Communications,

2003, pp. 33-34).

An e-readiness assessment done in 2004 revealed that there was need for a coordinated approach for effective implementation of the ICT policy in the country (Farrell, 2004). This led to the establishment of an ICT Working Group that tabled a number of recommendations (Ministry of Works, Housing and Communication, 2003). One of the recommendations executed early in 2006 was the establishment of a Ministry of ICT to address the convergence of ICT and to provide co-ordination of policy development. The mandate of the ministry is to:

- Oversee and harmonise operations of its affiliated agencies: Uganda Communication Commission, the National Information Technology Authority, the Broadcasting Council, and the proposed Information Management Commission.
- Collaborate with National Planning Authority to spearhead activities for developing sector wide ICT plans for integration into the National Development Plan.
- Oversee periodic policy reviews for the telecommunications subsector for mobile and fixed line telephony, postal, Internet and email services.
- Oversee and guide the implementation of the Uganda e-Government Strategic Framework by various government ministries and agencies.
- Develop and implement a prudent monitoring and evaluation system for the ICT sector.

4.5 Insights from the ICT Minister

A key aspect of understanding the communication landscape in Uganda was

through an interview with the Minister in charge of ICT. By the time this interview was held on August 14, 2008, I had already visited Bondo PTC many times and was aware of the status of the ICT infrastructure at the college. I had also spoken with the teacher educators, who shared with me the challenges they encounter in trying to use ICT. As I entered the Minister's office with one of my thesis supervisors, I noticed a sharp contrast between the environment at the Ministry head office and the one I saw and had become accustomed to at Bondo PTC. Directly opposite the Minister's chair on the left side of the room was a huge Government-wide video conference voicing facility, which the Minister told us he uses to have video conferences with other ministries and the President. He said they used it to watch Her Majesty, the Queen of England's procession moving all the way from Entebbe International Airport to Kampala during the Commonwealth Heads of States and Governments Summit held in Uganda in 2007. Elsewhere in the room, one could see new computers and other support equipment for ICT use. In contrast, at Bondo PTC there was just a small office space converted into a computer lab with ten possibly second hand computers, one photocopier, a table for the lab attendant and chairs for the trainees. That was all. The Minister described how, if we wanted the Minister of Internal Affairs, the President or the Minister's receptionist to join our discussion, he could just press a button and they could join our discussion instantly. The Minister's explanation on how the video-conference facility works matched its physical appearance. As I listened to the Minister, I began to wonder whether it might not have been better to have such facilities at the colleges where there is a real need to use them for educational purposes instead of keeping them mainly for a show at the Ministry head office.

During the interview, the Minister reiterated the importance government attaches

to the promotion of ICT for national transformation. He explained that the establishment of the Ministry of ICT and the nature of the appointments of staff at the Ministry demonstrated government's commitment to the promotion of ICT for national development. According to the Minister, government made the appointments based on technical grounds not political grounds, right from the minister down to the lower cadres. He revealed that he has IT (Information and Technology) expertise, with a PhD from the University of London Imperial College. His focal area is software engineering with a specialisation in statistical software. To quote him directly, this is what the Minister said about the ICT Ministry he is heading:

> *We have just been around for just over two years as I was saying. And it is a technical Ministry because of that when the President was appointing leaders, he appointed me, I come from a technical background and not political background. I am an IT (Information Technology) person. My PhD is from University of London Imperial College. My area is software engineering with a bias towards statistical software. So then the core Ministry is structured around very technical background right from the Minister to the rest of the staff* (Interview transcript, 14.08.2009)

The Minister recognized that there is a lot of technology globally but the problem is how Uganda could harness it to exploit its natural and human resources sustainably to improve the quality of life for its people. I found it rather interesting to hear the minister acknowledging the existing technology in the country while at the same time appreciating the fact that applying the available technology for sustainable exploitation of available resources is the major challenge. The question then arises how well our ICT policy is

aligned to develop our natural and human resources.

The Minister defined technology as a tool and traced its origin to the Stone Age period where humans relied on stone, which was shaped in different forms to perform many vital functions. Later on, he said humans developed the hammer and many other tools for different purposes. He looked at the new technologies and the ICT more specifically as part of that evolutionary process to meet human needs. The following is how the Minister made his point when asked to comment:

> *You see, technology is just a tool and the most basic technology of man, say during the Stone Age, was his stone. When he shaped it, he could use it for anything and then as it evolved he made hammer. Now we are looking at these modern communication tools. On their own, they are of no use. The question is how do we apply them? In this case, how do we apply them in education and literacy? Education is so fundamental because today we are looking at the most fundamental requirement for national transformation and development- to have educated human resource base* (Interview transcript, 14.08.2009).

His reference to ICT as a tool is consistent with what is stated in the ICT policy, which reads in part: "Like other countries, Uganda has recognized the potential of and enabling element of Information and Communication Technology as a tool for social and economic development." (Ministry of Works, Housing and Construction, 2003, p.8). Below is how the Minister went on to explain the importance government attaches to ICT for national transformation:

> *As you go out you will see the vision of the Ministry- "a knowledge based society." How do we do that? By making society knowledgeable. It means having*

a society, which knows its environment, which can help it adopt and adapt its own environment, and therefore moves from one stage of living to another stage of living. That is a knowledge-based economy because we cannot make wise decisions unless you know, unless you have a knowledge base. That is why we are moving from data to information to knowledge to wisdom, and action. If you told people in the rural areas our GDP has by 8%, is that good or bad? (Frowns). By the way, what is GDP any way? How does it grow? That is just data. Information is – in East Africa, the GDP in Burundi was 7%.. That becomes information, you can use it for comparison, whether it is good or bad and you can relate it to something. Knowledge is –DGP was 8% last year, this year it is 9%, which means there is a growth. Wisdom is – we should never go to 15% growth because it will crush! That is now wisdom, which is vast knowledge. So, we are moving in phases to have a knowledge based society, not only knowledge about what is happening in the rest of the world but also what is happening around them.

The other day, recently, someone was telling me about patents. There is a rock, which is found in many places in Uganda. If you have snakebite and put a piece there, it sups the venom and in no time you are fine! It heals. When you when people wanted to market it and went to the patents, they said no. That is a good idea, we see it works but to have a patent you have got to explain how *it works. They said to get the patent you have to tell us how it works, how some chemicals react then we put it down. They know in communities it works, so someone could come from some where; for example, an engineer from Imperial College and he comes and picks the stone and puts in his sophisticated lab, does*

mass spectrum analysis and whatever, and realizes that there is a chemical which reacts with DNA etc, gets the formula, goes to the patent shops and gives all the chemical formulas and chemical reactions.

How do we get communities to understand the environment and use it well? That is when you said you are researching at the grassroots in PTCs and Primary schools; that is where it should start. Those youths or those children of today are the managers of society tomorrow and when they come to manage society, it should not be an option but an inevitability to know ICT.

Those are the two points. One, how do we use ICT to develop their knowledge base and not only in ICT but geography, history, biology, science, mathematics etc.? Secondly, how do we do it so that they are ICT enabled?

The other day we were cracking a joke with colleagues about the mobile telephone, blackberry and so forth. Those days they would ask what is DDT [dichlorodiphenyltrichloroethane]*? You would scratch your head... When calculators came, everyone is at the same level. There is no digital gap because every one in class has a calculator so it would take almost the same time to get the right answer. But, when you say what is DDT? What does it stand for? Every child just picks their Blackberry and Google DDT and gets the answer. It is an equalizer* (Interview transcript, 14.08.2008).

Three comments can be made about the Minister's remarks. In the first place, the Minister recognizes ICTs as tools, which on their own are of no use. They only become important when they are applied to serve our interests. This raises the question of the extent to which are the available technologies are being used. Secondly, the Minister

recognized that technologies are constantly changing. The following questions then arise: How prepared are we as a country to cope with the changes in technological advancement: How might we support those who have attended ICT programs especially in the colleges? To what extent are the teacher educators supported to cope with the changes in technology? Thirdly, the Minister emphasized the need for us to adopt and adapt technologies into the local environment to bring about improvement in our conditions of living. The question is to what extent is the ICT Policy environment favorable for the effective application of ICT in education? What are the major concerns with the ICT policy and practice with reference to education? In relation to these questions, I now turn to examine ICT in the education sector.

4.6 The Education Sector

Another recommendation from the Working Group was that an ICT policy for schools be developed (Farrell, 2007). The ICT policy together with the evolution of the national policy is believed to have provided the impetus for the Ministry of Education to expand its focus on the use of ICT (Ngugi, 2007). While the national policy focuses on the importance of developing the ICT competencies of learners, the interpretation by the Ministry appears to be moving towards a more integrated vision. Evidence for this can be drawn from the 2005-2006 sector review in which the following initiatives were reported:

- Guidelines on the use of ICT were developed.
- An agreement with Microsoft has been signed to subsidize software licences and training of teachers. In addition, the Microsoft Partners in Learning Program has endorsed a number of activities for implementation.
- An ICT budget for all secondary schools is now required.

- Subsidized rates from ICT service providers have been negotiated.
- Training of teachers in ICT has begun.
- Ordinary level curriculum on ICT was operational and is examinable by the Uganda National Examinations Board.
- Operational funds to support ICT in some schools have been provided.
- Some ICT infrastructure has been provided to schools. (Ministry of Education, 2006)

In addition to reporting the initiatives undertaken, the review also identified the following actions as necessary if the goal of transforming Uganda from information society to one that is knowledge-based is to be realised in the following ways:

- Update the legal and security measures for the effective use of ICT in education.
- Address the language, socio-economic, disability, and cultural barriers to accessing ICT.
- Adopt cost-reducing measures to counter the high cost of ICT equipment, installation, and maintenance, paving the way for more equitable access.
- Revise the curriculum.
- Produce more ICT literate teachers.
- Streamline the operations of different ICT service providers in order to avoid duplication and conflict of interest, and to secure everyone's cooperation.
- Provide the requisite ICT infrastructure to the poor rural schools during the first phase of implementation.
- Define the minimum technical specifications of ICT equipment.

- Routinely update a record of the existing ICT initiatives to avoid duplication. (Ministry of Education, 2006)

Another important stage in the promotion of ICT in education in the country is the development of a draft policy for ICT in the education sector, which is due for legislation in the national parliament. The draft policy is intended to: apply to all education sub-sectors, including non formal education; focus on the development of ICT competencies as well as use ICT to teach across the curriculum; include strategies for the development of digital learning content; develop teachers' ICT competencies; and foster research in the educational applications of ICT.

4.6.1. ICT in Schools

As ICT infrastructure continues to spread in the country its penetration in schools is slowly but steadily growing. There is a growing recognition that contemporary information and communication is taking root in Uganda, especially among young people known for their interest in text messaging and the Internet (Edejer, 2000; Mutonyi & Norton, 2007; Nawaguna, 2005). In 2004, the Curriculum-Net, a project to spearhead online learning, received formal government approval for its ICT based curriculum materials for both primary and secondary schools (Ngugi, 2007). Research confirms that ICT has already been incorporated in the academic programs of several primary schools and secondary schools especially those in and around Kampala (Ngugi, 2007).

Initially, the penetration of ICT in schools was sporadic with some initiatives taking the form of second-hand computer donations from the Western world to schools with international connections. Later on, schools with powerful Parents' Teachers' Association (PTAs), particularly in Kampala, began contributing money to buy computer

and establish computer labs in schools for the benefit of their children. Similarly, old students' alumni started supporting their former schools to establish computer laboratories to enhance the glory of their previous schools, especially in historically popular schools. As chair of St Joseph's College Ombaci Old Boys' Association, I spearheaded a project in which we bought ten computers to establish a computer lab in the school in 2000 to introduce students to basic computer skills. Until then there was not a single school in the whole of Northern Uganda with a computer lab. Since then a number of students have trained in basic computer skills and sat national examinations in basic computer skills at St Joseph's College Ombaci.

Of late, major companies and businesses have also embarked on supplying schools and institutions of learning with computers as part of their corporate social responsibility policy and public relations campaigns. Some individual schools, especially the private schools, have also started making concerted efforts to buy computers and establish computer labs to attract students as more people have started making substantial investments in education. I would even argue that some of the best computer labs in the country are found in private schools.

One of my major concerns with the ongoing ICT programs in schools is that each school conducts the training according to its own convenience and capacity, and the technical expertise it has. This to me is a worrying situation, which needs to be addressed before it gets worse. Government needs to streamline the training in schools by providing some guidelines on minimum standards for beginning computer programs and providing some basic training for all teachers in charge of computer labs.

The level of infrastructure and services are still far below the average compared

with other economies in the world. Moreover, most of the developments are still concentrated in urban areas, only benefiting a small percentage of Ugandans, which could lead to the problems of a *"digital divide"* (the gap between people who have access to ICT and those who do not) with its sociocultural, political and economic ramifications. It is clear that more needs to be done to further develop the infrastructure for effective adoption of ICT in the country, more so in the rural areas where the majority of schools are located and where there is the greatest numbers of pupils due to the Universal Primary Education Policy.

4.6.2. ICT and Teacher Education in Uganda

Since the launching of the Government White Paper on the Education Review Commission Report (1992), major reforms have been introduced to transform the system of education in Uganda. In order to complement some of the major reforms such as the Teacher Development Management System (TDMS), the Uganda Program for Human and Holistic Development (UPHOLD) and the Basic Education Policy Support (BEPS), the Ministry of Education and Sports teamed up with donor agencies to explore possibilities of supporting teacher training by using ICTs. Examples of specific initiatives to use ICT in support of teacher professional development in Uganda include USAID's support for the Connectivity for Educator Development (Connect-ED) program Phase I and Connect-ED Phase II projects, Irish Aid's Support for Canon Lawrence Apollo Primary Teachers' College PTC in Lira and the Rockefeller Foundation's support for two other PTCs. In the following paragraphs, I will single out Connect-Ed for closer examination as an illustrative example mainly because this was the ICT program most of the participants in my study attended.

Connect-ED functions in close collaboration with the Ministry of Education and within the framework of U.S Education for Development and Democracy Initiative. Implemented by the Academy for Educational Development (AED), Connect-ED is based in eight PTCs and aims at increasing computer literacy among teachers to enable them to integrate ICT in the classroom (SchoolNet Africa, 2004). Phase I of Connect-Ed set up computer centres and Internet points of presence at Kyambogo University and at eight Primary Teachers Colleges (PTCs): Shimoni PTC, Mukuju PTC, Gulu PTC, Bushenyi PTC Bondo PTC Ndegeya PTC, Soroti PTC and Conon Lawrence Boroboro PTC. The project provided computer literacy and materials development training for teacher educators, and began to repurpose the print-based national PTC curriculum into interactive, accessible online versions.

Connect-ED Phase II built on the infrastructure established in Phase I but with closer collaboration with the Ministry of Education and Sports and Kyambogo University. Its focus is on sustainability and long-term ICT strategies for Kyambogo University and the PTCs. They are also continuing to provide computer training and are completing the digitisation and enhancement of the national PTC curriculum.

An assessment study on the ICT initiatives in the PTC revealed that there are clear differences between PTCs with computer labs and those without labs (Fillip, 2006). More specifically, the labs were found to have a positive impact in terms of (i) awareness of ICT and their potential in teaching and learning; (ii) access to ICT for both tutors and students; and (iii) basic skills among tutors and students (Fillip, 2006). It was further found that 72% of teacher educators in PTCs with labs had received formal ICT training as opposed to only 24% of teacher educators who had received ICT training in PTCs

without labs.

However, Fillip's study noted that while a significant percentage of students and teacher educators had acquired basic ICT skills, these were insufficient to have a significant impact on teaching practice and on learning. A key lesson drawn from this study is that while basic ICT skills are prerequisites for meaningful access to ICT, going beyond basic ICT skills (e.g., type on the computer) and towards ICT integration skills (e.g., uploading content,) is critical to ensuring an impact on the quality of teaching and learning and realising the national vision of transforming the country into a knowledge-based society. Unfortunately, the policy itself seems to be misguided especially if one looks at the emphasis placed on the importance of accessing information as opposed to local knowledge production. Evidence arising from studies tends to suggest that both the quality and quantity of ICT trainings currently being provided deserve serious attention. If careful attention is not paid to the types and depth of training in the schools and colleges, a lot of resources will be wasted with no significant benefits to the country.

Another concern I have with the Uganda's ICT initiatives is that currently, there is no standard ICT curriculum for use by all PTCs (Fillip, 2006). Furthermore, ICT is not an examinable subject in the PTC curriculum. If ICT is to be fully integrated in teacher education and professional development programs, a standard curriculum has to be developed. In addition to that, ICT needs to become an examinable subject in the PTC curriculum for it to be fully embraced by students and tutors. The project approach, while good for experimentation, is not sustainable for long-term strategic intervention to promote ICT for educational transformation.

4.7 Discussion

According to a World Bank commissioned survey on ICT and Education in Africa (Farell & Shafika, 2007), the process of adoption and infusion of ICT in education in Africa is in transition. Farell and Shafika contend that Africa is experiencing a shift from decades of experimentation in the form of donor-supported, NGO-led, small-scale, pilot projects towards a new phase of systemic integration informed by national government policies and multi-stakeholder-led implementation. They cite the priority that governments are giving to policy as one of the primary features of the new phase.

As far as reference to policy is concerned, I agree with Farell and Shafika's conclusion that among African countries, Uganda is moving towards a new phase of systemic integration. There is sufficient evidence to support the claim that Uganda has indeed taken positive steps to systematize ICT integration in education. For example, legal reforms have been carried out; the communication sector has been liberalized; there is an elaborate national ICT Policy, which gives guidelines on the integration of ICT in different sectors including the education sector. A specific draft ICT policy in education has been developed and is waiting to be tabled in the national parliament for legislation. Most importantly, a Ministry of ICT has been established to spearhead the coordination of the growth and development of ICT in the country.

However, at grassroots level the situation is rather different. As reported earlier in this chapter, the process of adoption and infusion of ICT in education in Uganda is still characterized by experimentation in the form of donor-supported, NGO-led, small-scale, pilot projects. For example, the Connect-Ed project under which participants in my research received training was a USAID sponsored project, which is struggling to survive

as the funding for the project has ended. From February to December 2008 the Internet connection at the computer lab in the college, where my research was based, had been cut off because the college had no money. They were relying on the project funds to run the programs, and as soon as the funding stopped, it became difficult for the college to pay for the connection fee due to financial constraints. There are two main lessons to be learned from this experience, one of which is that the sustainability of the donor-supported, NGO-led, small-scale pilot project approach may not be guaranteed in the long run. The other lesson is that the donor-supported NGO-led, small-scale pilot projects have short-term goals which may not necessarily translate into the achievement of the long tern national educational goals. Donors and NGOs have their own priorities, which change from time to time. Thus, overreliance on donors and NGO funding may not be the best strategy for the realization of the national goal of integrating ICT in education. Government needs to come up with a strategy to invest in ICT through budgetary allocations specifically for ICT development in PTCs.

Similarly, Uganda has adopted a private sector-led development strategy and liberalized the telecommunication sector. While this has attracted private foreign investment in the communication sector, leading to significant growth of ICT infrastructure, it has on the other hand resulted in uneven development of ICT infrastructure in the country with most ICT infrastructure being concentrated in towns and urban centers. This in turn has led to slow penetration of ICTs in schools located in the rural areas where the cost of taking ICT infrastructure are too high for private investors to recoup profits. Questions need to be asked to whether this strategy will not

lead to the problem of digital divide (digital inequality) between rural schools and those in urban areas, between children from poor families and those from rich families.

According to Warschauer (2008), there is a relationship between technology and inequality. Warschauer argues that ICT can be an amplifier of other social and economic factors and processes. While ICT is rightly seen as having the potential to help individuals, groups, and even nations leapfrog over developmental stages, its infusion if not carefully pursued could also amplify existing inequalities as the effective use of ICT requires other human and social resources. Drawing on McConnell (2000), Warschauer (2008) further argues that the role of leadership, vision and local "champions" is crucial to the success of ICT projects for social inclusion. A common mistake made in ICT development projects is to make primary use of computer experts rather than of the best local community leaders, educators, and opinion leaders with proven local expertise of managing complex social projects to foster innovation creativity and social transformation. Thus, the donor-supported NGO-led, small-scale pilot projects approach and the private sector led development strategy might have to be reviewed to avoid the possibility of ICT becoming an amplifier of social and economic cleavages in Uganda. As a country, even as we seek to embrace ICT in education, we need to be mindful about the emerging problem of the digital divide between the rural schools and urban schools. We also need to draw on local knowledge and local expertise in problem solving to design appropriate intervention programs.

To emphasize my point, I am not necessarily against a donor-supported NGO-led, small-scale pilot projects approach, at least in the short run. However, my point is that pilot projects should not be substitutes for planned scaling up of ICT integration in

schools, universities and colleges in the end. I recognise as Warschauer (2008) does that good big things come from good small things, and room for innovation, creativity and local initiative is critical to give the space for good small things to emerge. Furthermore, I share Warschauer's view that flexible pilot programs should be an important part of the development process (Warschauer, 2008). However, I believe that scaling up should be the most important aspect of pilot programs; specifically, the potential for scaling up should be part of the formative and summative evaluation of pilot programs.

Earlier in this chapter, it was noted that the 2005-2006 Education Sector Review Report highlighted the need to routinely update a record of the existing ICT initiatives to avoid duplication (Ministry of Education, 2006). In the course of searching for literature about ICT and teacher education in Uganda, I discovered that while there were many ICT initiatives going on in the country, very little research has been carried out on these initiatives. In their study on "ICT on the Margins: Lessons for Ugandan Education," Mutonyi and Norton (2007) also noted that the need to collect empirical data on ICT access and use is very important for planning and policy development in Uganda. It is probable that the country is experiencing duplication of programs and services (e.g., many NGOs operating in isolation) due to lack of comprehensive information on existing ICT initiatives and programs, which could result in wastage of scarce financial resources. As Ngugi (2007) has noted, for a nation to embrace a technology and make effective use of it, it is vital that substantial investment is put into understanding the technology and adopting it to the environment and circumstances in which technology is going to operate. I believe that the donor-supported, NGO-led, small-scale pilot project approach provides an opportunity to engage in qualitative case studies on ICT initiatives to inform

ICT policy and practice for the realization of the goal of creating a knowledge-based society. As Adams (2003) points out, there is need to constantly research the increasing role of ICT in education, ongoing initiatives, progress made, and the dilemmas and challenges.

De Roy (1997) argues that ICTs play an important role in a variety of sectors including education. He believes that ICTs will transform education in Africa by increasing access to information. His argument seems to resonate well with the thinking of the government of Uganda, which envisions a Uganda "where national development, especially human development and good governance shall be sustainably enhanced, promoted and accelerated by efficient application and use of ICT, including timely access to information" (Ministry of Works Housing and Communication, 2003, p. 32). I have some concerns over De Roy's argument and the thinking behind the ICT policy in Uganda.

To begin with, the emphasis in the ICT policy and ICT initiatives taking place in schools, universities and colleges in Uganda, seem to be on equipping participants with the basic skills (e.g., typing documents and sending mails,) of only accessing information from the Internet. This has the tendency of training participants to be consumers of global knowledge instead of being producers of knowledge. I therefore think that the transformative potential of ICTs may not be realized if the sole purpose of their adoption in education is to turn people into consumers of global knowledge instead of empowering them to be producers of knowledge to confront local and global challenges. I believe the best way to generate wealth is through knowledge production and not knowledge consumption, as some scholars would like us to believe. Again, I need to point out that I

am not necessarily against people having access to information. In fact, I recognize the importance of having access to information. However, my point is that we must go beyond acquiring information and become producers of information as well. ICTs must help people to discover their creative potential and exploit it to the fullest. One of the concerns with the current system of education in Uganda is that it stifles creativity and critical thinking and it produces job seekers instead of job creators. ICTs should help us to transform this kind of scenario instead of perpetuating it.

Secondly, the ICT and digital literacy initiatives seem to be rooted in what Street (1984) calls the autonomous model. The autonomous model presents the issue of literacy simply as a technical one where people only need to be taught how to decode letters and then after that, they can do whatever they like with their newly acquired literacy. It presupposes that literacy is a neutral and universal skill that can be applied in any context or situation to achieve the same results. Yet we know from the ideological model, which Street (1984) proposes as an alternative to the autonomous model, that literacy is a social practice and not just a technical, transferable and neutral skill. It is always embedded in socially constructed epistemological principles. It comes with its own ideological baggage. The way in which people address literacy is rooted in conceptions of knowledge and power. We also know that literacy is always contested both in its meaning and practices and that particular versions of it are always ideological and rooted in a particular worldview as well as a desire for that view to dominate. The primacy ascribed to reading and writing skills in formal education at the expense of other modes of communication is a case in point. It has worked to the disadvantage of children in non-

Western societies with oral traditions especially in Africa. Digital literacy should avoid taking the same path.

It is therefore reasonable to conclude that the current ICT and digital literacy initiatives, in Uganda broadly and in education specifically, tend to perpetuate dependence and not promote social transformation as they only aim at equipping participants with basic skills to access information from the Internet. This is reminiscent of Bowers' (2000) argument that the subjective, de-centered attitudes hailed by computer enthusiasts as personally liberating could in reality be culturally and environmentally destructive because they promote moral relativism, a disregard for local knowledge and anthropocentricism. While I do not necessarily agree with everything Bowers says, I tend to share his concerns for cultural sensitivity and respect for local knowledge as we seek to adopt modern technologies to improve teaching and learning. I strongly believe that while it is good for our people to have access to global information, it is better if in addition to having access to the information, they too can also become producers of knowledge and creators of wealth. It is for this reason that I would strongly recommend a review of the ideological orientation of our ICT policy and curriculum if our local communities are to benefit from technological advancement and survive the onslaught from globalization.

4.8 Summary

In this chapter, I have examined the relationship between ICT policy and educational practice in Uganda. Based on evidence drawn from analysis of relevant policy documents, a key informant interview with the ICT minister, and my reflections as a Ugandan scholar who grew up to witness some of the changes in the information and

communication sector in the country, I conclude that much has been done to integrate ICT into education in Uganda. These efforts include the enactment of laws and policies, the establishment of ICT Ministry, as well as the introduction of ICT training programs in schools and colleges. However, I have noted that the private sector-driven NGO-led donor-sponsored small-scale pilot project approach while good for purposes of experimentation and research should not become a substitute for long-term direct public investment in ICT infrastructure.

I have also argued that the ICT policies and programs have put more emphasis on equipping participants with skills to access information at the expense of enhancing people's abilities to produce information as a basis for knowledge production and wealth creation. In the next chapter, I will examine the extent to which teacher educators at Bondo PTC use ICT in their professional practice and the challenges they face in developing digital literacy.

CHAPTER 5

ICT USE AND CHALLENGES TEACHER EDUCATORS FACE

5.1 Introduction

In this chapter, I will examine the extent to which the teacher educators use ICT in their professional practice. I will also consider the challenges the teacher educators face in developing digital literacy, with a view to investigation how modern technologies (e.g., e-Granary) can best be incorporated in language teacher education in the context of Uganda. I begin by considering how the teacher educators have responded to the introduction of ICT training programs in PTCs, to contextualize the investment in using ICT in their professional practice. I then examine if the teacher educators have access to the Internet to gauge the extent to which they use ICT for professional reasons. I will also analyze the teacher educators' own responses on their assessment of the extent to which they use ICT for professional reasons. I draw on data collected through questionnaires, focus group discussions, interviews, online discussions and journal entries. I conclude the chapter with a discussion on key issues identified in the analysis.

5.1.1 Teacher Educators' Response to ICT Initiatives in the Colleges

It is believed that if people have positive attitudes to something they are bound to make good use of it, and if they have negative attitudes they are not likely to make good use of it. Thus determining how the teacher educators responded to the introduction of ICT programs was crucial in determining the extent to which the teacher educators used ICT in their professional practice. To achieve this, I looked into the participants' ICT background. Using questionnaires, the teacher educators were asked to state whether they had received any formal training in ICT. Through their responses, I learnt that five of the

six participants had received some formal training in ICT and only one of them had never received any formal training. Asked how he then came to have some basic knowledge and skills in ICT, the teacher educator reported that he learnt to use the computer and the Internet when he took his work to be typed at private ICT firms. He said the secretaries who used to type his work showed him how to type on the computer. He also said that he benefited from friends who showed him how to use the computer and the Internet at the Internet cafés in his hometown. The following was his exact response when asked if and how he had received any formal training: "No, just personal initiative. I usually found a friend who guides me from time to time and when need arises. He is the Internet service provider" (Reflective journal, 01.12.2008). We can therefore say that he learnt to use computers and the Internet through personal initiative and peer support.

In order to have a better sense of the kind of training they received, I asked the participants to provide examples of the ICT trainings they had received, hoping that this would give an idea of their interest in ICT for professional practice. Two participants reported that they did introductory computer courses. Three of them reported that they received training under Connect-Ed, which is a three-month training program for teacher educators and students at PTCs (see Chapter 4). Four participants reported that in addition to the Connect-Ed training, they also took ICT as a course unit during their Masters Degree Programs at Makerere University. Two said they attended the Harvard Education online course. One of them went even further and did some training in the SPSS (Statistical Package for the Social Sciences) program.

From the data above one can realize that the teacher educators' response towards ICT initiatives to incorporate ICT in their professional practice has been positive right

from the beginning. They have not only enrolled in ICT training programs designed for them as teacher educators but they have also taken advantage of other ICT training programs going on at universities and other institutions of learning. Even more interesting to note was the fact that the teacher educator who missed the regular training organized for teacher educators was prepared to take personal initiative to train himself in ICT with the support of friends and people around him. There is an indication that the ICT initiatives have received favorable response among teacher educators in Uganda. My findings are consistent with the findings of the assessment study on ICT initiatives in PTCs which found that the computer labs at PTCs seem to have a positive impact in terms of awareness of ICT, and that a significant percentage of teacher educators in PTCs with labs had received formal ICT training (Fillip, 2006). However, my findings are at odds with Fillip's conclusion that the initiatives are necessarily having a positive impact in terms of their potential in teaching and learning, as I will elaborate later in this chapter, for the moment I would like to highlight the extent to which the teacher educators have access to the Internet.

5.1.2 ICT Access Time

In order to understand the extent to which the teacher educators use ICT in their professional practice, I found it imperative to look at the amount of time in which they had access to the Internet. Using Questionnaire 1, participants were asked whether they had regular (daily/weekly) access to the Internet. None of them indicated that they had daily access to the Internet. Five of them reported they had at least some weekly or near weekly access to the Internet. One participant said she had access to the Internet only once every two weeks.

From their responses, one could notice that the teacher educators seemed not to have regular access to the Internet. To further understand the extent to which the teacher educators had access to the Internet, it was important to look into the points of access, thus, participants were asked to state where they accessed Internet from, whether at home, or work or in the community at Internet cafés or friends' offices. Their responses were quite revealing. None reported that they accessed Internet at home. All six of them responded that they accessed the Internet at work. Four of them said they accessed the Internet in the community, which I took to mean in the Internet cafés since they were apparently the only points where one can freely go if they needed Internet services at their own cost.

I was also curious to find out the number of hours the teacher educators accessed the Internet in a week, in order to have a sense of the amount of time they invested in using the Internet. Thus, they were asked to state how many hours they accessed the Internet in a week at work. Their responses were 20 min, 1.5 hrs, 2 hrs, 1.5 hrs, and 1.5 hrs, which came to a total of about 7 hours. It means the average number of hours each participant spent in a whole week was only 1 hour. Assuming that a participant wanted to have some access to the Internet each day of work it means they would have access to the Internet for a maximum of 12 minutes only each day! Given the very low speed of the Internet in most of the access points in Uganda, where it sometimes takes up to thirty minutes to open a page, it is not far fetched to conclude that the teacher educators have extremely limited access to the Internet generally. This information is very important to bear in mind because it provides us with the context for determining the extent to which the teacher educators use the Internet in their professional practice under the

circumstances. As Streets (2001) asserts literacy is a social practice, as such in order to understand a given literacy event we have to put it in the broader context of their literacy practices.

5.2 Reasons for ICT Use

In order to determine the extent to which the teacher educators use the Internet in their professional practice at Bondo PTC, it was also important to look at the reasons for which the teacher educators used the Internet. This meant looking at the teacher educators' ICT uses and practices in totality. The findings on the teacher educator's use of ICT can be divided under two subheadings namely Internet use for personal reasons and Internet use for professional reasons as presented below.

5.2.1 Personal Reasons for ICT Use

According to some of the New Literacy scholars like Heath (1983) and Street (2001), literacy events and literacy practices are inextricably linked. They argue that literacy events and practices are best understood in the broader context when placed in the broader socio-cultural setting in which they take place. Prinsloo (2005) also argues that literacies are best studied as placed resources. In view of this assertion, this study tried to explore the participants' non-professional use of the Internet in order to have a sense of their digital literacy practices outside the classroom to take care of the broader context Heath, Prinsloo, Street advocate. Through questionnaires, participants were asked if they use the Internet for personal reasons. They all answered in the affirmative. When asked to give examples of the personal reasons for which they use the Internet, six of them reported that they used the Internet for sending and receiving mails, while three of them said they used the Internet for getting news updates. One participant said she used

the Internet for receiving health related information and one reported that she used the Internet for entertainment (music). Below is a table showing how participants responded:

Table 5.1 Participants' reasons for personal ICT use

Reasons for using the Internet	**Number of participants who reported (6)**
To receive and send mails	6 reported in the affirmative
To read news	3 reported in the affirmative
To listen to music	1 reported in the affirmative
To access health related information	1 reported in the affirmative

High on the list of Internet use for personal reasons was email communication. Participants reported that they used the ICT to send and receive mail from relatives, friends and colleagues locally and internationally. All the six respondents acknowledged that they communicated via email. Their preference for using email compared to other forms of communication like the ordinary postal mails and telephone was attributed to it being fast, quite cheap and convenient.

Second on the list of ICT use for personal reasons was reading news, with five out of six respondents reporting that they used the Internet for this purpose. This was not surprising considering the fact that by Ugandans standards, many people find the cost of a newspaper at Sh.1.200 (US$ 0.66) rather expensive. Where they have free access to the Internet, they will therefore prefer to read, especially the local newspapers, online.

One participant reported that she used the Internet to access information on health. There is a historical reason as to why some one would be interested in using the modern technology in search of information on health in Ugandan context. In order to

win the struggle against HIV/AIDS, Uganda adopted the use of both modern and indigenous technology to sensitize its population against the disease. For example, music, dance, drama, radios, television, poster, billboards and the Internet were used to pass on information on the dangers of HIV/AIDS. Through this approach, Uganda was able to reduce the HIV/AIDS infection rates from about 40% in the 1980s down to 6% in 2000s. Since then, both the electronic and print media have been used to avail information to the public on different kinds of sicknesses. People with access to the Internet tend to find it convenient to look for information on health from the net. It was therefore not surprising to find that some of the participants reported that they used the Internet to look for health related information. In fact, the Ministry of Health uses the Internet for health awareness campaigns on different health problems these days. The participants' responses seem to highlight their readiness to use the Internet to look for information that is of relevance to their immediate and personal need. This could imply that one way of achieving the integration of ICTs for professional reason is to promote their use for personal reason. If people can use ICTs for their personal reasons, they become invested in engaging them for other reasons, including professional reasons.

Other reasons for personal Internet use reported by participants reported included entertainment such as music and sports. Whenever I visit the Internet cafés in the city, it is very common to see people with headphones listening to music or reading sports news. It would appear there is a widespread interest among Ugandans to rely on the Internet for entertainment. It is therefore not surprising that the teacher educators also find it preferable to use the Internet for their own entertainment. It remains to be seen how this interest can be converted for educational purposes.

From the responses of the participants, it can be deduced that participants' preference to use the Internet is linked to consideration of cost, relevance and convenience. For example, where they have free access to the Internet, they will prefer to read newspapers on line. This indicates that free access is important in motivating teacher educators to use the Internet. They also go to the Internet to look for information, which is relevant to their real needs whether that need is related to health or entertainment. Understanding the digital literacy practices of teacher educators in their real life experiences is essential. ICT initiatives should build on that initiative, investment and knowledge base in order to help the programs to succeed.

The participants' responses roughly correspond to the list of most popular Internet activities worldwide (Most Popular Internet Activities, 2008). According to the list, 92% of those who access the Internet ranked sending and receiving emails as their most common activity. Other activities among the top ten out of 68 most common activities are: using a search engine to find information, searching for a map or driving direction, looking for information on a hobby or interest, researching a product or service before buying, checking the weather, looking for health/medical information, getting travel information, getting news and buying a product (Fillip, 2006).

The data reveals that the infusion of ICT use into the private lives of the teacher educators is still limited. However, there is reason to believe that, as ICT infrastructure continues to grow and people's access to the Internet increases, the range of activities in which people engage online will also increase, as has been the case elsewhere. This is evidenced by the similarity between the pattern of participants' use of Internet and the global trend as highlighted above. The more exposure they have to the Internet in their

daily lives outside the classroom, the more ICT skills the teacher educators will develop, which they can transfer into their professional practice.

The question that needs to be asked is to what extent the ICT training programs build on these non-formal digital literacy practices among participants to consolidate the programs. ICT training programs need not only prepare participants for ICT applications in the classroom, but they need also to prepare participants to use ICT in their daily lives. This will enable their ICT practices in the professional practice and in daily living complement one another to make the training more meaningful and exciting for the participants to embrace.

5.2.2 Professional Reasons for ICT Use

In addition to investigating participants' use of the Internet for personal reasons, the study focused on examining participant's use of the Internet for professional reasons, which was one of the central issues in my study. When asked whether they use the Internet for professional reasons, all the six participants answered "Yes". However, when asked to state the number of hours they used the Internet for professional reasons, some participants were reluctant to provide a response on the number of hours they used the Internet for professional reason. I could not therefore determine the average number of hours each person spent on the Internet for professional reasons. Nevertheless, when I brought it up in our conversation later, they said they spent almost similar amount of time as for personal reasons, which as we have seen is insufficient for a serious engagement.

In addition to using contextual parameters (participants' response to ICT programs and the amount of time for accessing the Internet) as a lens to ascertain the extent to which the teacher educators use ICT in their professional practice, I asked the

teacher educators to directly state the extent to which they use ICT in their professional practice. Using Questionnaire 1 and journal reflections, the teacher educators were asked to draw from their personal experiences and describe if and for what professional reasons they use ICT. From the information gathered, I learnt that most of the teacher educators used the Internet mainly for preparing their own lecture notes. There were very few exceptions when they reported engaging students directly in using ICT to learn. Most often students rely on the information from the teacher educators.

Interestingly, when asked to give examples of the professional reasons for which participants used the Internet, the list was longer than the one for personal reasons. This further confirms my suspicion that the ICT training programs seem to have a narrow focus of equipping participants with academic skills only. They do not seem to realize the need to equip participants with ICT applications outside the classroom, which could increase their investment in ICT. Nevertheless, the professional reasons, which the participants gave for their use of ICT, especially the Internet, as put in their own words were as follows:

- To find resources for reinforcing or enriching my presentations.
- To create resources (notes and questions).
- To update my website.
- To compare my teaching notes.
- To add more information in my notes.
- To know more about other fields of study.
- To get supplementary information for teaching students.
- For doing research work.

- Setting examinations.
- Finding information for research.
- Search for information before workshop.
- Print out notes for use in the class.
- Carrying out reflective practice.
- Beef up action research.
- When organizing continuous professional development for teachers (beefing up topics).
- Searching for new methods of teaching.
- For putting in place a professional development portfolio.
- Search for more information on certain topics for research/studying and teaching.
- Supplementing on my notes.

A close look at the raw data above reveals that the range of activities for participants' use of the Internet for professional reason reflects a strong influence from the current system of education in the country, which ICT was expected to transform. The education system in Uganda is known for being elitist, highly theoretical, teacher-centered, and examination-oriented (Government White Paper, 1992; Ssekamwa, 2000). If ICTs continue to be used to promote the same practices that have characterized the system of education in Uganda for many years, it is highly unlikely that they will bring about the desired changes. Instead, they will only help to perpetuate the status quo and their transformative potential may not be realized.

ICT programs could take a lesson from the indigenous African education, which was generally practical and productive to the learner and their immediate community. Indigenous education ensured that every citizen in the tribe or clan was taught the basic knowledge and the basic technical practical skills (Ssekamwa, 1997). Both the knowledge and the practical skills helped the learner to be useful to himself or herself, his/her family, and the rest of the society. Under indigenous African education, children learned while they were readily applying the knowledge and skills learned. While learning, they were also producing useful materials and services for the homes and the rest of the society. They did not wait until they left school to start producing useful material and services (Ssekamwa, 1997).

ICTs training programs need to be seen yielding direct and easily realizable benefits to the trainees and the community around them so that people are motivated to invest in them for both personal and professional benefits. Digital literacy education should not simply be a transfer of mechanical skills that cannot be put to immediate application and use. The examples of the participants' use of the Internet for professional reasons can be summarized (using participants' expressions) as in the table below for a better understanding:

Table 5.1: Professional Reasons for using the ICT - aggregated

Reasons for using the Internet	No. of participants who reported (6)
To prepare teaching notes	6
To conduct action research	4
To keep a question bank	4
To keep professional development portfolio	1
To carry out reflective practice	1
To research new methods of teaching	1
To know more about other fields of study	1
To update website	1

From the table above it can be seen that participants reported a relatively wide range of Internet uses for professional reasons compared to the list for Internet use for personal reasons. High on their list of Internet use for professional reasons was supplementing or updating teaching notes. All six participants reported that they used the Internet resources to supplement or update their teaching notes. Considering the shortage of books and other reading materials in schools and colleges, their response seem reasonable. The library facilities in the colleges are inadequate and a visit to the library confirmed to us that besides the small size of the college library, there are virtually no books for students and staff to read in the library. The teacher educators have limited options other than using the Internet to get more information to update their materials to teach. Participants' use of the Internet resources for teaching is further explained by one of the participants (Hella) as follows:

> *My participation in the use of ICT has changed my attitude and ways of teaching language. I realized that I don't need to go to the library to read each day and every book related to a topic which may not even be there, but there is a simple*

and quick way of getting the 'wanted' information on the net (Hella, Journal Entry, 21.062.008).

From her response, Hella reveals her awareness of the potential the Internet has to provide her with the resources she needs to teach. She also expresses the kinds of frustrations the teacher educators face in looking for resources to facilitate their teaching. She describes the option of getting information from the Internet as simple and quick. Judging from the tone of her response one can clearly notice the enthusiasm Hella has to use the Internet for teaching. She seemed to be fascinated by the ease and speed with which one can access information from the Internet. She compares it with the bother of going to the library to look for a book, which may not even be readily available.

She also disclosed that her use of ICT has "changed" her attitude and ways of teaching language. Hella's disclosure finds support from De Roy (1997) who argues that in education, networks allow the contribution of new educational sources, such as database searching for class materials and exchanges between students and teachers in the same country or in another country. According to De Roy, these technologies already have an important educational role to play in Africa where schools and the education system are in crisis and where the level of teaching is low. De Roy strongly believes technologies are changing and challenging the ways of learning, and the acquisition of knowledge is becoming more dynamic, creative, universal, electronic and interactive.

Hella's fascination with the use of ICT in her professional practice is shared by most of her colleagues in the study. For example, Harriet had this to say on how she tries to incorporate ICT in her professional practice:

I usually search for information that is relevant to the topics I teach in language education from the Internet. I use this information to teach and give some notes to the students. Previously I used to give students some links where they could get relevant information such that they could read on their own but due to lack of Internet service at the college this is not possible now (Harriet, Questionnaire 2 20.11.2009).

Aisha also expresses a similar excitement about her attempt to use ICT in her professional practice when she says:

ICT has enhanced my work as far as teaching is concerned because before I go to teach, when I have something missing in my content, I usually visit the computer lab to do some surfing and get at least some knowledge about what am going to teach. And normally when I have prepared some work on the computer, students get access to them in their free time and do their supplementary reading (Aisha, Questionnaire 2, 20.11.2009).

Similar enthusiasm with the use of Internet to teach was also expressed by Jalia who wrote said:

I use Internet to find resources for reinforcing/enriching my presentations, to create resources (notes, questions) and update my website ...I can present a lecture using power point/overhead projector. I can upload information and refer students to it (Jalia, Journal entry 9.4.2008)

Jalia's emphasis on revealing her ability to make a presentation using Powerpoint needs to be put in proper perspective. In the Western context, it would be obvious for a teacher educator to be able to make a presentation using Powerpoint; in Uganda,

however, it is not as obvious because Powerpoint projectors are still a preserve of the lucky few working in International organizations and powerful ministry headquarters, urban churches and media organizations. Many university lecturers in Uganda, including Kyambogo University, where I work, have never touched let alone used Powerpoint to make a presentation. It is therefore a great achievement for Jalia to be able to use power point for presentations.

Being able to master the modern technology seems to enhance Jalia's self-worth and gives her the status that comes with being able to use the modern technology for professional practice. From the ability to use PowerPoint Jalia seems to have derived some transformative power, which has changed her identity from that of an ordinary teacher educator to a more versatile contemporary professional. Her choice of words and the tone of the expression itself reveal a level of happiness and satisfaction. It was not surprising that she turned up to be the most active member of the group. She regularly volunteered to take minutes during our meetings, as well as prepared the minutes and sentd them to members of the group via email. She would photocopy documents at the photocopying machine at the computer lab by herself. She was also the first participant to register for the online Google group discussions, which we had to abandon since others could not register to participate in the online discussions, as highlighted in the Chapter 3. She even managed to post articles online for discussion and eventually she became the coordinator of the group. Her colleagues relied on her for support whenever they needed assistance with modern technology.

Another popular practice among the teacher educators is using the computer and the Internet for building a 'question bank' for easy access and communicating with

student teachers via the Internet. It was interesting to note that some of the teacher educators were using computers and the Internet for, as they put it, keeping "question banks." What this means is that they used ICT to store a set of examination questions from previous years to be used for setting another examination. Over time, the teacher accumulates a stock of examination questions that she or he can rely on to set examinations with ease. This is a common practice in our education system right from the primary schools up to the universities. The entire system of education in Uganda is mainly driven by examination as mentioned earlier. It undermines the real essence of education. The tendency to use the Internet to promote the same old practice of rote learning as opposed to enhancing creativity and innovativeness is a matter of concern for me and needs to be reviewed if the transformative potential of ICT which De Roy (1997) talks about is to be fully realized. ICT curriculum and training should introduce the teacher educators to a wide range of facilitative tools, which the computer and the Internet offer to transform teaching and learning process.

5.3 Challenges Teacher Educators Face in Using ICT

The teacher educators' response to the introduction of ICT training programs and the range of activities, which the teacher educators use ICTs for personal and professional reasons were not the only lenses used to determine the extent to which the teacher educators use ICT in their professional practice. In addition to these, I looked at the challenges the teacher educators face in trying to use ICT to contextualize my findings. The evidence shows that the teacher educators face a number of challenges in trying to use ICT in their professional practice as shown in the following section.

5.3.1 Limited Access

The study found out that the teacher educators face a number of challenges in trying to use ICT in their professional practice in the context of Uganda. The most outstanding challenge all the teacher educators talked about was the problem of having limited access to ICT facilities, especially the Internet. In the first place, the only Internet access point readily available to them is the one at the computer lab in the college. Yet the lab itself has a limited capacity of accommodating only 20 people at a time. This is how Hella brought out the problem in her one of her reflections:

> *Access to resources is still a problem in the college because sometimes the computer lab is open when I have classes, then during my free time it can be locked or it is fully occupied... The computer lab is very small; it cannot accommodate the big number of students* (Hella, Reflective Journal, 21.6.2008).

5.3.2 Unreliable Internet Connectivity

Apart from the problem of size, there is also the problem of irregular Internet connectivity. For example, when we started our data collection process in April 2008, we found the Internet connection at the laboratory had been cut off due to non-payment of the connectivity fee. This affected our original plan. Instead of focusing on the documentation of the ICT practices among the teacher educators we took some time to delve into the challenges the teacher educators face in trying to use ICT. We then decided to facilitate participants with some money to be able to access Internet at the commercial Internet cafés in Kampala. However, we continued to hold regular meetings to discuss the issues as they emerged in addition to telephone and email contacts because relying on the Internet became rather frustrating for data collection.

Another participant, Harriet, echoes Hella's concerns over the problem of inadequate infrastructure. This is what she had to say about her experience:

> *Due to large classes, a significant concern revolving around infrastructural or equipment accessibility especially by students was a big challenge. Many times I gave students practical activities like building blogs but they were let down by lack of equipment and poor access* (Harriet, Reflective Journal, 02.05 2008).

As seen from the responses of the participants, the ICT infrastructure at the college is still fragile. As a result, the teacher educators have limited access to the Internet at the college. Only two of the respondents (Aisha and Hella) had personal computers but they have no Internet connectivity. We tried to support the teacher educators with some money to be able to access the Internet at the Internet cafés or elsewhere; again, some had no nearby Internet cafés to their places of residence. Even when others could drive back to the city to have access to the Internet, they would take hours to reach because of the nature of traffic jams after office hours.

5.3.3 Electricit/power Outages

There is also the problem of unreliable electricity from the national grid. There were moments when the whole city would be in a black out, without electricity for hours. As such, even if a person makes it to the Internet cafés, he or she would still not be able to access the Internet. The challenges teacher educators in Uganda face are consistent with what other scholars have observed in many parts of Africa. Drawing on Jipguep (1993), De Roy (1997) asserts:

> *What is really lacking in African and telecommunication is ...the basic network infrastructure upon which telecommunication services can be developed.*

Scientists, researchers and the general population in most African countries face and must cope with power outage, and surge, unreliable telephone circuits when available, low availability of high bandwidth and digital systems (De Roy, 1997, p. 889).

5.3.4 Inadequate Training and Lack of Hands-on Experience With ICT

After interacting with the teacher educators for months, I also came to realize that the training the teacher educators received is too basic to enable them to competently and confidently use ICT in their professional practice. To begin with, they are not given enough hands-on experience during training. As a result, they soon forget the skills they have been introduced to during training. For example when we asked participants to register for the online Google group discussions most of them found it difficult to follow the registration instructions. At one moment, as we were having some tea with Janene, the Deputy Principal at Bondo (who was also one of the participants), I asked her to explain why some teacher educators had not registered for the online discussions by the agreed date. She looked at me, started laughing, and told me in low tone "some of us lack the skills. We have not been practicing these things. We still need assistance." (Janene, June 2008). When I asked the participants to state in their reflective journals their reasons for not participating in the online discussion, Kamuli simply put his reason as "inadequate knowledge and skills on how to use the Internet services." (Kamuli, 12.06.2008). Hella made a similar disclosure when she said:

There is a weakness with ICT use due to lack of skills by both students and myself. For example the other day I opened some information on the Internet, suddenly, it

disappeared. I was puzzled. Then I realized I must have touched a key, which I could not restore. I lost the document (Hella, Journal # 2, 26.06.2008).

5.3.5 Attitudes

Related to the problem of inadequate training is also the problem of people's attitudes. In the local contexts, computers are still seen as exotic and luxurious tools for the rich. Some people feel intimidated by computers and the Internet and thus, they feel easily defeated to master computer programs. Others think computers are for young people to learn. Such an attitude does not encourage learning; instead, it stifles creativity and the ability to learn. There is a need to demystify the computer and the Internet during training. It is not enough just to plunge people into skills training without cultivating the right attitudes toward the tools. Government needs to develop a national computer training program that not only seeks to equip the citizenry with skills to access information but also to sensitize the population on the need to look at computers as tools to perform a wide range of functions in all aspects of human endeavor. People need to be taught not only the mechanics of computers and the Internet but also their psychosocial and economic aspects in order to demystify ICTs.

5.3.6 Irrelevant Material

The teacher educators also reported the problem that most of the materials they found on the Internet was not relevant to the local situation, which they find very discouraging in their efforts to use the Internet resources to teach. This is how Harriet narrated her personal experience:

One of my most challenging experiences in language teaching using ICT resources was when I needed some information about language and culture...I

got a lot of information but when I read through, I realized it wouldn't be applicable for my students...there was no way I could relate this information...I could not see the relevance. Every information I got, talked about language and culture in a different context. I therefore decided to change the heading and typed "relationship between culture and language" I got a lot of information but still it was not leading me to what I wanted. I got a bit disappointed; I had spent almost an hour on the computer, yet I was not getting exactly what I wanted. (Harriet, Reflective Journal, 15.7. 2008).

The concerns which participants expressed about the materials they got from the Internet being largely irrelevant is extremely important and it underlies the institutional weakness in the system of education in Uganda. Our universities are basically teaching universities, which means, they are not investing in research and publications as expected. Their priorities are feeding students, paying salaries and monitoring the teaching that is going on. The core function of a university—to engage in research and to generate new knowledge and ideas for national development—is given little attention in the funding of universities. It is therefore not surprising that one does not find many Ugandan voices on pertinent educational journals published on the Internet. For example, in a recent study on the best performing universities in Africa, Kyambogo University, which is the second biggest public university in Uganda with a country wide network of 12 National Teachers' Colleges and 38 Primary Teachers' Colleges, was not even featured among the best 150 universities in Africa.[9] Makerere University took a position close to 100. There is a public outcry over the declining standard of university education

[9] The ranking of the best universities was based on the number of electronic publications the university had produced in a given period of time.

in Uganda. There is a need to strengthen research capacity at the universities if the problem of lack of relevant materials is to be addressed. One would expect that the ICT policy would seek not only to promote digital literacy for the generation, and production of new knowledge in universities and institutions of learning. Unfortunately, the emphasis seems to be on accessing existing information.

5.3.7 Sociocultural Constraints

The teacher educators also faced socio-cultural constraints in trying to use ICTs in their professional practice. The socio-cultural constraints have many dimensions. As highlighted by Harriet in her reflection above, many of the resources found on the Internet come from the Western world. They are not highly appreciated in the local context due to religious and cultural reasons, among others. Moreover, some people associate the Internet with pornography, prostitution, homosexuality, and many other "social evils". The prevalence of pornographic material at the Internet cafés in the urban centers is becoming a point of concern for parents and people of faith. It has influenced people's perception about the Internet and those who go to the Internet cafés are viewed with suspicion. This discourages some professionals, especially women, from going to the Internet cafés for fear of being perceived negatively.

5.3.8 Poverty

Poverty is also a major factor. Many people cannot afford to buy personal computers because of the high incidence of poverty in the population. A teacher educator earns an average salary of $200 per month. Out of this meager salary, he or she is expected to pay school fees for the children, meet medical bills, pay for house rent and utilities, feed the family, meet transport costs and pay taxes. This leaves nothing to save

for buying a computer. As such, people have limited exposure to the computer. In fact, in Uganda it is still seen as luxury item, which teachers and teacher educators cannot afford. A teacher who manages to get a laptop will be treated with respect by the rest of his or her colleagues.

5.3.9 Gender Roles

Many of the participants, especially the women, reported that they could not easily find time to go to the Internet cafés because of the many roles and responsibilities culture obliges them to perform in their homes. In the Ugandan context, the woman takes the bulk of the responsibility of running a home. She is the first person to wake up in the morning, cleans the house, cooks breakfast if it is there, prepares the children to go to school, and takes the children to school. She buys food from the market, cooks food, serves the food, washes the utensils, ensures that the doors and windows are secure before going to bed and attends to the husband who rarely appreciates the ceaseless sacrifices she makes to make their home a better place to live in. Under such circumstances, it is likely too much to expect that a female teacher educator can find time to access the Internet after official work.

5.3.10 Lack of Time

The participants also complained of lack of time as one of the major challenges in their use of ICT in teaching. They complained that they do not find enough time to concentrate on their professional work of teaching because they are involved in a number of national development programs in areas such as HIV/AIDS and health, environment, poverty eradication, women emancipation, civic education, elections monitoring and children's rights campaigns. The problem is worse for the Centre Coordinating Tutors

who, because of their close association with the local communities, are seen as the best agents of change to be involved in all community programs.

5.3.11 Lack of Technical and Professional Support

I noticed that one of the major challenges trainees face is lack of sustainability in ICT Training programs. Once participants are introduced to ICT, there are no follow- up activities to give further support after the initial training. Consequently, participants lose interest in the program and eventually forget the skills they had acquired. In addition to that, there are no professional bodies to organize professional development events where teacher educators can have opportunities to meet and share experiences. For example, the teacher educators have never had opportunities to attend an international conference outside Uganda. The college does not have a budget even a single teacher educator in a year to attend an international conference. Most of the time they are confined to teaching and supervising students at the college most of the time with exception of perhaps those who are centre coordinating tutors.

5.4 Participants' Own Assessment of the Extent of their ICT Use

Using semi-structured questionnaires, I asked the participants to explain to me frankly the extent to which they use ICT in their professional practice. Their responses were very frank and to the point as illustrated in the followings samples:

Janene: *"To very limited extent."*

Aisha: *"To a small extent, only to get some information to add on my teaching notes which I already have."*

Harriet: *"Due to the limited time I have to access the computers, integrate ICT in my teaching to a limited extent."*

Even by their own assessment, participants concur with my findings that they use the ICT for professional reasons to a limited extend not so much because they have no interest in using ICT but because of the circumstances under which they operate. Some of the issues will be highlighted under the concluding discussions.

5.5 Incorporating the e-Granary Digital Library

The study also sought to explore the possibility of incorporating alternative modern technologies like the e-Granary to enhance teacher education and professional development. To this end, participants were introduced to the e-Granary Digital Library in a one-day workshop held at Bondo PTC. The e-Granary Digital Library is a program of the WiderNet Project, The University of Iowa service organization is dedicated to improving digital communication in developing countries. It provides access to Internet resources offline for institutions lacking adequate Internet access. It is a mass storage of over ten million resources. After the workshop, participants were asked to describe if and how the e-Granary Digital Library could best be incorporated in their teaching. Participants gave interesting insights as highlighted in a sample of their responses below:

> *The e-Granary is a very useful avenue to getting as much information as one could. The problem we have encountered is that our college (Bondo PTC) in particular is not connected to the e-Granary yet and if it could be incorporated into the teaching, students would benefit from a lot of information* (Aisha, Questionnaire 2, 20.11.2009).

Janene, who missed the e-Granary workshop, even had something to say about what she learnt from others:

I missed the workshop, had some commitments out of college, hope to study more about it. However, from the introductory briefing by Sam on e-Granary, it is a very rich toll which could be adopted in phases and the idea sold to the Board of Governors and our Ministry of ICT so that institutions of learning can benefit from it (Janene, Questionnaire 2, 20.11.2009).

Aisha and Janene's opinions on the benefit of incorporating e-Granary into their teaching is echoed by Jalia in the following expression (Jalia, Questionnaire 2, 20.11.2009):

e-Granary Digital Library is a welcome venture. It has a lot of information and detailed in most cases. Since the college is unable to provide connectivity to the lab the e-Granary will be very useful and it will motivate tutors to search for new information. When we still had connectivity tutors actively and meaningfully visited the lab and their lesson presentations were improved/enriched! I believe we shall get more information to enrich our teaching and also improve on our professional growth. Members can access information related to their research topics much easily and also encourage them to be more innovative in their areas of specialization (Jalia, questionnaire # 2, 20.11.2008).

Indeed as Jalia has pointed out the e-Granary Digital Library seems to offer some special advantages that make it ideal for the Ugandan situation. Some of the advantages include: it is easy to install; it is fast, up to 5,000 times faster than satellite connection; it can cut Internet connectivity costs by 70% or more; it looks and functions like the real Internet; users need no additional training; contents and software are updateable via a subscription to the e-Granary Digital Library Update Service. Further, it has fast and comprehensive search capabilities; it's a reliable and fast platform for building and

delivering any curriculum; above all it reminds teachers of the local concept of granary which is prevalent in all Ugandan cultures. In fact, the mere mention of the name generated a lot of excitement and set participants laughing. Some even wondered whether a Ugandan invented the program. The metaphor "e-Granary" sounded local and participants were able to identify with it very easily which made them like the program.

5.6 Discussion

According to Olsson and Edman-Stalbrant (2008), digital literacies can cover a number of dimensions, which can be useful when trying to set up programs for development of courses and educational programs. They define these dimensions as information literacy, technological literacy, media literacy, global literacy and responsibility literacy (Olsson & Edman-Stalbrant, 2008). Information literacy is described as the ability to collect, organize, evaluate information and form valid opinions on what is learned. Technological literacy is described as the ability to use technology, access new media, and the Internet and communicate information. Media literacy on the other hand is how to use new media in a creative way to produce, communicate and present content to a wider audience. Global literacy is to understand global complexity, interact, and communicate accordingly, while responsibility literacy is to consider social consequences and use, and communicate information safely with respect to privacy and other social issues (Olsson & Edman-Stalbrant, 2008).

If we use Olsson and Edman-Stalbrant's (2008) five dimensions for categorizing digital literacies as a basis to determine the extent to which the teacher educators at Bondo PTC use ICT in their professional practice, then they were right to say that they use ICT to a limited extent. Nearly all the personal and professional reasons

they gave for using ICT would probably fall under the first dimension only, that is, information literacy which deals with the ability to collect, organize, evaluate information and form valid opinions on what is learned. A legitimate question that needs to be asked is why the teacher educators are only engaging in a limited range of digital literacies despite the ICT training programs they have attended.

A theoretical explanation to this question could be found in Prinsloo's argument that despite their global impact, the New Literacies (ICTs, digital literacies) are best studied as "placed resources," situated by social practices, with local effects (Prinsloo, 2005). According to Prinsloo, the New Literacies do not have an intrinsic resourcefulness. In other words, they may not offer the same affordance when placed in different socio-cultural context, because each context has its own dynamic, which in turn affects the way the New Literacies operate at a given time. Whether they offer opportunities for particular users is something that has to be established by local research, and not assumed, in contrast with research models that start from concerns around digital divides and offer solutions along the lines of technological transfer.

Olsson and Edman-Stalbrant (2008) support Prinsloo's argument that ICTs need to be studied as placed resources. They contend that thinking, learning and production of knowledge is always embedded or situated in a context. According to Olsson and Edman-Stalbrant (2008), learning as it normally occurs is a function of the activity, context and culture in which it occurs. It means if we are to design ICT training programs, which the teacher educators in Uganda will take hold of in their professional practice, then we have to take into consideration the ICT environment in which the teacher educators operate. We need to understand their lived experiences with ICT in whatever form they may be.

We need to be aware of the basic skills they already have with ICT in their daily lives, their real areas of need for ICT, as well as the cultural sensitivities that need to be taken into consideration.

As discussed in Chapter Four above, our ICT policy and programs seem to build on what Street (2001) refers to as the autonomous model, which assumes that literacy is about transfer of a set of skills to participants, which when given will automatically cause participants to function in a particular way. This model uses a top-down approach, which assumes that the literacy instructors already know the literacy needs of the participants and all the participants can do is to receive the package already prepared for them. The danger with this approach is that it does not build on the already existing literacy practices among participants. Instead, it ignores their local knowledge and undermines their lived experiences, which in turn makes the programs alien to the trainees.

Drawing on findings from this research, the ICT initiatives should begin by exploring the specific digital literacy needs of the participants through active engagement with the participants from the very beginning. They should seek to understand the digital literacy practices participants are already engaged in, not only in their professional practice but also in their private lives, and use it as a foundation to construct relevant ICT training programs which are applicable in the local context. As the New London Group have argued, people do not learn anything well unless they are both motivated to learn and believe that they will be able to use and function with what they are learning in some way that is in their interest (The New London Group, 2000).

Besides, ICT initiatives should seek to integrate indigenous technologies, which people are not only familiar with but which have also proven to work for many years.

The problem in Africa, as Mushengyezi has rightly observed, is that African governments and their development partners often tend to extrapolate technologies from the developed world and apply them wholesale without considering the peculiarity of the local situations (Mushengyezi, 2000). His suggestion that while keeping abreast of new technologies, indigenous media forms should be made versatile and relevant through hybridization is consistent with our finding on the introduction of the e-Granary digital library to the teacher educators. The teacher educators were fascinated by the e-Granary digital library. I suspect that the metaphor "e-Granary" was culturally and technologically relevant, as it represents a concept that cuts across the entire Ugandan cultural landscape. Traditionally, a granary was the most basic structure found in every homestead in Uganda. It was a four legged gourd normally erected in the middle of the compound. It was used to store foodstuffs like millet, sorghum, maize, semis, groundnuts, and dry meat, which could last for a very long period. Women who knew how to regulate the supplies managed them. They saved people during seasons of hunger and famine. Thus, the concept of e-Granary easily struck a chord with participants. It is seen as a "locally" available knowledge and information storage, from which you can retrieve information as and when the need arises without having to be connected on the Internet. However, the full potential of the e-Granary to transform teacher education still needs to be established through further research.

Furthermore, the programs seem to be too basic to enable the teacher educators to explore the range of functions ICTs can offer to improve teaching and learning. My argument draws support from scholars like Farell (2007), who argues that teacher training needs to involve much more than the development of computer literacy skills. According

to Farell, teachers and teacher educators need to be able to design and adapt content materials to suit student needs, search and manage information, and be aware of the ethics and dangers inherent in the use of web-based resources. ICT training programs should thus empower teacher educators to feel confident to use technology to improve teaching and learning. This necessitates going beyond the basics of being able to access information from the Internet.

There are legitimate concerns regarding the kinds of materials the teacher educators find from their use of the Internet for professional practice. As echoed in their responses earlier in this chapter, there was a general feeling among the teacher educators that the web-based resources they try to obtain from the Internet are largely irrelevant for classroom application in the Ugandan situation. This takes reinforces the need to review the ideological orientation of the ICT training programs and the curriculum for these training programs. The programs must be oriented to empower participants to become producers of knowledge and not mere consumers of knowledge. Thus, the curriculum should be structured to develop participants' skills in uploading local content, to reduce overreliance on foreign materials that may not necessarily suit local needs.

Based on the foregone discussion it can be concluded that while the teacher educators are trying their best to use ICT in their professional practice, there are a number of issues that still need to be addressed before we can comfortably say that the transformative potential of ICT is being realized in teacher education in Uganda. Some of the major concerns relate to limited access to ICT facilities due to inadequate ICT infrastructure, the nature of the ICT training programs, and irrelevance of the web-based

resources. Consequently, the teacher educators use ICT in their professional practice only to a limited extent.

5.7 Summary

In this chapter, I set out to examine the digital literacy practices among the teacher educators at Bondo PTC, with a view to finding out the extent to which the teacher educators use ICT in their professional practice. To this end, I considered how the teacher educators have responded to the ICT training initiatives, Internet access time, their personal and professional reasons for ICT use, as well as the challenges they face in developing digital literacy skills. Based on the evidence drawn from questionnaires, journal reflections, online discussions, and focus group discussions, I concluded that the teacher educators at Bondo PTC use ICT to a limited extent in their professional practice. I have argued that salient reasons for the limited use of ICT among the teacher educators are rooted in the ideological orientation of the ICT policy and programs. I have also argued that the private sector-driven, donor supported, NGO-led small-scale pilot based development strategy does not guarantee sustainability in the promotion of ICT in education. I have relied on Street's notion of autonomous versus ideological model as well as Prinsloo's notion of ICTs as "placed resources" to; develop my arguments. In the next chapter, I highlight some of the main lessons, make some recommendations, and end with general conclusions and the way forward.

CHAPTER 6

LESSONS, RECOMMENDATIONS, AND CONCLUSIONS

6.1 Lessons

In view of the literature reviewed and data analyzed in the preceding chapters the following lessons can be drawn on the global discourse on digital literacy, the ICT policy environment in Uganda, the extent to which teacher educators use ICT in their professional practice and the challenges they face in trying to use ICT especially for professional purposes:

1) Teacher educators in Uganda have a positive attitude towards the introduction of ICT in the teaching and learning of language. They have responded positively to the training programs organized for teacher educators in PTCs. Others have even undertaken further ICT programs offered in the public universities at their cost. The teacher educators are eager to integrate ICT in their professional practice but their enthusiasm is being hindered by a number of factors such as lack of regular access to computer and the Internet, inadequate ICT skills, prevalence of irrelevant materials from the Internet and cultural constraints especially for women on whom society imposes many restrictions.
2) ICT and digital literacy has the potential to transform teaching and learning and improve the quality of our education. However, this potential may not be fully realized if the system of education continues to be dominated by examinations, as acknowledged by government (Republic of Uganda, 1992) as opposed to preparing students to become critical thinkers and productive citizens. The use of ICTs to store examination questions reported by some of the teacher educators is

a reflection of their understanding of what is expected of them by both the public and the system of education under which they serve. As long as the emphasis continues to be on passing examinations, the tendency will be for the teachers and teacher educators to use ICTs for preparing students to pass examinations at the expense of developing students' creative and innovative potentials.

3) Digital literacy like other forms of literacy such as reading and writing is a social practice embedded in socially constructed epistemological principles. As Street (2001) argues, literacy is about knowledge and power. Literacy is always contested both in meaning and in its practice, hence particular versions of it are always ideological and deeply rooted in a particular worldview and the desire to dominate and marginalize others. In order to avoid the possibility of domination and marginalization through the promotion of ICTs for knowledge consumption only, Uganda should seek to empower the teacher educators and its citizens more broadly to use ICT for information generation, knowledge production and wealth creation (e.g., business start up).

4) The ICT policy in Uganda tends to be uneven and lopsided since it largely seeks to enhance the promotion of digital skills of accessing knowledge and information from the Internet at the expense of developing skills to generate and produce indigenous knowledge for local use and the global community. This has the danger of reducing Uganda into an absolute consumer rather than producer of global knowledge, which will perpetuate dependence syndrome and underdevelopment.

5) The ICT intervention programs taking place in the teachers training colleges appear to be inadequate to prepare the teacher educators to function effectively and efficiently with the ICT tools. The programs are too basic to expose the trainees to the transformative potentials of ICTs. This may make it difficult for the country to realize the transformative effects of ICT in education. The inability of the teacher educators to engage in an online discussion to share ideas, views and opinions on topic issues relating to their professional practice should be a warning call to give them more support through training and opportunities to attend important professional events.

6) Common digital literacy practices among the teacher educators such as voice mail and text messaging are not being incorporated into digital literacy training programs even though these practices are quite common among the locals. Ignoring the digital literacy practices prevalent among the participants in the ICT training programs denies opportunity to draw from funds of knowledge they have accumulated over the years.

7) Current ICT training tends to perpetuate rote learning through the use of computers and the Internet for preparing lecture notes which gives students no opportunity to engage with ICT directly and take hold of the learning process. For example, most of the professional reasons the teacher educators listed for their engagement with ICTs implies that the student teachers are on the receiving end of learning and not at the centre of ICT moderated teaching and learning.

8) Culturally sensitive ICT programs tend to evoke positive response from participants. The e-Granary is a case in point. Participants overwhelmingly

embraced the e-Granary digital library because the concept of granary is not new to them. In their communities and cultures, they have experienced the use of a granary and they know how important it is for storage in an African cultural setting. Thus, the concept of e-Granary resonated well with them though further research needs to be carried out to determine the real affordances and limitations of the e-Granary Digital Library in teacher education in Uganda.

9) Most of the digital literacy programs in Uganda tend to be either donor funded or private sector led. Such programs are not sustainable in the end. Government needs to consider investing in development of infrastructure especially in rural areas where private investors may be reluctant to put their money. Ironically, most of the schools with large numbers of pupils tend to be in these rural locations.

6.2 Recommendations

In order to realize the transformative potential of modern information communication technology, the following factors should be taken into considerations:

1) There is need to review the ICT policy in order to create an environment that will facilitate not only the promotion of digital literacy skills to access information from the Internet, but that will also emphasize skills that empower participants to generate and produce knowledge and information in order to survive the competitive global environment.
2) Deliberate efforts must be made to understand and integrate local knowledge and local literacy practices into digital literacy intervention programs in education broadly and in teacher education more specifically if the goal to create a knowledge-based society is to be realized in Uganda.

3) Digital literacy training programs taking place in teacher education should be reviewed to ensure that they are not only culturally and ideologically sensitive to the local situation but that they also introduce trainees to a wider range of ICT applications to engage them in critical thinking and knowledge production.
4) Further in-depth qualitative case studies should be conducted into the ICT training in schools, universities and colleges with a view to developing some minimum requirements to streamline the quality of digital literacy education provided in schools, universities and colleges. There is need to examine the ICT training programs and curriculum as well as the actual delivery of the training programs in order to have a better sense of what really takes place in these training programs.
5) Government needs to increase its budgetary allocations in the education sector to provide for the establishment of modern computer labs and digital libraries in schools, colleges, and universities broadly and PTCs more specifically.
6) Indigenous media and communication technologies should be integrated with modern technology to make modern technologies relevant and easily adaptable to the local contexts. We should seek to have a hybrid of indigenous and modern technologies to make such technologies culturally relevant and sustainable.
7) There is also need to explore possibilities of incorporating ICT programs, such as the e-Granary, which do not rely on the Internet connectivity for access in schools and colleges. This is particularly important because the Internet infrastructure in rural schools is still thin and may continue be so for a very long time in Uganda.

8) ICT training programs must provide for reasonable hands on experience for trainees to enable them to master the skills they have attained in ICT training programs.

9) Training programs should have follow up activities to give trainees continuous support in their use of ICT in professional practice.

10) Teacher educators need to be encouraged by colleges to attend international professional events like conferences and workshop in order to establish collaborative linkages and receive mentoring from well-travelled and experienced senior colleagues. Financial resources should be available for this purpose.

6.3 Conclusion

It would be inappropriate for me to end this study without making a general conclusion and suggesting a way forward. Based on the findings of this study which I have discussed in Chapter Four, Chapter Five and Chapter Six, it can be concluded that while the introduction of ICT training programs in PTCs have been enthusiastically embraced by teacher educators, the realization of the transformative potential of ICTs for digital literacy skills development is yet to be achieved. One of the major areas of concern is the ideological orientation of the ICT policy and programs which appear to be rooted in what Street (2001) refers to as the autonomous model which presupposes that literacy is a set of skills which, when transferred to people, will automatically enable them to function in a particular way regardless of the context. This calls for more investigation into ICT programs and projects currently in operation in teacher education and those that are yet to be initiated.

Inadequate ICT infrastructure and lack of Internet connectivity in particular has also featured as a major obstacle in the in the promotion of ICT and digital literacy skills in teacher education. This necessitates exploring the possibility of introducing ICT programs like the e-Granary that can function without the need to have Internet connectivity. In my view, the best way forward is for all the stakeholders in ICT and teacher education to put research at the center of all ICT initiatives so that decisions and actions are guided by well-researched information. This will enable us to identify potential problem so that appropriate measured can be taken in time to avoid wastage of resources.

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Appendix A: Questionnaire 1

Digital Literacy and Teacher Development in East Africa

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Research assistant: Mr. Sam Andema, Kyambogo University, Kampala

PURPOSE

The purpose of this pilot study is (i) to investigate how Information and Communications Technologies (ICT) can enhance the work of teacher educators in Primary Teacher Colleges in Uganda, with particular reference to language and literacy education; (ii) to enhance and expand existing ICT strategies to improve teacher education; (iii) to develop recommendations for curriculum planners and policy-makers in Uganda and other under-resourced areas of Africa.

QUESTIONNAIRE #1 (PROJECT INTRODUCTION)

1. NAME: _____
2. AGE: _____
3. SEX: _____
4. PRIMARY TEACHER COLLEGE: _____
5. EDUCATION: (please provide a summary of when and where you have received your educational training)

_____

_____

_____

_____

_____

6. ICT TRAINING (Please explain if and how you have received formal ICT training e.g., Harvard Education ICT course, Connect-Ed, etc.):

_____

_____

_____

_____

_____

_____

7. OTHER PROFESSIONAL DEVELOPMENT (e.g., participation in curriculum development workshops, use of mother tongue language in the classroom):

_____

_____

_____

_____

_____

8. DO YOU HAVE REGULAR (WEEKLY/DAILY) ACCESS TO THE INTERNET?

YES NO (Circle response)

WHERE?

AT HOME (e.g., personal computer)?

YES NO (Circle response) NUMBER OF HOURS PER WEEK? _____

AT WORK (office or computer lab)?

YES NO (Circle response) NUMBER OF HOURS PER WEEK? _____

IN THE COMMUNITY (e.g., cybercafes)?

YES NO (Circle response) NUMBER OF HOURS PER WEEK? _____

9. DO YOU USE THE INTERNET FOR PERSONAL REASONS?

YES NO (Circle response) NUMBER OF HOURS PER WEEK? _____

PLEASE PROVIDE A LIST OF EXAMPLES OF HOW YOU USE THE INTERNET FOR PERSONAL REASONS (e.g., to access medical information, plan trips, banking, entertainment):

10. DO YOU USE THE INTERNET FOR PROFESSIONAL REASONS?

YES NO (Circle response)

NUMBER OF HOURS PER DAY? __NUMBER OF HOURS PER WEEK? ___

PLEASE PROVIDE A LIST OF EXAMPLES OF HOW YOU USE THE INTERNET FOR PROFESSIONAL REASONS (e.g., to find resources to integrate into your teacher education classes, to create resources for your teacher education classes):

11. TO WHAT EXTENT ARE YOU ABLE TO INTEGRATE ICT RESOURCES INTO YOUR TEACHER EDUCATION CLASSES IN LANGUAGE EDUCATION?

PLEASE PROVIDE EXAMPLES:

12. DO YOU HAVE ANY OTHER COMMENTS/QUESTIONS FOR THE RESEARCHERS?

THANK YOU VERY MUCH FOR TAKING THE TIME TO RESPOND TO THIS QUESTIONNAIRE. WE WILL FOLLOW UP WITH INDIVIDUAL INTERVIEWS AND FOCUS GROUPS, WHICH WILL ALLOW YOU TO SHARE YOUR RESPONSES WITH THE RESEARCHERS AND YOUR COLLEAGUES IN MORE DETAIL.

Appendix B: Questionnaire 2

Digital Literacy and Teacher Development in East Africa
EXIT Questionnaire

NAME:_____
DATE:_____

Dear Colleague,

We would like to thank you most sincerely for participating in our project on digital literacy and teacher development in East Africa. Your contributions have been very valuable in helping us understand the possibilities and challenges of using Information and Communication Technology (ICT) to promote more effective teaching and learning in Uganda.

In this final questionnaire, we would like to better understand the information we have accumulated thus far. We would also appreciate your comments on the project as a whole, your assessment of the possibilities of e-Granary as an educational resource, and your recommendations to the new Minister of ICT in Uganda, Dr. Ham-Mukasa Mulira. The questionnaire is therefore divided into **five sections** as indicated. Your responses are greatly appreciated.

SECTION I: Clarification of ICT access and use

We have learnt from the first questionnaire and other sources that limited access to the Internet, lack of skills, irrelevant material, and time constraints are major hindrances in your attempts to use ICT to in your teaching. In this section, we would like to ascertain the magnitude of these challenges and seek your views on how the challenges can be addressed. We therefore ask you to answer the following questions as fully as possible.

1.How far is the nearest Internet access from your place of work other than the college computer lab? _____Meters/Km

2. How far is the nearest Internet access from your place of residence? _____Meters/Km

3. Please indicate your average expenditure on Internet use in a period of one month.

(A) Sh. 10.000 **(B)** Sh. 20.000 **(C)** Sh. 30.000 **(D)** Sh. 40.000 **(E)** Sh. 50.000 **(F)** Over Sh. 50.000

4. How many times on average do you access the Internet in a month?
(A) Less than 5 times. **(B)** 5 to 10 times **(D)** Over 10 times.

5. How many times on average do you access the Internet in one week?
(A) Once. **(B)** Twice **(C)** Three times. **(D)** Four times **(E)** Five times **(F)** Six times & over

6. When you do access the Internet, how much time, on average, do you spend on the Internet? **(A)** 10 to 30 Minutes. **(B)** 30 to 60 Minutes. **(C)** 60 to 90 Min. **(D)** 90 Min. and above

7. How frequently do you use ICT material to teach in a period of one term on average?
(A) 0 to 3 times **(B)** 4 to 5 times **(C)** 6 to 7 times **(D)** 8 to 10 times **(E)** Above 10 times

8. We would also like to better understand the influence that your use of ICT may be having in your circle of friends, relatives, and colleagues. Does any one usually accompany you when you go to an Internet café? If so, please indicate who that person is, and explain the nature of your interaction in the Internet café.

---

9. Many of you reported that one of the challenges you face in trying to use the Internet is that the materials you download from the Internet are often irrelevant to the local situation. In the space below, could you please describe how you are trying to address this challenge?

SECTION II: Research question 1

In this section, and the next two sections, we wish to address the three research questions we have identified as part of our pilot study. We would greatly appreciate your response to each of the questions.

The first question in our pilot study was as follows: *How can ICT enhance the work of teacher educators in primary teacher colleges in Uganda, with particular reference to language and literacy education?* Drawing on discussions over the last six months, as well as your personal experience, please describe if and how ICT has made a difference to your teaching at Kibuli PTC? How might you incorporate ICT in your teaching in the future?

SECTION III: Research question 2

Our second research question seeks to investigate which ICT strategies can improve teacher education. In this regard, we are very interested in your response the e-Granary workshop. In particular, could you please describe if and how e-Granary can be incorporated into your teaching at Kibuli PTC.

SECTION IV: Research question 3

Our final goal in the study is to develop recommendations on ICT use for curriculum planners and policy-makers in Uganda. We have interviewed the new Minister of ICT, Dr. Ham-Mukasa Mulira, and have promised to share the findings of our research with him. After reading the attached Ugandan ICT policy document, and with reference to your experience with the use of ICT in your teaching, what recommendations would you like to bring to the attention of Dr. Ham-Mukasa Mulira? Please provide as much detail as possible, incorporating examples to strengthen your recommendations. Your recommendations will be incorporated into the report we forward to the Ministry next year.

SECTION V: Concluding comments

Is there any thing else you would like bring to the attention of the researchers? If so, please use the space below.

Thank you again for your generous participation in our research.

Sam Andema, Margaret Early, Maureen Kendrick, and Bonny Norton

Department of Language and Literacy Education, University of British Columbia,

Appendix C: Ethics Certificate

The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - FULL BOARD

PRINCIPAL INVESTIGATOR:	INSTITUTION / DEPARTMENT:	UBC BREB NUMBER:
Maureen Kendrick	UBC/Education/Language and Literacy Education	H07-01895

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

Institution	Site
N/A	N/A

Other locations where the research will be conducted:
Univeristy classrooms (Teacher Education Programme, Kyambogo University in Kampala, Mukumu Primary Teachers' College in Tororo, Uganda, Gulu Primary Teachers' College, Gulu, Uganda) Primary and secondary school classrooms associated with the Kyambogo, Mukumu, and Gulu Teacher Education Programmes

CO-INVESTIGATOR(S):
Alexandra Abraham
Samuel Andema
Lauryn M. Oates

SPONSORING AGENCIES:
UBC Hampton Research Endowment Fund

PROJECT TITLE:
Digital Literacy and Teacher Development in East Africa

REB MEETING DATE:	CERTIFICATE EXPIRY DATE:
November 8, 2007	November 8, 2008

DOCUMENTS INCLUDED IN THIS APPROVAL: — **DATE APPROVED:** December 7, 2007

Document Name	Version	Date
Consent Forms:		
DL Teacher Consent	3	December 5, 2007
DL Teacher Educ Consent	3	December 5, 2007

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:

Dr. M. Judith Lynam, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair