E-Granary, Digital Literacy, and the Identities of Ugandan Students

by

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Abstract

The e-Granary Digital Library, commonly described as "Internet in a box", is an external hard drive designed for users in poorly resourced communities. "Storing the seeds of knowledge", the digital library contains vast information resources and can be navigated without Internet connectivity. This qualitative case study, which was conducted from September to December 2008 at the Kyato Community Library in the Ganda District of Uganda, used data collected from questionnaires, observations and interviews to address the following research questions: (i) What are students' investments in e-Granary and computer technology and how does the development of digital literacy impact student identity? (ii) To what extent do students' e-Granary digital literacy practices illuminate communalism within African indigenous knowledge? The analysis of my findings is informed by theories of identity (Norton, 2000) as well as discussions of indigeneity in the African context (Kanu, 2006; Dei, 1994, 2002). To address the research questions, the researcher drew on data collected from a group of six secondary school students to identify common themes related to identity, imagined communities, and communalism. The study found that the students were highly invested in ICT and expanded their range of real and imagined identities in relation to their digital literacy practices as they evolved from tutees to information finders and peer tutors. It also found that their digital literacy illuminated practices of communalism in their social setting in terms of knowledge sharing and working together for the betterment of the community. However, the study revealed that challenges in introducing ICT to a rural Ugandan community remain in effect. These include limited and faulty equipment, limited solar power, and inadequate human resources to assist in training and development. The study concludes with a recommendation for more qualitative case studies that will further investigate the home and community digital literacy practices of students, including the usage of cell phones and CDs.

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And finally, to Dan Ahimbisibwe: Yes we can, dear friend. Yes, we most certainly can.

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[1] Names of places and research participants have been replaced by pseudonyms in this thesis to protect the privacy of the individuals involved in this study.

Dedication

To my Mommy, who wondered if she'd ever live to see me graduate from Kindergarten. This is for you and Dad.

Chapter One: Introduction to the Study

Middle of the day, rain hitting the tin roof like bullets rocketing down from the sky. The rain intensifies, starts to sound louder, windier, like a tropical storm from the deck of a ship far out at sea. Swimming pools, fire hoses, deluxe power car washes, rushing down from the sky. It's rainy season in Uganda.

Our work has been postponed for now. Two days of steady rain has meant no solar power. No solar power means no computers, which means a pause in the research. Instead, I'll sit in the library, in the soft armchair, and read, and write with pen and paper until the rain stops. I look around and notice the cakes of mud that fall from students' shoes; dry legs; cysts that could easily be removed if there were money for such things; muddy finger smears and handprints on the once-white walls; torn school sweaters; button-up, white school shirts with missing buttons revealing bare bellies. Thin white shirts, allowing the outlines of scoopy undershirts, some with neon borders, to show through. Teachers reading newspapers, teenagers reading stories. In the corner by the solar meter, stacks of yellowing newspapers to be archived, piled atop chairs and bundled with fraying rope. No crowds today, no swarms of teenage boys pushing to sign up for the first computer most of them have had the opportunity to use. And in the armchair, a blue-eyed ghost with wet hair, dressed in jeans, Reebok sandals, and a turquoise jacket with rust-coloured water stains on the cuffs.

I think about this scene, look through the newspaper headlines on the table in front of me, and think about how everything…every. little. thing. is different from home[2]…

"You're going *where*!?" Uganda. "Like…Africa? *Why*!" For my master's research mostly, but for other reasons too. "For how long?!" Three months. "Are you crazy!?" There were words of encouragement in support of my decision to conduct research in Uganda, but many pre-departure comments and questions were quizzical and suggestive of great Western misconceptions about Africa as a whole. No, I would not be eaten by lions, nor would going without electricity, running water and a Starbucks be the end of the world as I knew it. Before my departure I researched my destination as much as possible and learned a great deal about the uninformed and problematic assumptions about Africa that are so often made in the West. This journey would not be a "mission" or a "reach for your wallet and a box of tissues" (Wright, 2007) experience.

 I went to Uganda for several reasons, both professional and personal. For the latter, I went to satisfy my curiosity and to relieve a pair of itchy feet. I also did it for the challenge. I went to escape – from routine and from stress, and to trade it all in for peace and solitude. I went to volunteer as a teacher, to attempt to respond to challenges in education, and to potentially make a difference, however great or small. I went to conduct research, to contribute to academia, and to finish my master's in a way that was meaningful to me. I went to learn while I had the opportunity; about Uganda, its cultures, communities, education systems, and life as lived in the Pearl of Africa.

Admittedly, despite my pre-departure research, I boarded the plane to Entebbe with a certain amount of naïveté, nervousness, and innocence. The exaggerated and one-

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[2] All italicized passages are excerpts from the personal journal I kept during my stay in Uganda

sided information and images I had seen in the media about Africa throughout my life conflicted greatly with what I had been researching and learning through an academic lens - images of hopelessness, destitution and poverty were contrasted against discussions of realities, academic literature on local educational practices, and concepts of African indigenous knowledge. I didn't know exactly what I should expect upon my arrival in the country. What would Kampala be like? A booming metropolis? A crowded, modern city? What about the village? What would it look like? What would it smell like, what sounds would I hear, who would my neighbours be?

Although I certainly experienced some difficulty adjusting to my new environment and felt culture shock on levels that I've yet to fully understand, I found my peace; I found my solitude. I learned to appreciate. Everything. I learned about simplicity and struggle and about the smaller details that so often get lost in a world where faith in humanity seems to be universally dwindling. Almost daily, a child would run away with my heart: precious, glowing faces and spirits I fell in love with instantly. We sang songs together and traded English for Luganda. They made me smile and laugh until my cheeks hurt. And that's what it's all about. Having worked as much as possible in those three months, I left the continent feeling *happy*.

"So, how was it?" It was a lot of things. "Sum it up in a few words". Beautiful, tragic, challenging, difficult, positive, amazing.

During my stay in the village, I was not only a volunteer teacher, but a researcher, and had to properly position myself as one, a process I will discuss further in the section on researcher positioning in Chapter Three. Because of this additional role, I felt a heightened sense of responsibility to react delicately to my culture shock. Village

life presented me with the unexpected and I found myself constantly negotiating my own identity in terms of what I was experiencing. Being a white person in rural Uganda, for example, involves a unique set of challenges. I became extremely aware of my "whiteness", of where I came from, of how I grew up, and the opportunities I've had. The students had many questions about life in Canada. I explained through stories and pictures, eliciting smiles, giggles, surprise, and thanks for lessons a textbook might not teach. At times I felt self-conscious about the colour of my skin, what it implied and the attention it received. "*Mzungu[3], mzungu!*" There was never a chance of going through a day without hearing that word shouted from across the road or from the depths of a banana plantation; never a day that I went unnoticed, "unstared" at, incognito, despite my attempts at invisibility; never a day that I didn't feel sorely out of place. But attention and all, I was always welcome and well cared for in the community.

At supper tonight, Dan tried to put the whole mzungu *phenomenon in perspective for us. He explained it like this: there are people here who have never left the village, not even to travel the 5km distance to Ganda Town. They're happy that way. They don't tend to see "outsiders", so they're curious. Often, when local children ask about the origins of everyday objects such as forks, cars, pots, etc., parents sometimes (apparently) tell their children "it was made by* mzungus*": people who travel in the sky, and are generally very powerful in the world. "Be patient" says Dan, because slowly but surely, we're breaking barriers…*

The change from teaching in Canada to teaching in Uganda was more of a leap than a transition. I mentally prepared myself months in advance for a school with extremely limited resources. In Uganda there would be no photocopier and therefore no

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[3] White-skinned person

handouts and worksheets. There would be no textbooks, no projectors, no demonstrative Power Point presentations, or YouTube videos to illustrate lessons. Resources were limited indeed: one old laptop, painfully slow, and one e-Granary sent from *mzungus* in the United States of America. Few textbooks, at least ones that were relevant and contextually meaningful to students in Uganda, were available. The few good ones were protected under lock, key and sign-out book in the community library on school property. There were approximately sixty students to a class, each filled to capacity. Classrooms were equipped with old blackboards, worn and used to the point where almost all writing was illegible. Hiding on the floor and inside desks were stubs of chalk and chunks of sponge to erase the writing.

My role as computer teacher in a small village posed a series of challenges but there were also overwhelming moments of glory and empowerment related to the participants' learning, which will be discussed in later chapters.

"What's your research about, anyway?"

The research conducted for this master's thesis is part of an ongoing research project led by Dr. Bonny Norton, Dr. Maureen Kendrick and Dr. Margaret Early of the University of British Columbia's Language and Literacy Education department. Other participants include Dr. Juliet Tembe of Mbale Islamic University in Uganda, Dr. Harriet Mutonyi of Uganda Martyr's University, and Sam Andema, and Lauryn Oates of UBC. The team's research highlights the potential of diverse digital technologies, such as the e-Granary Digital Library, to enhance access to information and transform the educational experiences of language learners and teachers in Uganda. The involved researchers are also interested in the extent to which the research can provide relevant lessons for

Canadian classrooms and educators. This master's thesis aims to contribute to the development and expansion of the greater research project by offering new research questions, findings and analyses.

At the suggestion of Dr. Bonny Norton and Professor Kate Parry, who originally initiated the relationship between Kyato Village and UBC, I decided to make the e-Granary (www.widernet.org/digitalLibrary) the focus of my research. The e-Granary is "Internet in a box"; a tool designed as a part of the "Wider Net Project" (www.widernet.org) by the University of Iowa. It is an external hard-drive that connects to computers and can be used as a search engine without live Internet connectivity. The e-Granary contains upwards of 10 000 000 texts, including whole encyclopedias and academic journals. The purpose of the research, which will be revisited in the research questions below, was to work with local students and teachers to better understand the e-Granary and to explore possible ways of using digital technology effectively for improved classroom learning, improved access to desired information, and the development of technological skills. I would observe how library users used the e-Granary, what they used it for, and how it could be developed as a tool that could become accessible to all community members.

As the students and I learned to navigate the e-Granary, it became evident that our little green box "storing the seeds of knowledge" was much more than a piece of digital technology – the students were *invested* in it, in its power, potential, and the way it so intimately connected to their futures, hopes, and dreams, opening the doors to *possibility*.

I went from being unfamiliar with the machine myself, to answering innumerable questions posed by students and training them in the use of the e-Granary. Early

questions submitted by participants for e-Granary searches included "what is the food chain?" and "why are babies born incapable of speaking?" Outside my research points, which are listed towards the end of this chapter, I had my own questions and curiosities about the e-Granary and its potential. How interested might young locals be in learning how to use it? Once developed, what would it mean for them to have computer skills? How could the e-Granary be used in the classroom? Would teachers and community members be interested? How could the e-Granary contribute to the studies of these young scholars? What did *they* want and need from e-Granary? How did they see their academic, personal and professional futures in a digital world? Together, how could we build computer culture around reading culture, or could the two develop simultaneously? Would writing culture also be involved? Would there be an opportunity for students to produce and create with the e-Granary? What would be required to make computer learning a success? How could we promote the e-Granary and spread new knowledge and technology?

In order to adequately respond to those questions and effectively implement the solutions and procedures they suggest, one must have a clear understanding of ICT (Information and Communication Technology) as it currently exists in Uganda. The following outline of ICT practices in Uganda is intended to give the reader a sense of where the research participants are situated in terms of ICT access.

The same ICT challenges that are pervasive throughout other developing regions are also problematic and inhibiting in Uganda: poor ICT infrastructure, limited and expensive bandwidth, unreliable electricity, and a lack of pertinent resources (Farrell, 2007). However, Uganda's ICT infrastructure *is* developing and national ICT policies are

being developed and implemented to meet the country's goal of education for all (Andema, 2009).

Uganda developed its first national ICT policy in 2003 (Farrell, 2007). Policy objectives include strategies for the improvement of literacy and capacity building in the human resources sector, including integrating ICT into mainstream education curricula, and establishing ICT centres of excellence that will provide basic and advanced levels of ICT training. An ICT working group was established after a 2004 e-readiness assessment revealed a requirement for a *focused* and *co-ordinated* approach to ICT implementation (Farrell, 2007). Among the group's recommendations were the establishment of a Ministry of ICT and the development of an ICT policy in the education sector. The Ministry of Education has expanded its focus on ICT and, since the 2005-2006 sector review, has signed an agreement with Microsoft to subsidise both software licenses and teacher training for the country through a programme called Microsoft Partners in Learning (MPL). One aim of this programme is to bring meaningful, localized content to students in line with Uganda's national curriculum guidelines, thereby preparing students for the new knowledge economy. In collaboration with MPL, Uganda has created and delivered biology and chemistry courses on CD-ROM and planned to equip more than 400 secondary schools with CD courses in eight other subjects by the end of 2008 (Microsoft, 2007).

Despite a current requirement for ICT budget funds to be allocated to all 4000 secondary schools in Uganda, it appears that the budget is not reaching all secondary schools, particularly those in remote and rural areas. The 2005-2006 review also highlights the need to address linguistic, socio-economic, disability, and cultural issues to

ICT access, as well as the need to develop measures which will reduce high costs of ICT equipment, installation and maintenance, revise curricula to produce more ICT literate teachers, and provide rural schools with the required ICT infrastructure (Farrell, 2007).

Since the liberalisation of the telecommunications sector in 1997, significant growth has been noted in infrastructure and access. However, this growth occurred primarily in urban areas of the country, leaving the problem of the urban-rural divide to linger. It remains that there is almost no access to ICT outside urban centres. Statistics show that, as of 2004, 98% of rural and 60% of urban households were without access to electricity (Farrell, 2007, p. 6). It is not surprising then that fixed line telephone service is rare in Ugandan homes. Mobile phones constitute the only means of technological communication for the average Ugandan citizen. Increases in mobile phone usage correlate positively with an increase in private FM radio stations. The two technologies have come together: with stations in local languages all over the country, listeners can tune in to political debates and programmes on issues of health, agriculture, education, gender, and the environment. Technological synergy occurs when listeners phone in to participate in these shows and are given opportunities to comment and question (Farrell, p. 6).

Uganda also established the Rural Communication Development Fund (RCDF) in 2003 in an effort to achieve their goal of universal access to communication technologies. The aim of the RCDF is to encourage the development of ICT infrastructure in rural areas by offering subsidies and grants to investors (much like the Microsoft programme). Some of their goals have included:

- providing Internet access to all districts in Uganda by 2006

- providing universal access to telephony, aiming to increase availability from one public access point per 5000 inhabitants to one per 2500, increasing access by half.
- creating multipurpose community telecentres with a goal of 20 telecentres in 20 districts by 2007.
- ensuring the presence of ICT training centres and Internet cafés (often combined) by June 2006.
- creating district-level information portals containing information about health, agriculture, education, commerce, etc. All district sites are now active.
- installing public payphones. Public phones have been available in 316 sub-counties since 2004 (Farrell, p. 6).

The following statistics show a significant increase in mobile phone use between the years 2000 and 2006. In comparison to other technologies, cell phones are the most prevalent form of communication technology in Uganda:

- Mobile subscribers (per 1000 inhabitants)
  16 in 2000, 45 in 2004
- Percentage of the population with mobile coverage
  16% in 2000, 70% in 2004
- Internet users (per 1000 inhabitants)
  2 in 2000, 6 in 2004, 18 in 2006
- Number of people with personal computers (per 1000)
  3 in 2000, 5 in 20004
- Number of households with television (per 1000)
  5 in 2000, 6 in 2004 (Farrell, p. 7)

Mobile phones are especially effective in mountainous regions of Uganda where installation of fixed telephone lines is difficult. Competition among cell phone providers has benefited Ugandans by resulting in lower airtime charges for users (Ngogi, 2007, p. 135). Customers have prepaid and post paid options and frequently use text messaging as a cheaper method of phone communication.

As for Internet usage, once again, access is mainly restricted to larger urban centres. Most Internet service providers (ISPs) provide access in the capital city of

Kampala only, meaning subscribers outside the capital must make often costly 'national' calls in order to connect to their ISP's access point. Local points of presence (PoPs) in all major centres would mean more accessibility and better affordability for urban, semi-urban and rural customers (Ngogi, 2007, p.136). An Internet user is more likely to frequent an Internet café than subscribe to personal access because Internet subscription costs, on average, $65 per month, not including costs of phone usage with each connection (Ngogi, p. 138). Average users spend 42 277 Ugandan shillings (UGX) or $23.49 CAD in monthly café fees (Ngogi, p.137). Although costs still make accessing the Internet an activity primarily practiced by the elite, costs are at least lower than personal subscription rates. The typical customer at a Ugandan Internet café is a 25-year-old single male with at least a secondary education diploma (Ngogi, p. 136). The challenge to cross urban-rural, socioeconomic, and gender divides remains.

Embracing ICT will be a giant step towards sustainable development for Uganda. With proper implementation at policy and ground levels, provision of equipment and ICT education, economic growth will increase, opportunities will be created, and social services will improve.

In this thesis, I address the following research questions:
1) What are students' investments in e-Granary and computer technology and how does the development of digital literacy impact student identity?
2) To what extent do students' e-Granary digital literacy practices illuminate communalism within African indigenous knowledge?

In Chapter Two, I review recent scholarship which addresses the three major themes and frameworks of this thesis. First I discuss themes of identity, particularly those of investment and imagined communities as they apply to a rural Ugandan educational context. Next, I address the concept of digital literacy and discuss the implications of a digital divide in developing nations. I end the chapter with a review of literature dedicated to African indigenous knowledge, paying particular attention to the aspect of communalism as well as the notion of *sankofa*.

In Chapter Three, I outline my methodology and provide information on the study, data collection methods, and my own positioning as a researcher.

In Chapter Four, I present my findings. Included in this chapter are my general observations, questionnaire results, interview excerpts, and a discussion of the primary challenges faced during the study.

In Chapter Five, I analyse my data using identity and indigenous knowledge frameworks. Data from interviews, questionnaires and observations guide my analysis of the expansion of the participants' identity shifts as well as the ways in which local knowledge presents itself in new ways through modern technology.

In Chapter Six I conclude with a summary of my work, discuss the implications for local groups, and make suggestions for further ICT and digital literacy research and growth at an educational level in Uganda.

Chapter Two: Theoretical Framework and Literature Review

In this chapter, I review recent scholarship that addresses themes relevant to the research questions. Section 2.1 focuses on themes of identity, particularly investment and imagined communities. Section 2.2 examines recent literature on digital literacy and section 2.3 reviews contemporary scholarship on communalism as an aspect of African indigenous knowledge. To make clear how I conceptualize some of the main ideas in this chapter, I will provide definitions of some key terms. For the purpose of this thesis, literacy will be regarded as a socially constructed practice, with the idea that beliefs about reading and writing are socioculturally rooted in locals' own conceptions of knowledge, identity and being (Street, 2006). The term ICT relates to physical computer equipment – hardware and software that is used for information and communication purposes. Digital literacy refers to the range of skills and knowledge that are required to operate ICTs and to use them meaningfully in the generation, location, evaluation, and production of information within a given educational or sociocultural context.

2.1 (Imagined) Identities and Investment

Themes of identity are central to my understanding of the research and to my understanding of the participants involved in this study. This project draws heavily on Norton's (2000) notion of investment and the integral relationship between investment and identity.

Originally applied to a case study of immigrant English language learners (1995) in Canada, Norton's concept of investment (1995, 2000) was used in a call for a reconceptualization of the individual in second language acquisition (SLA) theory. To get

a sense of the relationship between investment and identity, it is necessary to understand the definition of identity as it relates to the studies in question. Norton uses the term identity to refer to the ways in which individuals understand their relationship with the world, how that relationship is temporally and spatially constructed, and how the individual understands his or her future possibilities. Identity is here theorized as a sociocultural, rather than psychological, construct. It is dynamic, real or imagined, multiple as opposed to static and unidimensional, and a site of struggle (McKinney & Norton, 2008). Because change is constant over the course of life and education, identities are frequently contested in processes of learning, evolution and development. With learning and identity so inextricably linked, investment can also be made universally applicable to learners across various educational contexts.

No matter what subject is being learned or who the learner is, if there is a desire to learn, there are reasons behind that desire, and these reasons are connected to either motivation or investment. Though similar in concept, motivation and investment differ fundamentally in several key ways, one being that the former is a psychological construct and the latter a sociocultural construct. Once again extracted from SLA literature but widely applicable to wider contexts of literacy due to the generalisable nature of reasons behind wanting to learn, motivation is understood as goal-directed and attitudinally-based behaviour; it can be instrumental or integrative in nature. Instrumental motivation refers to learning for more immediate and practical goals such as obtaining a job or a reward. Integrative motivation, on the other hand, is linked to longer-term goals such as personal growth and cultural enrichment (Masgoret & Gardner, 2003; Lightbown & Spada, 2006; Mitchell & Myles, 2004). The desire to develop the ability to converse with speakers in a

Spanish-speaking community with the goal of "fitting in", for example, is reflective of integrative motivation. In this project, possible motivations for using the e-Granary might include scoring a higher grade on an exam or gaining access to a group of regular Internet users.

Investment differs from motivation in that it is a socially and historically constructed relationship between learners and the subject being learned. While both concepts are reasons for which a learner studies, only investment results in an acquisition of resources with long-term benefits. According to McKinney and Norton (2007), learners typically invest in learning with the understanding that they will acquire a wider range of resources, both symbolic and material. The acquisition of these resources, for example, e-Granary and community status in the case of this project, increases the value of the learners' cultural capital[4] and, as this value increases, learners reassess their current identities and hopes for the future. Investment and identity can therefore not be separated in contexts of learning. Learning, identifying and imagining are processes that transcend both time and space as learners create new selves, new worlds and new possibilities (Wenger, 1998; Kanno & Norton, 2003). Learners are constantly organizing and reorganizing a sense of who they are and how they relate to the social world. Thus an investment in learning is also an investment in a learner's identity, an identity constantly changing across time and space. A thorough discussion of the research participants' investments in e-Granary will appear in the data analysis in Chapter Five.

Particularly relevant to developing and postcolonial contexts is the idea of identity as a site of struggle, especially in regions of the world where power relations and

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[4] Bourdieu's notion of cultural capital refers to the knowledge, attitudes, skills and other credentials that socially characterize different classes and groups.

issues of inequality play such a prominent role in an individual's development and life opportunities. Issues of language and identity are at the core of postcolonial politics and educational debates, with the "colonised" often actively struggling with outdated and irrelevant educational materials and ideas, and hoping to relocate and revalue indigenous practices. Bourdieu (1997), speaking for a wide variety of linguistic exchanges, whether in "developing" or "developed" contexts, emphasizes the unequal relationships between interlocutors or actors. As with language, Bourdieu's ideas can be further generalised and applied to wider contexts of learning, considering the wide variety of relationships, circumstances and social and historical contexts in education. Power is as engrained in the structure of speech as it is in education, and power relations are constantly reflected when determining who has the "right to speech" or the "power to impose reception" (1997, p.648). Questions of legitimacy also bring about questions of power in determining whether a person is a "legitimate" or "illegitimate" speaker of a language and who can claim legitimacy. In the words of Bourdieu, however unsettling, "a language is worth what those who speak it are worth". In the case of rural Uganda, relations of power are reflected not only in language (with English, the colonial language, serving as the lingua franca and language of instruction in a country with upwards of fifty indigenous languages) but also in unequal access to information, education and resources.

We might then look at Bourdieu's ideas through a slightly different lens and, in the Ugandan context, ask who has the right to literacy and education? Who has the right to a *quality* education? Who can legitimately claim to be literate or to have access to education? One might reflect upon these questions with the Ugandan context in mind, considering the various levels of literacy around the country, the quality of education

offered in urban versus rural areas, etc. Issues of inequality and power notwithstanding, however, learners across contexts often invest in learning opportunities as a way to progress and move forward. As we will see with the case of the e-Granary and ICT in rural Uganda, students took advantage of digital literacy opportunities and used them to imagine better future life opportunities for their community. Integral to this learning and the identity changes that accompany it are imagined communities.

Imagined communities (Anderson, 1991) are groups of people with whom we connect and identify through our imaginations. These communities are not immediately tangible and accessible. According to Wenger, direct engagement (that is to say, involvement with tangible and concrete communities) is not the only way we can contribute and belong to a community (Wenger, 1998; Kanno & Norton, 2003, p. 241). Our imaginations allow us to transcend both time and space and to create new visions, new selves and new worlds. Imagined communities cannot exist without imagined identities and vice versa. Thus, it becomes important to understand investment in contexts where hope, desire, and the power to shape the future all coexist. We must also consider that ethnicity, gender and class can either enable or constrain an individual's imagined possibilities.

The way we imagine ourselves as individuals or community members is greatly influenced by how we view our lives both temporally and spatially. Time relates learners' future visions to their current and prevailing identities. How learners act in the present can be influenced by an investment in achieving or obtaining what they wish for in the future but have not yet experienced. As for space, the influence of globalization, migration and ICT also influence learning and identity construction as communication

technologies allow users to transcend both time and space."Our identities then must be understood not only in terms of our investment in the "real" world but also in terms of our investment in *possible* worlds" (Kanno & Norton, p.248). Imagination can still be constrained by social ideologies and hegemonies, however (Ibrahim, 1999).

In contrast with imagined communities, communities of practice[5] (Wenger, 1998) are immediately accessible and involve direct involvement and concrete relationships. Kanno and Norton suggest that imagined communities are no less real than communities of practice however, and that they might even have a stronger impact on the current actions and investments of learners (p. 242). Imagined communities, though intangible, offer learners a desired situation to strive towards, influencing them in many ways to work harder in the present to accomplish what they hope to achieve in the future. "Learning is not just a cognitive process of acquiring a set of skills and knowledge, but is a part of changing participation patterns in various communities with shared practices" (Lave & Wenger, 1991 in Kanno & Norton, 2003, p. 242). Related to communalism, which I will look at later in this chapter, and also to identity construction, are communities of inquiry (Bruce & Bishop, 2008).

Bruce and Bishop (p. 701) regard literacy as inherent in the practice of citizenship, as vital to a community's well-being and their ability to collectively solve problems. They argue that the school should be a social centre for addressing the real and present problems within the community (p. 705). In many ways, the Kyato Community Library already serves this purpose as it is a location where community groups meet to engage in literacy practices together and to hold meetings related to community affairs. If the e-Granary were to become a focal point at the library, this tool could potentially play

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[5] Communities that engage in a shared practice; characterized by collectivity.

a vital role in the examination and discussion of issues that affect the community such as health crises and agricultural problems. Bruce and Bishop illustrate a cycle which follows the pattern of ask, investigate, create (meaning), discuss, reflect, potentially move into action, and ask again. Through discussion about information and the generation of ideas, knowledge construction becomes a social enterprise. The authors also speak of indeterminacy, which signifies conflict between current needs and realities and is the driving force of inquiry.

Following the work of Bruce and Bishop, I ask if tools such as the e-Granary can bring people together "to develop shared capacity and work on common problems in an experimental and critical manner" (p. 711). The roles of communities of inquiry are multiple: they respond to human needs in ways that are equitable and democratic; view community problems as an opportunity for the community to come together; build capacity for problem solving; learn about the community and its situation; help communities become learning organizations; and recognize that every member of a community has knowledge that may be critical to solving a problem, but can be discovered only if that individual has a voice within the community. The community here acts as an agent of social change, working to overcome poverty and alleviate major social problems by accessing knowledge on better health, resource management and agricultural practices (p. 711). Bruce and Bishop also discuss community informatics (p. 717), which refers to an exploration of how individuals and institutions come together to work on common problems, focusing on questions of community development, learning, empowerment, and sustainability, promoting a positive role for computers and the Internet in society.

The identity lens for my theorizing of the e-Granary project is also informed by the work of Mitsikopoulou (2007). Mitskikopoulou's study uses a new discourse framework with the 'power of formal literacy' discourse subdivided into two discourses that concern English language learning and ICT in Greece: the 'progress and development' discourse, which has an emphasis on future employment, and the 'cosmopolitan' discourse, which has an international, outward-looking orientation. The cosmopolitan discourse discussed in Mitsikopoulou's paper is historically confined to the elite, whereas the progress and development discourse is more typical of middle-class families. In Chapter Five, I will discuss how the cosmopolitan discourse may be partnered with the progress and development discourse in the case of one young scholar.

2.2 Digital Literacy

One of the primary purposes of this research is to examine the uses and potential of information technology in Uganda, and the ways in which such technology can contribute to a (digitally) literate society. This section is devoted to recent scholarship on digital literacy that is relevant to the rural Ugandan context.

The electronic information age has prompted a redefinition of the word 'literacy', with the term 'digital literacy' and its plural form, digital litera*cies*, now appearing frequently in academic discourse. Recent literature (Warschauer, 2003; Lankshear and Knobel, 2008b; Bawden, 2008; Buckingham 2008) addresses the continuing evolution of a definition of digital literacy.

With the steady emergence of new technology, it is understandable for the definition of literacy to change. What it meant to be literate in eras before the printing

press (and such forms of literacy may still be valued and important in different parts of the world today) may have meant being able to interpret changes in nature, to decipher symbolic code drawn in the sand or to be an effective oral communicator (Warschauer, 1999). The term literacy has evolved from its traditional meaning of reading, writing and numeracy to encompass a larger scope of related skills, including the ability to understand and produce information in a variety of presentations, whether they be print, digitally or orally based.

Because of the multimedia nature of ICT, users of computer technology are faced with the demand to decipher not only language, but also complex images and sounds through different media including blogs, wikis, social networking sites, and mobile phone text messaging among many others (Lankshear & Knobel, 2008b). Literacy in the digital age requires a more complex and developed set of skills, which includes both the construction and assembly of knowledge, retrieval skills, critical thinking, and the ability to make informed judgments about the validity of retrieved information. In addition to accessing and analysing information, users should also be comfortable with publishing and communicating information. However, technological competence also involves recognizing the limits of ICT and must be accompanied by an awareness of the value of traditional tools in conjunction with media (Bawden, 2008).

Among the key new literacies and core digital literacy skills outlined in the literature are the following:

- computer or tool literacy, which involves competence in using hardware and software tools

- resource or information literacy, which implies an understanding of how to access information resources as well as an awareness of the various forms of these resources

- research literacy, which varies slightly from resource and information literacy, in that it requires a set of navigational skills, including the ability to refine a search. An example of this type of literacy is using a search engine to effectively locate information.

- publishing literacy (Bawden, 2008) is knowing how to publish information using a variety of media

- multimedia literacy involves the ability to use a variety of media including audio and visual media

- computer-mediated communication (CMC) literacy (Warschauer, 2002) is centered around the ability to communicate synchronously or asynchronously via e-mail, various types of chat and messenger systems, etc.

In order to make my first connection between digital literacy and identity, I would like to draw upon the work of Street (2006), which focuses on literacy as a social construct. More broadly, Street emphasizes that literacy is a socially constructed practice and that "the ways in which people address reading and writing are themselves rooted in conceptions of knowledge, identity and being". Referring back to section 2.1, literacy, like identity, is always contested and can also be regarded as a site of struggle where it, as a social practice, is rooted in power relationships. Student-teacher interactions, for example, largely determine and affect the ideas and attitudes about literacy held by

participants in classrooms and the wider community. In a context such as that of Uganda, one of the main questions to be addressed is how to engage learners who are not at the core of the globalised and digital world with key new literacies and important new technology (Snyder and Prinsloo, 2007) in a way that is socially appropriate and meaningful. Strongly linked to this question is the question of how to effectively address the digital divide that makes access to equipment and information very difficult in rural Uganda.

The digital divide (Norris, 2001) is a reality that, simply stated, concerns inequalities between the information rich and information poor. Where access to equipment and digitized information is concerned, a large divide exists not only between industrialized and developing nations but also between urban and rural areas within countries, making power relationships evident. Warschauer (2003) suggests that social problems can not always be addressed/solved through the provision of computer equipment and the Internet. Experimental attempts to bridge the divide have been met with varying degrees of success. One such example is the "Hole-in-the-Wall" project, which was carried out in a slum of New Delhi, India.

The "Hole-in-the-Wall" project was the combined initiative of the government of New Delhi and an information technology corporation. It consisted of a five-station computer kiosk located in a local slum. Computers were placed inside booths, with monitors protruding through holes in the walls along with joysticks and buttons as a substitute to the more traditional mouse. No keyboards were provided and computers were connected to the Internet via dial-up. Although volunteers at the kiosk maintained the technology, no teachers were provided, with the intention of offering minimally

invasive education. The idea behind this method was to give children computer access when they wanted and to allow them to learn at their own pace without directions. The children very effectively taught themselves a narrow range of basic computer skills such as click and drag, copy and paste, and how to access the Internet, which seldom worked. The children had no access to educational programmes, or to content in Hindi, spending most of their time playing games. While the programme was welcomed by some, others expressed concern about lack of instruction and the amount of time dedicated to games instead of school work.

The key lesson to take away from the "Hole-in-the-Wall" project is that human and social systems must also change for technology to make a difference. Meaningful access to ICT requires physical, digital, human, and social resources and relationships, as well as meaningful content, language, literacy and education, and community and institutional structures (Warschauer 2003). Warschauer emphasizes that there is an inaccurate notion of a binary divide between haves and have-nots. Such a binary divide fails to recognize the valuable social resources that diverse groups contribute. He adds that the ability to access, adapt and create new knowledge using new information and communication technology is critical to social inclusion in today's era. With ICT becoming the electricity of the information era, Warschauer considers ICT to be a necessary and key condition for development and for overcoming social exclusion in the information society.

The divide manifests itself on multiple other levels, another being the disconnect between software developers and users. In an ideal situation where new software is inserted into a local setting, software designers and users would share a common

understanding of software programmes and also find the same offered activities to be both useful and enjoyable. However, one must take into account the socially situated nature of software development. Referring to the rule-governed and procedural genres of software, Snyder and Prinsloo (2007b) add that when the social setting of the user differs from the social setting in which the software was designed, expectations do not necessarily follow the same procedural logic as was anticipated in its design. When computer technology is inserted in a particular setting, local social practices may not result in the technology being used in the way conceived by the implementer and developer, resulting in a lack of social development and participation.

> Digital divide logic overemphasizes the importance of the
>
> physical presence of computers and connectivity to the exclusion
>
> of other factors that allow people to use electronic media for
>
> meaningful ends…social context, far more than hardware, shapes
>
> the use of new technologies; new technologies do not hold the
>
> key to human progress (Snyder and Prinsloo, 2007 b, pp. 174 and 175).

Prinsloo (2005) expands on this disconnect in his literature on *placed resources* (2005), emphasizing that new literacies do not have intrinsic value. Placed resources may be functional in one particular time and place, but dysfunctional and exotic in another, potentially causing disruption and disadvantaging users in a reconfigured local setting. Prinsloo emphasises that value placed on ICT may differ from one context to another, causing placed resources to be allocated different functions. Digital literacy is shaped not only by immediate interactive dynamics, but again, also by wider social and material practices.

The final aspect of the digital divide that I wish to address in this chapter is the "English-centric nature" (Burbules, 2000) of most on-line communication. While the "Englishcentricity" of the Internet is a major issue where the digital divide is concerned, it is also intimately related to my earlier discussion of Bourdieu's power relations in language and literacy education. English is the sole language of the e-Granary, a point to keep in mind when considering the implications of introducing the technology to Uganda. Language shapes and constrains who can participate in digitally literate communities as well as how people can participate. Although there are vast areas of the Internet where people can access resources, information, and/or interact in their native languages, content is often limited or non-existent for speakers of most languages, with English as the language of an overwhelming number of online sites and resources. While a speaker of Portuguese in Brazil may navigate his or her way around the Internet with relative ease, speakers of Luganda or Runyankole in Uganda for example, may find it virtually impossible to access any online content in their languages. Referring back to Snyder and Prinsloo (2007b), we might say that the Internet, or ICT as a whole, is socially situated. In order to truly overcome the digital divide and meaningfully integrate ICT into the daily lives of Ugandans, local content in local languages must be accessible. Furthermore, locals must have the opportunity to contribute to the construction of knowledge and the development of computer content. Otherwise, for this and other reasons, there is a possibility that locals will reject certain forms of digital technology, regarding it as useless or meaningless. Because the Internet is an open environment, there may be resistance towards both the information and the technology (De Roy, 1997).

Appropriate measures should be taken to avoid 'culture shocks' via

electronic networks. Training and consultation should also be applied

to demonstrate the benefits of sharing information and communication

in societies that lack this 'information exchange culture (De Roy, 1997, p. 889).

The following paragraph looks at a case where ICT in Pakistan was largely welcomed for its potential to create social and educational change, yet resisted by some who perceived it as a threat that could potentially divide the community. Norton and Kamal's 2003 study of English language learners in Pakistan demonstrates how local children view digital resources and literacies in their own local and global contexts. Pakistani children are aware of their country's marginal world status and regard technology as providing crucial access to a larger imagined community. Students who participated in the study imagined their lives and society in the year 2020 to be technologically advanced, with access to technology that would allow for greater connections between people both nationally and internationally in such a way that no "distance" would be felt between the members of their locality in Pakistan and people in other locations around the world. Others had reservations about scientific inventions and ICT. Reasons they listed for resisting technology include a fear of atomic weapon development and a concern that humans might grow apart as reasons to resist the technology. The children report hoping to see Pakistan emerge from isolation and become an integral part of the global community. In their view, transport and technology will bring about better human understanding and less war and conflict, allowing for more unity and justice in a world where everyone lives in peace, sharing resources and working cooperatively.

Mutonyi and Norton (2007) address the same issues outlined in this chapter with a set of recommendations that take into account the special context of ICT in Uganda. To fill gaps in the literature and to ensure the successful integration of ICT on a national level, they recommend the following. First of all, they address the need to collect empirical data, a gap which I will hopefully begin to fill with the contribution of my research. Data will allow policymakers and curriculum developers to better understand how contemporary ICT impacts the everyday lives of its users, and how young Ugandans are currently accessing, using and adapting ICT.

As already addressed in this section, there is also a need to recognise local differences, including issues of access, the social and political histories of different localities, particularly with respect to discrepancies between rural and urban settings. Mutonyi and Norton also state the need for professional development and encourage the promotion of ICT among teachers. Another suggestion of Mutyoni and Norton's is the integration of home and school ICT literacy practices as well as the interrogation of the local in the global. This involves making global software suitable for local use, considering the limitations of global technology in a local setting.

In sum, discussions on the digital divide must shift from the provision of computer hardware and software to how to effectively integrate ICT into local communities, schools, community institutions such as libraries, and societies as a whole. The focus must be on the promotion of technology, the development of local ICT capacity and the ability to engage with this technology both meaningfully and productively to contribute to local social practices and development.

2.3 African Indigenous Knowledge

For local communities in postcolonial settings to successfully incorporate ICT into school curricula and everyday life, meaningful cultural content must be created and made available. The promotion of local knowledge and local languages along with the introduction of ICT has the potential to allow local users to access and share relevant information and use it for meaningful ends within the community. In this thesis I argue that there is sufficient evidence in the data to suggest that technology such as the e-Granary can permit users to effectively combine the global with the local, while placing an emphasis on local tradition and indigenous knowledge. The indigenous knowledge framework for this paper is informed mainly by the work of Kanu (2006), Dei (2002) and Canagarajah (2002), with special attention to the notions of *sankofa* and communalism.

Before examining particular aspects of local knowledge, I will first give definitions of local knowledge as provided in the literature. Canagarajah defines it as "beliefs and orientations emerging from the social practices of a community through its history. These beliefs have their own rationale and validity, though they may differ from the knowledge forms valued at a global level" (p.243). Local knowledge typically differs greatly from policy-informing "official knowledge" and contrasts also with knowledge that is established or legitimized in various disciplines (Canagarajah). Dei (2002, p. 72) uses the term "indigenousness" to refer to the local knowledge associated with the long-term occupancy of a physical location; "the traditional norms, social values and mental constructs that guide, organize and regulate African ways of living in and making sense of the world"; and knowledge that differs from conventional knowledge in its absence of colonial and imperial imposition. Indigenous knowledges are also personal/personalized

and make no claims to universality (Dei, 2000). A people's trust in this knowledge is linked to integrity and familiarity. Indigenous knowledges are also experientially based and are orally transmitted, with information dissemination and the sharing of knowledge considered to be social responsibilities.

While indigenous knowledge may have pejorative connotations and associations with irrational, backward and unproven beliefs, as well as romanticized notions of magic, myth, and inequalities with official scientific knowledge (Canagarajah p. 244), I argue that indigenous knowledge is invaluable in educational contexts, and that it is power*ful* rather than power*less* despite its association with the disempowered and marginalized.

The local practices and perspectives constituting indigenous knowledge are argued to be at the very core of progress and development. Kanu uses the notion of *sankofa* to illustrate the importance of a return to indigenous knowledge in postcolonial contexts. *Sankofa* means looking to the past to move forward into the future. This concept, originating from the Akan people of West Africa, encourages a return to ancestral roots, emphasizing that a people can only reach its full potential in the future if it recalls and understands the teachings of the past. *Sankofa* sees time and history as circular, with no disconnect between the past, present and future. This Akan concept differs of course, from the Western concept of time, which is characterized by time lines and linearity (Kanu, 2006). Kanu argues that a return to tradition and indigenous concepts such as *sankofa* will facilitate the progress and development of postcolonial African nations.

> *Sankofa* implies that to initiate a progressive civil social existence,
> one that preserves our humanity, we would have to *reconcile* the best

in the wisdom of our ancestors – the best of our tradition – with the

changing realities of the present (Kanu, 2006, p. 203).

Kanu lists communalism as one characteristic of indigenous knowledge that survived the colonial period and remains an important part of everyday life today. In African tradition, the community is central to the well-being of the society and its success and welfare relies heavily on the participation of all its members. Participation in the community is based on group solidarity, collective responsibility, interdependence, and cooperation. An individual's worth is measured by his or her involvement in and contributions to the greater community (Kanu, 2006). "…the concept of *individual* makes sense only within the concept of *community*. Individual identity emerges from communion with others" (Dei, 2000, p. 75).

Indigenous knowledge views communalism as a mode of thought,

emphasizing the sense of belongingness with a people and the

land they share. It is not individualized and disconnected into a

universal abstract. It is grounded in a people, a place and a history

(Dei, 1994, p. 115).

Dei confirms that historically and traditionally, individuals in African culture(s) are supported by the family, and family by community. Family here consists of one's kinsfolk, while community consists of both the kin and non-kin with whom one identifies (Dei, 1994, p. 12). Africans typically reject individualism as it relates to competitive, isolated individuals. "To many Africans, the dichotomy is not between the *individual* and the *community*, but between the *competitive individual* isolated from his or her

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community and the *cooperative individual* enriched by community" (Dei, 1994, p. 12).

Dei also lists traditions of mutuality and collective responsibility as important aspects of

African communalism. These aspects are evident, for example, in times of death and

mourning. Death, burial and bereavement are community affairs and all community

members are expected to observe funeral rites and contribute financially or otherwise to

the assistance of bereaved families (Dei, 1994, p. 11). Communal responsibility is a

theme that continuously and quite prominently appears in the data from Uganda.

When considering e-Granary's influence on local knowledge, one might revisit

the idea of placed resources and imposition, and whether or not the introduction of ICT

hardware could be regarded as an insertion and installation of Western technology and

knowledge. Dei's notion of indigenousness debates this, if only slightly, as it recognizes

the collaborative nature of knowledge as originating from multiple and collective sources.

"Through daily practice, societies 'import' and 'adapt' freely whatever from 'outside'

will enrich their accumulated knowledge. In this sense, 'modernity' is embedded in

indigenous knowledges" (Dei, 2002, p.73). I agree that modernity has become embedded

in indigenous knowledges and practices throughout the world; this phenomenon is an

inevitable result of globalization. The key idea however, is to ensure a pedagogical

balance between the global and the local as well as the modern and traditional.

Gonzalez, Moll and Amanti's *funds of knowledge* (2005) supports the pedagogical

validation of lived experiences as sources of knowledge. Relationships between students'

homes, schools and communities are often unequal, depending especially on the existing

power relations in any given educational or community context. Daily activities in

various networks (e.g. school, family, church) are "a manifestation of particular

historically accumulated funds of knowledge" (Gonzalez, Moll & Amanti, 2005, p. 41)

that a community possesses, and it would be misguided not to recognize and see as valid

the household and community knowledge with which students go to school each day.

From the point at which these diverse networks and funds of knowledge intersect

emerges a knowledge hybrid. One question that emerges from practice with the e-

Granary is how exactly this hybridized knowledge can be understood, constructed, and

made digitally accessible.

As discussed in the section of this chapter on digital literacy, supporting the

reconstruction, revalidation and promotion of indigenous knowledge requires individuals

and communities to become agents of, rather than subjects of development. Development

must be practical, socially meaningful and appropriate for any given social context.

Development literature continuously suggests that local communities should claim

ownership, and control the solutions to their own problems as well as the development of

their own communities (Dei, 2002). Marginalized groups must be subjects of their own

experiences and histories, and one must not undermine the importance of local

knowledge production that stems from and demonstrates cultural histories, lived, daily

human experiences, and social interactions within networks and communities (Dei, 2000,

p. 117). In light of these considerations, returning to indigenous knowledge is therefore

one of the major steps towards development.

2.4 Summary

The themes of identity, digital literacy and African indigenous knowledge presented in

this chapter as they relate to ICT education in postcolonial Uganda are indeed multiple

and complex. The notion of investment as well as the characteristics and presence of various types of communities (imagined communities, communities of practice, communities of inquiry) all contribute to the collective identity of local groups through the changing identities of their individual members. The introduction of ICT along with the introduction of digital literacies has the potential to revolutionize education in developing contexts. The successful integration of ICT into local societies and educational institutions however, requires transcending the digital divide, not only through the provision of equipment, but also through proper training, support, and opportunities to create, publish and promote local content in local languages. A crucial step in ICT development is the reconstruction of indigenous knowledge, particularly through the relocation and revaluing of communalism.

Although the three themes of this chapter are different in nature, they each connect in this study. Relating investment, identity, imagined communities, communalism, and digital literacy to each other, the students engage with and invest in ICT and in digital literacy practices with the desire to create more life chances for their community. Their identity shifts reflect a desire and intended commitment to develop their community and become more involved citizens using ICT as a tool.

The remainder of this thesis is concerned with the above themes and the ways in which young Ugandan students engage with ICT, find modern ways of engaging in local traditions and indigenous knowledge, and expand their possible range of identities through the e-Granary and the computer.

Chapter Three: Methodology

3.1 Introduction

This chapter describes the methodology and techniques used to collect data for this study. I discuss site and participant selection; the collection of data in the forms of questionnaires, observations and interviews; methods used to analyse the data, as well as ethics considerations, and my own positioning as a researcher.

In addition to filling a gap in the research, the rationale for working with the e-Granary Digital Library in this project was also justified by the unavailability of digital resources at the community library in question. An e-Granary had been donated to the library; however, library staff and users lacked the expertise required to train others and explore its potential as a digital tool. Assisting staff and students to develop research, navigational and basic computer skills through the e-Granary would allow the library to take advantage of its limited resources and transfer these skills to other community members. Gaining digital proficiency could lead to learners using new knowledge to advance academically, professionally, and as literate members of society.

The remainder of this chapter will be dedicated to outlining and describing the methodology and techniques used to collect and analyse data for this study. A qualitative case study approach (Duff, 2008) was chosen for this study, using questionnaires, observation notes and interviews as the primary types of data collection. My aim was to collect rich and descriptive data that would assist in my understanding of the phenomenon and units of analysis under study, that is, rural Ugandan students and the various facets of their interactions with e-Granary and the computer. Many definitions of case study research are available in literature on the same topic. Among the most

commonly cited definitions is that of Yin (2003) who defines the case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2003, p. 13). The contemporary phenomenon in this case was the development of e-Granary and digital literacy skills. The real-life context was the community library in Kyato, where young students worked with the ICT in question.

The following descriptors, in line with popular definitions of case study research, justify and rationalize my decision to follow a case study approach for this study. The purpose of my research was to focus on and perform an analysis of a specific "case" or an "instance in action" (VanWynsberghe & Khan, 2007). I collected multiple data sources and obtained all my information from immersion in the context of the case.

The nature of my research allowed me to answer the research questions I was attempting to address. The first question, "What are students' investments in e-Granary and computer technology and how does the development of digital literacy impact student identity?" sought to examine the students' interactions with and personal investments in the available ICT in a way that demonstrates any expansion in their range of identities. The second question, "To what extent do students' e-Granary digital literacy practices illuminate communalism within African indigenous knowledge?" aimed to draw links between the students' digital literacy practices and the ways in which they engaged in the tradition of communalism.

The procedures for data collection and analysis in this case study are outlined in more detail below.

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3.2 Selection of Site and Participant Sample

The research was conducted from September to December, 2008 in the rural village of Kyato in the Ganda District of Uganda. The chosen site for the research was a community library located on the grounds of a secondary school in Kyato, a location previously used for the larger ICT Uganda study of which my work is a part. Although most of the library's approximately 650 members are students and staff of the secondary school, both current and former, the library is also used by teachers from nearby schools, members of the local community, and local groups such as a women's entrepreneur group.

The six student participants in this study ranged in age from fourteen to eighteen and from secondary grade levels two to four. Of the six participants, four were male and two were female. All of them study at Kyato Comprehensive Secondary School (KCSS) and were recruited by the Kyato Community Library (KCL) to be library scholars. The Library Scholars Programme offers employment to this select group of dedicated students and in turn their school fees are paid with donations from supporters of the library. The library is open until 9 PM each night and it is the role of the on-duty scholar to lock up, turn off the solar lighting system, and, in the daytime, to assist the librarians in cataloguing books, tidying, keeping records, and helping visitors to the library find the information they need.

Five local teachers were originally invited to participate in this study. Although some data were collected, the teachers were unable to participate fully due to their workloads. For the purposes of this thesis, I will focus my attention on the student participants, who are profiled below.

Table 3.0 Student Profiles

Student Name	Age	Sex	Class
John	14	Male	S2
Joseph	15	Male	S2
Mohammed	15	Male	S3
Nakalema	18	Female	S4
Theo	17	Male	S4
Zuena	16	Female	S3

3.3 Data Collection Methods

Methods of data collection for this case study included questionnaires, observations, and

interviews. The following table gives a timeline of my data collection.

Table 3.1 Data Collection Timeline

Date	Activity
September 12, 2008	Arrival in Kyato, Uganda
September 15	First day at Kyato Community Library
September 15 – 19	- experimented with and gained understanding of the EG, its search functions and capabilities - accepted questions from library scholars to ask the EG
September 22 – 26	Pause in research due to illness and hospitalization
Sept. 29 – October 3	Participant selection and research preparation with Dan Ahimbisibwe
October 3	- explanation of research and signing of consent forms with participants - distribution and collection of first questionnaire
October 6 – 31	Obersvations and training
November 3	Meeting with 20 Challenge participants and distribution/collection of INK forms (round one)
November 6	Distribution/collection of INK forms (round two)
November 7	Distribution of second questionnaire to library scholars
November 10 – 14	Continuation of training and wrap-up before national exam period

Table 3.1 Data Collection Timeline

Date	Activity
November 24	Interviewed Zuena, Theo, Mohammed, and Joseph
November 28	Interviewed John, Nakalema and Dan
November 30	Departure from Kyato and end of onsite research period

Questionnaires

During the initial meeting with participants in week one, a questionnaire (see Questionnaire I in Appendices) was distributed once consent forms were signed. The purpose of this questionnaire was to get an idea of how familiar students were with computers and computer programmes. Participants were asked what they would like to learn about computers during their time with the researcher, and how they thought computer skills could help them with their studies.

The second questionnaire (see Questionnaire II in Appendices) was distributed to the library scholars in week six and students were given a period of two weeks to work on a pre-requisite assignment and state their findings in the questionnaire. The topic of the questionnaire was I Need to Know (INK) forms and their usefulness to library members. The questionnaire would serve as a test of the library scholars' progress and e-Granary abilities. The rationale behind the INK forms was to measure their effectiveness as a medium for responding to the questions of library users. Library scholars were also asked to give a step-by-step description of their information searching procedures and the circumstances under which the anticipated search results were easy or difficult to achieve.

Observations

The observations consist of notes I took and information I copied from the

e-Granary's web browser every day of the research. These notes comment on happenings in the library such as student questions and comments, how the students were engaging with the e-Granary/computer and how they were engaging with each other since the introduction of these technologies. I also noted questions that students asked, their behaviour, the levels of success of various crowd control methods and sign up systems, and my feelings on the experience of the day. Over time I was able to observe trends, progress and development through note taking. On days when there was enough power to successfully operate the e-Granary, I kept a record of all the sites and files that were accessed or downloaded, and the topics that were searched on the Wikipedia. Keeping these records would allow me to analyse the frequency of a particular topic search and to make connections between topics researched and the personal and academic interests and motivations of the student participants.

Interviews

Interviews were conducted with Dan Ahimbisibwe (librarian) and the six library scholars to conclude the research in late November. Questions asked to students related to the two previous questionnaires as well as the experiences of the library scholars with the e-Granary over the course of the research. They were also asked for suggestions and were invited to share their hopes for the future, specifically how their new computer skills related to their imagined futures. Interviews were between 15 and 40 minutes in length, depending on the amount of information participants wished to share, and were conducted during students' free time upon the completion of exams and classes at the end of the school semester.

See Appendices C and D for the library scholars' and Ahimbisibwe's interview questions as well as excerpts from Ahimbisibwe's interview.

3.4 Ethical Considerations

Permission to conduct research with student participants was granted by the Univeristy of British Columbia. At the initial meeting with potential participants, the research project was explained in detail in both English and Luganda with Ahimbisibwe's assistance. The purpose of the project was discussed, as was the vision of what we hoped to achieve and the benefits of the study for participants as well as members of the library, local schools and the greater community. Attendants were informed about the expectations of participants and how they would be involved in the project. They were assured that their participation in the project was completely voluntary, that they reserved the right to decline any part of the project (a certain assignment, questionnaire, interview, having photos or videos taken) and the right to withdraw from the project at any stage for any reason. It was also made clear that declining to participate or full participation withdrawal would not have any negative repercussions.

Parents and guardians of the library scholars were invited to meet Ahimbisibwe and me at the library to sign consent forms. The second purpose of the meeting was to give the family members an introduction to the research and an opportunity to ask questions about the project and their child's involvement.

3.5 Data Analysis Procedures

The data analysis for this research involved constant comparison (Glaser & Strauss, 1967; Lincoln & Guba, 1985; Dye, Schatz, Rosenberg, & Coleman, 2000) of

questionnaires, observations and interviews. This inductive method requires category coding and incident comparison across all forms of collected data. As phenomena are compared across categories, new dimensions to and relationships within the research are often discovered. In this research project, constant comparison allowed for the emergence (rather than the imposition) of new themes such as communalism and community division. The emergence and incorporation of these themes are discussed in more detail below.

Questionnaires

The first questionnaire served as an indicator of the participants' ability levels and previous experiences with ICT and digital literacy. Each participant indicated their interests and the programmes they wished to learn (e.g. typing, e-mail, Microsoft Word). I used the information gathered in deciding which skills and programmes to begin with during training, and focused on areas where there was more interest or need to develop (e.g. proper start up and shut down procedures).

For questionnaire two, I analysed the students' answers regarding e-Granary search procedures to determine whether or not they had sufficiently developed the necessary skills to use the e-Granary on their own and train others without the assistance of a more experienced guide. Any challenges related to searching were addressed in person between the library scholars and me by going through the search that posed difficulty and experimenting with ways to make the search successful.

Observation notes

The observation notes mainly concerned activity in the library, challenges that arose in relation to e-Granary and computer use, users' reactions to the ICT, and the changing social dynamics in the library that resulted from the ICT and the pedagogical model used. I used these observation notes to triangualate with other data, and to identify both consistencies and contradictions.

Interviews

Once the interviews were completed, I transcribed each one and compared them all for common themes related to identity. I also looked for common themes that were beyond the scope of the initial research questions. The research question about communalism as an aspect of African indigenous knowledge was not originally a question for this thesis prior to the data analysis. However, after reading and analysing the interviews, Dr. Norton and I discussed the strong evidence of communalism in the data and decided to include this theme within the study.

To achieve triangulation, I compared questionnaires, observation notes and interviews for common themes related to identity and communalism, especially those influenced by the role of ICT and digital literacy in the community. With the assistance of my supervising committee, I also addressed facets of certain themes that were not immediately evident to me before, such as the social division of students as a result of a problematic pedagogical model. While the library scholars in their interviews suggested that the e-Granary, computers and INK forms would unite the community, for example, and listed tensions with other students as a challenge, the committee helped me consider the issue from the point of view of the non-participating students. Comparing my

observation notes with the student interviews then, and considering the issue from various perspectives, helped me to develop that particular theme.

To ensure validity, I also performed member checks with Ahimbisibwe. I summarized my findings and observations with him each day and discussed them from different angles in conversation. We also reviewed observations and student feedback together to make sure that I properly and contextually understood the responses, interests, behaviours, and comments of the library scholars.

3.6 Researcher Positioning

My journey to Uganda began with an in interest in volunteer-teaching abroad. Originally intended as a semester off and away from my academic duties, my time overseas was in its early planning stages in the winter of 2008, with UBC Go Global assisting me to organize a volunteer placement in India, the country I had initially chosen. Unable to guarantee me a teaching placement, the staff at Go Global suggested that I may be better suited for a project at a community library in Uganda. Not realizing that I was a student in Language and Literacy Education (LLED), the staff mentioned Dr. Bonny Norton, my academic supervisor, and, in discussion, connected my department to Kyato in rural Uganda. Soon after, I accepted the placement in Uganda and made arrangements with Dr. Norton to join the ICT research team and conduct my own master's research during my stay. The focus of my journey then shifted dramatically. The purpose of my leave was no longer to take a semester away from academia and experience teaching in a developing country but to spend the semester doing quite the opposite – researching, networking and studying.

In the six months before my departure I spent countless hours reading about Uganda, researching issues pertaining to education in the country, speaking to people who had been there or were from there, attending conferences, planning, and giving birth to ideas. One of my pre-departure goals was to develop an understanding of the connection between poverty and access to education.

As a white-skinned, Western researcher, attempting to respond to community issues around poverty and education was a delicate matter. Studying postcolonial settings and topics connected to indigenous knowledge, I was always very careful to avoid imposing and paid close attention to the reactions, desires and wishes of the locals with whom I worked. For ethical reasons, it was imperative that Ahimbisibwe assist me during meetings with participants and offer local language translations and explanations as to why I was in the village, what exactly I was doing, and how locals could become involved and benefit from my presence and the e-Granary. Although the parents and guardians of the library scholars were excited about the new educational opportunity that was being offered to their children, Ahimbisibwe and I insisted on meeting with a representative from each family to explain the project, the level of involvement of the library scholar in question, and to respond to any questions or concerns. Meeting with the families face-to-face also gave me an opportunity to become known in the community. It was important to me that my presence in the community be considered both welcome and legitimate as I am aware of the reputation that outside researchers sometimes have as observers who contribute little to the local community, cause harm, and whose research work and results are rarely made known and rarely make an impact locally (Smith, 1999).

I wanted to position myself not simply as a teacher or researcher but also as a resource person. I hoped that beyond my initial teachings and introductions to the e-Granary and related computer programmes, students and library users would begin to use the computer alone, to discover more about the technology on their own, to teach their knowledge to others, and to rely on me only if they required assistance. By observing and acting as a resource person instead of a constant authority figure, I was allowing e-Granary users to learn by themselves and to take ownership of this educational opportunity. This objective was partly achieved, as the library scholars certainly did learn quite a bit on their own and greatly impressed me with their eagerness to help each other and to teach other students and community members.

On a personal level I was also very conscious of my behaviour and the ways in which I interacted with locals outside of work hours. I had a solid plan of action and was very dedicated to my work so as to avoid potentially being labelled as a "demeaning tourist" or "do-gooder" by locals or ex-patriates who I encountered during my travels. I did not want to give the impression that I thought of myself as a "white woman saviour" or that I believed I would rescue anyone from poverty or suffering by virtue of being white. For me, my work was never part of a competition or effort to "outdo" other ex-patriates with stories of whose project was better and saving more people. I believe strongly in encouraging sustainability as well as minimizing donor dependence and reliance on outside expertise, and specifically chose to initiate projects that the local students could confidently continue after my departure.

Part of being a researcher for me also meant upholding UBC's positive reputation in the village. Acting fairly and responsibly, whether on my free time in the village or

during moments of unstable internal politics at the school, meant protecting all involved stakeholders and not jeopardizing the reputations of and opportunities made available to the students at the school, to Ahimbisibwe and his family who host the UBC volunteers and researchers, future Go Global volunteers, and the LLED researchers who are so heavily invested in the ICT Uganda project.

3.7 Summary

In this chapter I gave an explanation of my methodology and the techniques I used to collect and analyse my data. I also discussed the rationale behind the site and participant selection for this study and the ethics involved. The research process, as I discovered during the process of analysing data for and writing this thesis, is a constantly evolving process often affected by emerging themes as well as themes that are less evident but crucial nonetheless, to the understanding of the research context and results. My understanding of myself as a researcher and my own identity also changed over the course of this project as I became more aware of myself and of the implications of my work in the village. Limitations resulting partially from my positioning as a researcher will be discussed more in Chapter Six. The following chapter is a presentation of my findings and data collected from the questionnaires, observation notes and interviews described in this chapter.

Chapter Four: Findings

In this chapter I take a chronological approach to my data presentation. I view the adoption of e-Granary and the development of interest in computer technology as a journey, with participants progressing from a stage of extremely limited computer skills and knowledge to one where they become "experts" and train others in the community, following a "train the trainer" model. The data in this chapter comes from questionnaires, observations and interviews. An understanding of the evolution of the project from start to finish will be helpful when answering the research questions, which are concerned with students' investments in e-Granary, their identity shifts in relation to their learning, and implications for indigenous knowledge practices.

4.1 Understanding the e-Granary

Before my arrival at the Kyato Community Library, the e-Granary (EG) Digital Library was seldom used. The lack of use was not indicative of uninterest in the machine but of difficulty in navigating the EG and searching for meaningful information. An EG logbook was being kept at the library to document who used the EG, on which date, and which sites were visited. Up to this point it had only been used by a couple of staff members at the library and secondary school, and one library scholar.

I spent the first week of my research trying to learn the e-Granary myself. It soon came as no surprise that local users had difficulty discovering its true usefulness and potential when I, who have had more than a decade's experience using computers, was

also intimidated by it. The challenges of using the EG as well as its limitations in a rural setting will be discussed in section 4.6.

One of my main goals was to discover the easiest way to search for information on the EG. From the EG's main page, there are four search options:

1) Categories

Users can peruse a list of categories that include African Studies, Anthropology, Business, Education, and a long list of other subject areas. By clicking on a category, users are directed to related links.

2) Search Bar

The search bar, which includes an advanced search option, operates similarly to Internet search engines such as Google and Yahoo. When key words or phrases are entered into the search bar, the EG will search its database and provide a list of results that will direct the user to relevant links. However, the results produced are often irrelevant and disorganized in comparison to those available on the Internet.

3) Resource Type

Instead of searching by topic, this option allows users to search by resource type. Icons representing audio, pictures and video, papers, books, journals, curriculum, software, and portals, direct users to all types of information available through the chosen media.

4) "What's Inside e-Granary"

This option allows users to browse whole or partial web sites, journals, and books.

In order to perform a search similar to that which library scholars would be expected to perform after training, I asked them to bring in any question that I could look up on the EG in an attempt to find the most effective search option and to see whether or not the information they desired was in fact contained on the EG. This step, once again, was pre-training and the library scholars had not yet been formally introduced to the EG. I list some examples of these questions below.

Question 1: Why are babies born incapable of talking?

Typing the question itself into the EG search bar did not produce relevant results, nor did entering key words such as baby talk, speech development, child development, linguistics, and language acquisition. Through the linguistics category search option, I found a site that had a section on child language acquisition. Wikipedia also offered information on language acquisition and child development but did not adequately respond to the question.

Question 2: What is the food chain?

The answer was quickly and easily found by entering 'food chain' into the Wikipedia Encyclopedia search bar.

Question 3: How are nitrates absorbed by plants?

The answer to this question was difficult to find. The only option that produced results was the Wikipedia, which offered a section on agriculture with hyperlinks to different types of nitrate and processes involving nitrate.

The answers to the above-listed questions were not easily found on the EG but, as a note of comparison, when typed into Google, many interesting and immediately relevant results are produced. It soon became evident that the Wikipedia, which is not in

fact listed as a primary search tool on the EG, was the most effective tool for searching for the types of information that students requested. The search bar never produced relevant results and the other options were best employed for broad searches and browsing.

4.2   Questionnaire 1

Before proceeding to the participant training stage, I distributed a questionnaire to the library scholars to find out their levels of experience with computers. Five of the six library scholars reported being somewhat familiar with computers, while one indicated, perhaps naively or over-confidently, that he was very familiar with computers. Despite a lack of equipment and access to computer technology in the area, it is interesting to note that all the students had had at least some previous experience using the computer, in most cases due to their roles as library scholars. A couple of the scholars had assisted Ahimbisibwe with data entry at the library and others reported being experienced with listening to music on the computer. Admittedly and unfortunately, I did not ask questions about where, how and with whom they used the computers for musical entertainment.

Question two asked: If you are familiar with computers, what have you used them for in the past? Students filled out a check list of possible answers and were given the option to choose "other" and comment on their choice. The options I provided were based on my own knowledge of more commonly used computer programmes in a Western context. Given the opportunity to ask the question again, I would likely frame it differently and ask the students how they imagine they would use the computer and for what purposes. The checklist would still be useful later in the same questionnaire, as some students had used certain programmes before but didn't remember their names. In

those cases, I went through the various programmes on the computer and asked the students if those were the ones they had used before. For example, "This is Excel. Is this the one you tried with Ahimbisibwe?" or "This is Power Point. Have you seen this one before?"

Table 4.0 Computer Programmes Used by Students in Pre-Training Period

Responses	Student Responses	Total # of Responses
Microsoft Word	6	6
Microsoft Excel	1	1
Power Point	0	0
Internet	1	5
Music	3	3
Movies	1	1
Other	1 (games)	1

The one library scholar who had used the Internet before used it to write e-mails at an Internet café. Responses to the question "what would you like to learn about computers" varied. Some examples of student responses include: how to type, use e-mail and the Internet, look for information, and use Microsoft Office programmes. When asked to whom and for what purposes they would write e-mails, the students commonly answered that they would like to use the technology to keep in touch with international friends (e.g. previous UBC researchers and volunteers) with whom they had previously had contact in the village. It can be said then that all participants wished to learn computer basics and develop their skills, extending their knowledge across all popular ICT media.

The final question in the student survey asked: "How do you think computers can help you with your studies?" Their responses are listed below:

1) *Through searching for difficult questions and answers, I could be easy to answer them after getting answers from the Internet. Through knowing how to use granaries, I could enjoy with it. Through knowing how to send greeting to some people I could start communicating with them easily (Nakalema, female, Secondary 4).*

For the comments made in the pre-training stage, it is important to note that there was a general expectation that the e-Granary would function in the same way as the Internet. This was before connectivity and online/offline access were explained. This expectation may also have come from descriptions of the e-Granary as "Internet in a box".

2) *They might help me to pass my exam through making research and knowing more about other feature (Joseph, male, S2).*

3) *They can help me in making research like in biology and other subjects, typing your important documents (Zuena, female, S3).*

4) *It can be help for getting job, you can get a job of teaching computer in the country, it can help you find more things (John, male, S2).*

5) *By giving all the information (mental information) that I utilize in my studies. When I'm in holidays, typing/using the computers will help me to teach others at the school so as to promote technology. Through typing I can avoid writing with a pen because my*

handwriting is bad. Thus I can only use a computer to make my work tidy and very very

neat (Theo, male, S4).

6) *I may need them for making researches hence helping me in my studies (Mohammed,*

male, S3).

It is striking to see that the library scholars were invested in ICT before they even
had an opportunity to study the EG and practice other programmes on the computer.
They were already making the connections that computer skills would allow them to
improve their studies by allowing them to look for more information, permitting them to
communicate with others digitally, and even increase their chances of gaining meaningful
employment in the future.

4.3 "E-Granary Has Come!": Reactions to EG

October 7ᵗʰ, Day 26

George William will likely stir my slumber in the morning. Maybe it was wrong to name

him. George William is my chicken – he is not a pet though, he's to be eaten. A student

came looking for me in the library this morning to see if I'd found what he'd left me

earlier (tied to a post behind Ahimbisibwe's). He also gave me a sweet letter to say how

much he appreciates me showing him the computer. WOW! What an honour! What a

huge gift and sacrifice for his family! I'm blown away by his kindness, goodness,

gratitude, etc…at the age of 17. This would never happen in Canada.

Excerpt from student's letter:

Above all , dear I would like to extend my thanks to you for sacrificing you time and energy to see that I learn computer, thank you very, very, much may the almighty God rewards you more.

This particular student was not a research participant. At the end of the research and end of my stay in the village, a good-bye letter from this student was delivered to my house. In this letter he expressed once more his thanks for the few computer lessons I gave him:

Breafly, dear I thank you for the time you have spent with us in Uganda, smiles, computer teaching, talks, photoes (pictures) mention but afew…Nothing equivalent to what you've done for me I can give, as a compasetion to you…

Interest in the EG was immediate and grew with every passing day. While the library scholars were still training, I spent some time with a teacher one afternoon to give him a tour of the EG and to allow him to try it for himself. *"First you bring us watches, then you bring us computers, now you bring us e-granary! You people don't rest, you don't sleep! E-granary has come!"* He was fascinated and very excited about the EG's potential, as well as the ease and speed with which information can be accessed. He made the point that it's even better than Internet research because with the Internet, "time is money".

E-granary has created mild chaos in the library. Order in the court! Big crowds have started to cause a lot of disturbance and distraction.

Once students other than the library scholars[6] began to notice the activity that was taking place at the computer station, large crowds (of mostly boys), began to gather

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[6] These students were not included as participants in the study but their computer access and activity was monitored and included in my observation notes.

behind the computer user(s). Although the attraction of other students is highly positive in many ways, the crowds were distracting to the individuals researching on the e-Granary, and were also distracting students from quiet library activities. This phenomenon both excited and concerned Ahimbisibwe and me and we employed several strategies to lessen the crowds while giving more students the opportunity to learn the computer.

The first attempt at controlling the crowds was to post official library computer rules: one at the computer station and one on the door of the library's entrance (*See Appendix E)*. The main rules and requests were to limit computer use to two students at a time for no more than 20 minutes each in order to be fair to all students at the school who wished to use the computer. Any student who wished to use the computer throughout the day was to put his or her name on a signup sheet. At first the rules were well respected. The signup sheets were filled quickly, with up to 22 signups per day, and I or the library scholar on duty was responsible for keeping track of time and calling the next student on the list.

I'm proud of Joseph. He's doing a great job of teaching new users to use the e-Granary. Exactly what we wanted from the library scholars! He's also doing a good job of directing onlookers to the signup sheet and, with my guidance, assigning them times with the 20 minute rule. Time's up, next! I love the way their faces light up when their names are called ☺*. The future computer lab will undoubtedly be a huge success.*

The future computer lab that I mention in the above excerpt is scheduled to open in August of 2009. A larger facility is currently being constructed behind KCSS grounds and will encompass a community hall for meetings and functions, a computer lab and a

library. KCL will be move to the new building from its current location and the current library space will be used as a tailoring centre for a local business. Once the computer lab is up and running, the library expects to have a number of computers that will be connected to solar power and the e-Granary. How the computer lab will operate in terms of scheduling, training and purpose has not yet been clearly outlined.

The majority of students who signed up to use the computer or the EG were male but, with encouragement, girls began to sign up as well. In retrospect, I wonder what the exact reasons were behind this gender pattern and if they were socialized to believe that ICT might be something that only males use. Given this pattern, I also wonder how the female students at the school viewed me as a female computer teacher.

Most new users practiced Microsoft Word with the help of the library scholars, who, because of the research, were trained first. Users operating Word would practice typing as well as mastering such functions as font size, colour, bolding, italicising, underlining, etc.

Even with the signup sheets, keeping crowds to a minimum remained a challenge. It also occurred that students would sign up in order of arrival in the morning and would not always be present at the time of their turn if they had class or other duties. This caused frustration among those students who came back later in the day and expected their turns immediately, regardless of their positions on the list. The next step was to give computer users more space by setting up the computer and e-Granary on a larger table.

Research participants were reminded that their roles as library scholars meant that they would also have to help enforce computer rules, as part of their duties and responsibility to keep the library in order. Although this seemed logical and perhaps

minor and innocent at the time, in retrospect, perhaps Ahimbisibwe and I should not have allotted this responsibility to library scholars as it later lead to tensions between them and other students. That being said however, there was a sense of urgency in coming up with a solution due to the amount of disruption and distraction caused by the computer being open up to students for use, and we decided that focusing on training the library scholars as trainers might be the best idea.

The second draft of the signup sheet was designed in a way that would allow students to sign up for 20 minute periods that would not interfere with their class time and during which they would be certain to be present. Although it was clear to many users that the times on the sign up sheet corresponded with the time indicated on the computer, confusion was caused for some others due to the difference between "Western time" and "Luganda time". In the Ganda language, when referring to time, the day begins with the first hour of sunlight. 7:00 AM in Western time is 1:00 in Luganda time, for example. As a result then, some students came at the wrong time for their appointments. The challenge of computer rules and other challenges will be further explored in section 4.6.

Reactions to the EG were highly positive. Users were extremely pleased with the breadth of information available on the EG as well as the relative speed and ease with which they could perform their searches. As mentioned earlier, users were also impressed by the ability of the EG to assist them in their academic and professional careers.

4.4 E-Granary Search Results

Part of my daily observation routine included keeping a record of all the sites that were visited and topics that were searched on the EG. This was done by looking in the browser's history at the end of each day in an attempt to discover trends and make connections between these results and the personal and academic interests of the student users. Because there was no simplified method of tracking site access and tallying the frequency with which any particular site was viewed, the process of tracking data involved opening the history link in the browser and copying down each link by hand. The following is a list of the most commonly accessed topics and resources accompanied by the number of times each was accessed over fifteen days of data collection.

Table 4.1

Most Commonly Accessed EG Topics and Resources over 15 Day Period
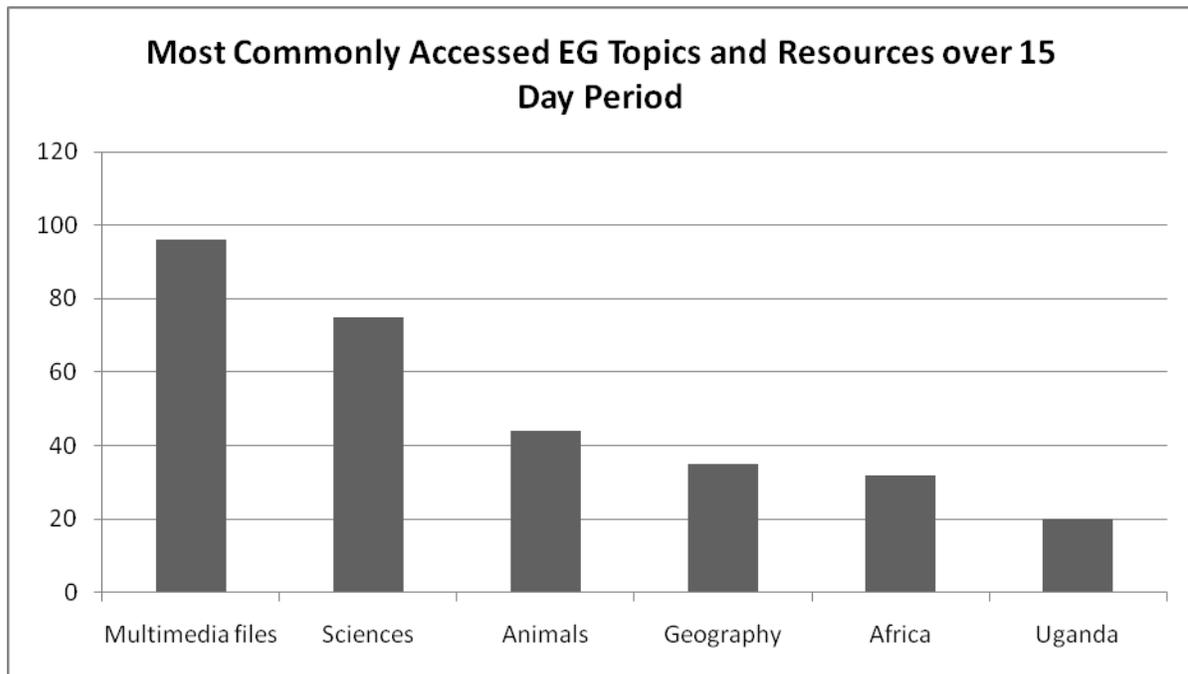
The graph above represents a crude measure and that the data within it is not necessarily the truest indicator of student interest in the various subjects. When copying the sites

from the browser history each day, I copied them exactly as they appeared in the browser. A browser's history file gives no indication of the amount of time spent on a particular site, meaning that some sites may have been looked at in depth while others may merely have been clicked on or glanced at. It is also important to note that the data represented in the above graph was not collected over fifteen consecutive days, but fifteen full days of library scholar e-Granary use over a three-month period, representing subject interest over time.

As seen on the graph, multimedia files incorporating visuals and audio were extremely popular with the students. These multimedia files drew incredible amounts of attention, regardless of their subject. Other commonly searched topics include politics and law, technology, religion, literature, and mathematics. Table 4.2 presents at a small sample of specific sub topics in several of the main search categories.

Table 4.2 Sub-Searches

Multimedia files	Videos: UN AIDS in Uganda, Brazil, Peace Corps journeys, how to change a tracheotomy tube, other medical videos, and music files
Sciences	photosynthesis, experiment, atom, reproduction, electrolyte, hydrogen and its properties, compounds, elements, fire, AIDS, blood, lightning
Animals	lions, African elephant, fish, hippopotamus, monkey, python, squirrel, gorilla, crocodile, dinosaur
Geography	British Columbia, Italy, America, Canada, Tanzania, Japan, mountains
Africa/Uganda	elections in Tunisia and Zimbabwe, African leaders and presidents, Yoweri Museveni, Idi Amin Dada
Technology	vehicle, aircraft, microwave, Ford Model T
Mathematics	standard curve, matrix, trigonometry, radicals, rational and irrational numbers
Religion	Book of Isaiah, Bible, Judaism, Old Testament, prophet, Muhammad, psalms

It was quite interesting to note that students often used the blue links in Wikipedia text entries to move on to topics and sub topics related to their areas of interest. When analysing search results at the end of the day, the connection to some links and topics was not always immediately clear. One such example was *McCain Pizza Pops* and *Pillsbury Pizza Pockets*, frozen foods sold in Canada and the United States. I was quite perplexed as to how the students knew about these foods, why they would look them up, or how they came across the links. At the time of the research, the 2008 U.S. presidential elections were taking place and there was a lot of interest in then presidential candidate Barack Obama, whose father was a native of neighbouring Kenya. Interest in Obama and the elections, and a high level of excitement and hope about the American elections in the village and region also sparked an interest in Obama's opponent, John McCain. Because KCL's version of the EG was last updated in 2006, its Wikipedia only offers results up to December of that year. The main page of the Wikipedia is dated December 11, 2006 and will remain on that date and that day's news stories until an update is installed. Although there were results for Obama as a popular senator of the state of Illinois, simply typing in "McCain" did not produce political results, perhaps due to a lack of popularity or newsworthiness in the year 2006. Instead, students were directed to McCain foods, which led them not to presidential candidate John McCain but to a foreign treat called Pizza Pops.

November 4ᵗʰ, Day 54

It's election day! In most of the televised world, people are glued to CNN as Barack Obama and John McCain approach the final few hours of their race. In Uganda like in many places, people have Obama fever and are hoping for an Obama victory. Everywhere we're hopeful – waiting for the world to change. When I wake up, Barack Obama will hopefully be the 44ᵗʰ president of the United States.

November 5ᵗʰ, Day 55

Yes we can! Today might be the greatest day in history. Still in pyjamas, I sat down at Ahimbisibwe's breakfast table and waited for the news. He came from the hallway holding his radio and smiling radiantly like only Ahimbisibwe can. "Obama won!" WOW! This is truly awesome. All over the world people are celebrating…the world has changed and is about to change. After the rainstorm I sat at the picnic tables of the Banana Chick restaurant in Ganda Town. They were rain-soaked but it didn't matter – BBC was on TV and Obama was giving his speech. People came from off the streets and watched from the sidelines, eyes glowing with pride and hope, mouths smiling. My eyes filled up and a little lump appeared in my throat. Just amazing.

In other news, we celebrated Obama's victory with fried chicken for supper. Not just any chicken though…George William. It was his time to shine. We did, after all, save him for the greatest day in history.

The more the library scholars used the computer, the more they learned and discovered, "self-teaching" in many instances. They discovered that they could save photo images from the e-Granary's Wikipedia to the computer. All saved images from

accessed Wikipedia pages would then be accessible for viewing through Windows Photo Viewer whether or not the e-Granary was connected. Browsing and studying these images became a popular activity among student users. The following are samples of the over 100 photo image topics saved to the computer: Australian Model T, bunny, helicopter, bicycle taxi, electric train, lions, Idi Amin, totem poles, frogs, President Museveni, Zanzibar, Cape Town, mosques, Mecca, painting of Christ carrying the cross, Tao priest, Japanese teachers room, Ethiopian highlands.

4.5   I Need to Know (INK)

As per the request of Kate Parry, I Need to Know (INK) forms were distributed in the library to examine the types of questions asked and also to test their effectiveness in delivering desired information to library users. INK forms, written in both English and Luganda (see appendix F), invite library users to ask questions to which library staff will find the answers. Ahimbisibwe and I tested the INK forms on a group of students who had completed the 20 Challenge, a library initiative that challenged students to read twenty or more books per month. We explained to the nine participants that they could ask any questions and that library scholars would be responsible for finding the answers on the EG. Once the answers were found, library scholars would then invite the 20 Challenge participants to the computer, where they would train those who asked the questions to effectively perform searches on the EG.

The first round of INK forms was unsuccessful. Perhaps instruction was initially unclear as misunderstanding of the words "all questions are welcome" on the form led most students to ask questions that could not be answered by the EG. Ahimbisibwe

translated the questions from Luganda to English. Those 20 Challenge students who were computer users before the removal of signup sheets (towards the end of the research, only library scholars were permitted to use the computer as a consequence of the general failure of computer rules) asked why they were being sent away from the computer, if they could have a chance to use it again, and if they could learn about the Internet. One student asked for the date the secondary school opened and another stated that he wished "to know about AIDS", a request far too broad.

At the second meeting with 20 Challenge students, new INK forms were distributed. Ahimbisibwe addressed the concerns of the students and it was emphasized that questions would have to be researchable on the EG, that questions needed to be as specific as possible and that no information after 2006 would be available. The examples of world leaders and animal life cycles that were given strongly influenced the submissions of certain participants. A list of the questions from rounds one and two is provided below:

Round 1 of INK Questions (translated from Luganda)

1) Female Secondary 2
a) I want to know about computer, when is the lessons.
b) When was our school started date.
c) Can I borrow a dictionary.

2) Male S2
a) Why do you send us away from computer
b) To know about AIDS
c) I want to know about computer lessons and internet.

3) M-S2
a) Why send us away from the computer and yet we want to learn
b) Mr. Dan, sir, can I repeat 20 challenge because I have enjoyed it very much and it will improve my English.
c) Can I borrow more than one book when I am not in 20 challenge?

4) F-S1
a) What is the blood composition of HIV/AIDS patients?
b) Is it possible for the young girl who is positive to affect the young boy when they have sex?
c) Why do some people mistreat HIV/AIDS patients?

5) Anonymous submission
a) Why don't we have blood tests for HIV/AIDS here at school?
b) Why send us for toilet paper and we use our book in the toilet? (*This has something to do with paying school fees yet having no toilet paper provided in the latrines)
c) Why do our teachers come late and sometimes miss lessons?

I found the first round of questions to be particularly interesting as they reveal many of the students' daily thoughts and concerns. These questions also reveal the e-Granary's (in)capacity to respond to certain everyday issues that are of importance to these rural Ugandan youth. The students' cleverness must not be overlooked. The localized questions they asked were not suggestive of a lack of understanding as to the information that would be available on the EG. I think it is safe to say that the students were well aware that questions such as "why send us away from the computer" could not be answered by the EG. They were instead taking advantage of the context and opportunity and using the INK forms as an indirect medium to voice their concerns and convey their messages.

Round 2 of INK Questions (submitted in English)

1) F-S1
a) I would like to know the adventure of Idd Amini Dada and his death.
b) According to European history/theory, where are the Bachwezi believed to have migrate from.
c) I would like to know the life cycle of a fish.

2) F-S2
a) Which African country was first to get independence. and in which year.
b) How many years did Nelson Mandela spent in the prison. And what had he done to be prisoned.

c) How many terms are given to the president of America before electing another one. And how did Obama get to be in America since he is a black person.

3) F-S1
a) What is a cycle?
b) What is the largest country on the earth?
c) What is the life cycle of an elephant?

4) M-S2
a) I want to know all about president Obama, his family and his wealth.
b) I want to know the history of the late Nelson Mandela.
c) I also would liked to know the president who ruled Ethiopia for many years. And explain me all his history and childhood.

5) M-S2
a) I want to know about history of a leopard how it grow and the life cycle.
b) I want to know the president who ruled America for many years.
c) I want to know how Uganda got her independence.

6) F
a) I want to know about the history of Amini dada
b) I want to know who is the first president of America.
c) I want to know who ruled America.

7) M-S2
a) I want to know about math on the egranary, and can the egranary help to find the answer of such questions.
b) I want to know about the history of Uganda and all the presidents, and also I want to know about AIDS in Uganda how it spread and how they managed to prevent it.
c) I want to know about some things concerning biology like the life cycle of cow, leopard, camel, e.t.c.

8) F-S1
a) Who killed Bush
b) Was Bush a Ugandan
c) I want to know your journey how much money did you pay from Canada to Uganda.

9) F
a) What is a bush?
b) Who was the first president of Canada
c) What is the best main cash crop in Canada?

10) M-S2
a) I want to know about Obama why Americans have elected him to be a winner of the president post.

b) I want to know about the first president of the United States of America (U.S.A) how he was ruling the this country.
c) I want to know about the president of Canada – How many years do he have, how many children do he have, what is his name, what is the name of his wife

11) M
a) I want to know the life cycle of animals like frog, lion etc…
b) I want to know the history of Koffi Annan and Barrack Obama, I want even to know Kenyan Independence.
c) I want to know the history Nelson Mandela. And also I want to what are Canadian praries.

After the submission of questions, INK forms were divided among library scholars whose responsibility it was to find and record the answers to the questions. The rationale behind this model was that the assignment would in some ways serve as a test of skills the library scholars had acquired as they would be training their peers (those who submitted the questions) to use the EG. A questionnaire was distributed to the library scholars after the completion of the assignment (See Appendix G).

All student participants replied that, since their training, they were able to find all the information they were looking for and that their e-Granary searches were usually easy but, depending on the search topic, could be slightly challenging at times. They also indicated that Wikipedia was their preferred search option as it produced the most and best results. Library scholars also gave a step-by-step description of a particular search they performed, starting with how they entered the topic into the EG and how they proceeded if the answer they were looking for was not immediately found. The demonstration of their EG research strategies proved that the scholars were now proficient EG users and were able to quickly and effectively navigate the EG and find information on their own, with limited if any assistance from me or their peers. The ease and speed with which they were able to operate the computer were quite apparent

towards the end of the research, as was the incredible development of their research skills. The students now knew the importance of key words, specificity, and the importance of exploring various options for broader, more difficult topics.

In the final interview, which took place during the library scholars' free time at the end of exams in November, students were asked once more whether or not they found the INK forms to be useful and, if so, what the best method of distribution would be. All interviews were conducted in English.

Zuena: …they're useful to the students, to the community, uh….the students, help the students to improve on their academic performance, help them to become the teachers of tomorrow, because if you get the question that you have been looking for, you can help and teach others and you will help the community to understand the, our daily life because EG consists of anything, any question you want. And it is more useful because you become experts in using the computer… The best way of distributing the forms to the community. As we have a community for, the library for the community, we can give those interviews to the librarians, library scholars, and help to do that work by distributing them to the people in our community (Interview, Nov. 24, 2008).

There are several points of interest in Zuena's commentary. First of all, she confirms the power of the EG (even via INK forms) to assist students in developing their computer skills and improving their academic performance. More powerful however, is the evidence of how much Zuena values both education and her community. She is invested in her community's future and sees cooperation and the sharing of skills and knowledge as a key step to development.

Theo sees the INK forms as a tool for promoting library activity:

Theo: I think to distribute the questions it could be done by the library scholars to go in the classes, issuing out the forms for the questions. So, and they would teach them all to ask the questions and then they would be able to come and ask the questions… in the library (Interview, Nov. 24, 2008).

Here, Mohammed and Joseph reveal some of the challenges of using the EG in this setting. While Joseph has ambitious dreams for spreading the EG across the county, Mohammed is more practical in his visions.

Mohammed: … those students who could not use the opportunity of learning with us because we have one computer, the library decided print forms for them, which they use to us to ask questions, which questions we use them to find them on the e-Granary, then they are answered in terms of INK but they have no access to the computer because it's one and also we are also trained so that we can teach the right number…We should tell the students while they are still on the school assembly that we have forms in our, the library, which have to be distributed among the students like them for some information on the e-Granary, so that they come for them.

Joseph: For me, I think we could advertise that on the radios, posters, can take the information to many people, telling them that ? you can ask questions you want to know and they answer it. So, that can help many people e.g. people in Mbarara can get to know. They can hear from the radio, eh?

Mohammed: Joseph has talked about the advertisement of the forms, countrywide or community wide, but the information will be large, which will be difficult to answer the

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whole people because we have only one e-Granary and we are also small in number so we should be needing other computers and also the e-Granary experts like Madame Carrie. So now we are not able because many people will be bringing their arguments, whereby we shall be busy and some others will be not outside because the e-Granary is one and the computer (Interview, Nov. 24, 2008).

4.6 Challenges and Limitations to Using the EG and Computers

1. Equipment and power

The community library is in possession of one e-Granary Digital Library, which is connected to a laptop computer. The main issue where equipment is concerned at the school and library that service hundreds of students is accessibility.

Ahimbisibwe: Yeah, I think the challenges is the accessibility because we have one computer, which is hooked on the e-Granary and they have there hundreds of people who want also to touch and to use the computer. So I think the challenge is: how can we get, how can we serve them? Because we have only one computer and one e-Granary, which is attached to it and it can be accessed by one person at a time, and there are hundreds of people who want to use it. So that is the most challenging part. Yeah (Interview, Nov. 25, 2008).

The laptop that was being used during the research was an outdated model donated by a previous volunteer in the community. Although the computer served its purpose, it had a low memory capacity, which proved to be inhibiting at times when trying to "fit" the e-Granary onto the laptop. At the end of each day the EG was uninstalled and then it and the computer were disconnected and stored in a cabinet in the

library. If the EG was not uninstalled before shutting down the computer, it would not function when plugged into the computer the next day. As a result, the computer would need to be restarted after clicking on the e-Granary removal icon, resulting in more loss of time. As it was, daily EG and computer set-up required a 30 to 45 minute time frame due to a combination of factors including the amount of solar power available, and the age and memory capacity of the computer.

Nakalema: The computer was so slow! (Interview, Nov. 25, 2008).

Operations were particularly slow on days when solar power was limited, which was often quite frustrating to EG users. The community library operates solely on solar electricity. During rainy season and on overcast days, there would not be enough energy to sustain the EG, meaning that users would go days at a time with no access. At the end of the research period, Ahimbisibwe and the library scholars were creating a schedule which would limit e-Granary use to peak hours in the interest of conserving solar power.

Mohammed: On top of that, we have, we want, we need to have more power because when the computers, or the e-Granaries increase, also the power will be needed at a high rate because the e-Granary is taking much power compared to other programmes (Interview, Nov. 24, 2008).

Mohammed's comment relates to the reportedly significant drain of power caused by the EG. This is not to say that the EG used all the available solar power but that, on overcast and rainy days especially, it required a significant amount of power, leaving less for lighting in the evening.

Theo: … if we get, because I hope we are able to get computers, but, power is still a problem, because we just use the solar system and then sunshine takes sometimes long

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without shining. And it rains like for, two and three days. So if it rains and then to me there is no power. So we just need more solar panels just to connect the power to the computers (Interview, Nov. 24, 2008).

2. Technical difficulties

Joseph: I've faced problems e.g., when searching you could find that you can type in, you want some information and cannot display it (Interview, Nov. 24, 2008).

Because there is no live Internet connectivity at the library, there is a limit to the number of EG resources that are accessible as not all journals and sites listed, for example, are available offline via their links. The following message is displayed in such cases: "Sorry! The page you requested could not be found".

Linked to computer etiquette, sometimes out of frustration or ignorance, student users would shut down the computer without first uninstalling the EG and following the proper computer shut down procedures. As a result, an hour of computer time would be lost as that is the approximate amount of time it takes to restart the computer and EG together when the proper shutdown procedures are not followed.

Other technical difficulties would occasionally arise as a result of students playing with the computer and experimenting with buttons, icons and functions without asking in an attempt at self-teaching. This would also result in a loss of computer time for students as all technical problems would have to be repaired before activity could resume. It would be wrong to suggest however, that this experimentation was negative. I say this because experimentation is a natural and necessary part of acquiring digital literacy skills. Without "playing" with buttons and experimenting, learners are limited in their capacity

to discover and develop as digitally literate individuals. Experimentation is here listed as a difficulty in relation to limited equipment access and capabilities and certainly not as a problem or punishable activity.

3. Computer etiquette

This relates to previous discussions on treatment of the computer and EG, crowding, rule enforcement, and sign up procedures. As can be observed from the comments below, several of these challenges led to some conflict between students. The conflict, however, should not be seen as unexpected. Given the accessibility restraints, it was almost inevitable that conflict would arise when computer technology and computer culture were introduced to a community of adolescent students, all of whom express a strong desire to learn, for the first time.

Once rules were introduced, I advertised that mistreatment of the technology and disrespect for computer rules would result in the computer and EG being taken away. Both machines were consequently removed for a short period after which only library scholars were permitted access so that they could take advantage of their remaining time with me to gain expertise and then serve as teachers to the others.

Mohammed: Because we have only one e-Granary and one computer we could find problems like, often students could come and in the absence of Madame Carrie, some students would disturb us, saying that the computer is not ours, let us also give them so that they can learn well, while it's our time to learn, because we are the first learners to teach them. That has been the problem with students.

Joseph: And another problem is that as you have one computer and one e-Granary, so

many, many people were interested in using it and they could not know very well how to use it, so, they sometimes tried to destroy it, to disturb it in its functions, but Madame Carrie tried his level best to keep it in safe conditions and those are some of the problems (Interview, Nov. 24, 2008).

Nakalema sees the future computer lab as a solution to the problems that Mohammed and Joseph address.

Nakalema: A computer lab will help eh? With the students because everyone will ? a computer to overcome the problem of teasing other (Interview, Nov. 25, 2008).

4.7   Interviews and Identity

This section is divided into subsections for each individual library scholar. These sections serve as profiles, displaying some answers that the students gave during their interviews. The answers will be related to students' investments and identities later in the thesis.

Zuena
Age 16, Secondary 3
Interviewed on November, 24, 2008.

Question: What does knowing the EG mean for you as a library scholar?

As a library scholar, e-Granary helps me a lot by making me perfect. If I have homework, I go to the e-Granary and I look for that homework. I learn a lot and more topics that I have not yet covered...

Question: How is the EG beneficial to other students at this school?

Zuena: I think it is important for the teachers to use e-Granary in teaching us because if

they use e-Granary in the class and teach us, the students can come on a screen of the computer and see exactly what is the teacher is trying to teach and understand.

Question: How could the EG be beneficial to other community members?

Zuena: They can use e-Granary for their own life. As I have already said that e-Granary is very important, consists a lot of information, they, they can also have their questions, information they want to search. If they use e-Granary it is better hmm? It is better because it gives a lot of information.

CJ: So, for you, what has been the most exciting part of learning the computer?

Zuena: What has been most exciting? Most exciting…ummm…the pictures that are drawn on the e-Granary. It is illustrated and helps you to understand. The question you ask and a picture.

(This is an interesting discovery on Zuena's part as she is suggesting that responses to questions are not necessarily language-based but can be presented in the form of an image too.)

CJ: So if you had a computer lab at the school, what would it mean for the students' futures here at the school?

Zuena: It means our future is bright!

CJ: How does it make it bright?

Zuena: We will become experts in the computers…I want help my generation also, our young sisters and brothers to have computers and to be allowed to come here in the

community library and use computers because it is more important in the future to be

knowing the computers.

Question: What type of career would you like to have in the future?

Zuena: I want to become a social worker.

CJ: A social worker? Excellent! Why social work?

Zuena: I want to help. Because I see people suffering, have different problems. Since now

I don't have …I don't have ability to help because I'm still studying. I would like very

much to help those who are suffering.

This final quote is in response to a question about the implications of a future computer

lab.

Zuena: The computer lab and e-Granary. Ah…I think we, if possible, and if God wishes,

next year and we have a computer lab, I would like to have more to become, to become

more trained. And other students at KCSS so that they can also help to teach the

community.

John
Age 14, Secondary 2
Interviewed on November 25, 2008.

Question: Does knowing the EG and the computer give you an advantage over students

who do not have computer skills?

John: Yeah, it's, computer can give us advantages. Even you can get a job in the future

for computer in, for example, in supermarkets you can get a job for accountants with a

computer.

Question: Can the EG be beneficial to community members who are not members of the school?

John: Ok. For those people, because some people don't know the computer, they need for teaching them. You may need to go in some villages and teach them about computers. Ok and even I tell them how to use e-Granary and I tell them to come and learn the e-Granary so that they can get more information about these things they need.

CJ: What has been the most exciting part of learning the computer for you?

John: For me, to learn computer, it's very good, even you want to go in another countries, you have to know more about computer because you may find some messages on the, to find some messages, you have to use computer, and you got that messages.

When asked about his visions for his future career, John said he'd like to be a secondary school teacher.

John: I like to be a teacher! …I would like to teach biology and mathematics.

CJ: Oh great! And maybe computers!

John: Yeah, even computer!

Nakalema
Age 18, Secondary 4
Interviewed on November 25, 2008.

In the future, Nakalema hopes to work in counselling and guidance. When asked if she'd like to send a message to the people at UBC, the University of Iowa, or the people of Canada, Nakalema responded the following:

Mostly I want to communicate to them eh, to help us to get other, many computers, so

that everybody can share, that in time people shall want…

This above comment is interesting in that it suggests an "outsider-as-donor" perception of the relationship between KCSS and the international community. This type of comment, which is repeated by other, is rooted in the fact that KCSS has a continuous relationship with Western researchers and volunteers, particularly from UBC. It also suggests a perhaps skewed understanding of the purpose of these people's presence in the village and a possible expectation that the school has a giver-receiver relationship with these individuals and institutions.

Mohammed and Joseph
Age 15, Secondary 3, Secondary 2
Interviewed on November 24, 2008.

The following excerpts from Mohammed and Joseph's combined interview discuss the potential of the EG as a tool for spreading computer literacy throughout Uganda.

Joseph: It is helpful that it can attract people to come and use it eh? So that the e-Granary can be known by many people, the library can be known, e.g., someone from far like, from Kampala, can come and see that machine can display such information, and can tell many people that they can come that our e-Granary, that our library could be known all over the world, the country, and even outside the country. And it can help us library scholars and the students of KCSS and even the community, that they can get some information from it and use it, hmm? They can get more than they knew.

CJ: Very good. Your library is already very famous, by the way. So one more thing. As a library scholar, now that you know how to use it and you can show other people how to use it, do you think it will attract more people to come to the library?

Joseph: Yes! People will come. E.g., if you tell me you didn't know the libra- the, the e-Granary, and you could go and find Mohammed and tell him that at the library there is a machine called the e-Granary that can give you information on some things confusing you. So even Mohammed (fellow library scholar) *will come! You will have (??) from him and he'll come. That is interesting for me, to see people coming to the library.*

Question: What has the e-Granary meant for you as library scholars?

Mohammed: The library scholars, the e-Granary has helped us to be famous, known, because many students have come to know that we are, our, we are, their (???) whereby we use the e-Granary to teach them how to find information on the e-Granary and also the outside people have tried to come across us so that we can teach them. And has also showed our, our seriousness on the library duties and regulations because we are told, we are told to learn and teach others which we are current practicing, currently practicing.

CJ: Excellent. You mentioned that some people from the outside come and ask you to show them the e-Granary. When you say outside, do you mean from different schools or from the village? Who are the outsiders?

Mohammed: Since the library is for the community, many people come from different villages, schools, and also some from other districts, e.g. when the students are in their holidays, they join other places, so we visit many people.

Joseph: For me, I think it is important for me because I will, first of all I will be known, as I have some knowledge of using the e-Granary. Some people will be, who will have

come from very far, will tell others there is a gentleman, I am a gentleman, Jimmy, eh?

That he knows the e-Granary, who can help you, can guide you, that is on my side very

useful to be known by the community. It is a good thing.

Mohammed: For me, it will help me because I may, I may, I may leave the KCSS, I could,

I should, I could finish my "O" level when I have no further assistance for further

education, so I may use that knowledge that I acquired from the e-Granary to get jobs

like secretariat and also some simple jobs like playing discos, playing music on discos,

and also other jobs in the category of computers, so I'm gaining future knowledge on the

e-Granary.

The following are the boys' comments about their future career dreams.

Joseph: I could like to be the engineer.

CJ: Engineer? What type of engineer?

Joseph: Electricity.

Mohammed: For me, I want to become an accountant and a mechanic engineer, and also

to become an entrepreneur.

Theo
Age 17, Secondary 4
Interviewed on November 24, 2008.

In the following interview excerpt, Martin Theo connects his interest in fish with

meaningful childhood memories.

Theo: Mostly, the e-Granary has been my teacher because, there are some different

questions like about the fish that it wasn't easy to find books talking about the fish in

details, but the storage seeds, that is called the e-Granary, had all the information about the fish. Because I can search different information from the e-Granary, thus I can even spend little time, or much of the time without going to the Internet just to pay money.

CJ: I'm curious to know why you were so interested in fish.

Theo: Ok. When I was young, I could see people moving down the lake just feeding the fish in the water. They could wear (?) and other water clothes, and then go down. And then, my grandmother was always cooking fish, mostly on Sundays, and then it was very sweet. So that's why I check all the information about the fish. And in my Biology, I just got problems about reptiles and amphibians so I had to look for information about those too, that's why I had to use the fish.

I also questioned his interest in refrigeration technology.

Theo: I'm just curious about the freezers and refrigerators because I was wondering that, when I touch the back of the freezer, it's almost hot. But I always want to make my food cold, so…It was almost confusing me. Now what can the hot thing make another one cold! So, I was, it was just amazing me.

Even I have left one! It's about the science physics. About the gravity. Yeah, so when I read in Isaac Newton's biography, and then he was sitting under the mango tree and then the mango had fall from at the leaves, and then down to where he was sitting. And then asked his self, why the mango fall going off? So I had to look for the information, the strict (?) one about the gravity, how it was opposing and how it was attracting the mango.

Here Theo compares the availability of literature at the library to the availability of

literature stored in the EG:

Theo: Yeah, it's good. Because well….just right here, I don't remember some of the books. But there are many books in the e-Granary that are not in the library and there are some in the library that are not in the e-Granary. So you need those who made the e-Granary to know about many books that can be in the libraries. They can print others from the e-Granary and then they can put in those without in the e-Granary inside the e-Granary.

The following are Theo's feelings on the future computer lab.

Theo: I'll be more excited. Because my plans, as me, I'm almost, I want to spread technology about, over the village and then, if time goes on, even the world in general. Because there are many of people in our villages that don't know about using the computer. And they cannot read, but if I train them how to use the computer, you never know. They can use it.

CJ: And should a computer course, just like math, and English, and Luganda, and science, should it be mandatory or just optional?

Theo: It should be made compulsory, even.

CJ: Why do you think so?

Theo: I think because, you see now the world is changing. So every time scientists are investing more information about the world, so the generation of today is like, depends and even the education is just coming slow. So someone has to use the computers. So if it's made compulsory and then everybody's going to know about the computer, and then you will see that nobody is typ-, is writing. So if you just use the computers for everything

(?) like examinations will be done on the computer, answers on the computer, everything is on the computer. I think it'll work best if you get like, a course about the computers at the school.

4.8 Summary

The purpose of this chapter was twofold. First of all, it was created to give a chronological presentation of the data as it was collected with the intention of demonstrating the progress of and development of digital literacy skills at the library. At the beginning of this chapter I outlined my own experiences of experimentation with the e-Granary and continued to note the positive points and difficulties with the technology as both the library scholars, other users and I became accustomed to it. I also presented the data collected from questionnaires and interviews, as well as observations from my personal notes. My observation notes speak of the challenges and limitations associated with the introduction of ICT at the library, student behaviour and attitudes connected to its introduction, and changing social dynamics.

The second purpose of this chapter was to contextualize the research for the reader and offer a clearer picture of the library and its users in relation to the ICT that was used during the research period. It is my belief that the data I included in this chapter, especially data about the changing social dynamics between students in the library, serve not only to contextualize the data but also indicate the wider implications of developing digital literacy practices in this setting.

In the next chapter I will analyse data that directly relates to the research questions on student identity and communalism in relation to the students' emerging digital literacy practices.

Chapter Five: Data Analysis

Through an analysis of the data, this chapter aims to answer the following research

questions: 1) What are students' investments in e-Granary and computer technology and

how does the development of digital literacy impact student identity?

2) To what extent do students' e-Granary digital literacy practices illuminate

communalism within African indigenous knowledge?

      The data, which were taken from my observation notes as well as the

questionnaires and interviews, will be analysed in two separate sections. Section 5.1

views the data through an identity lens and discusses the ways in which the library

scholars' possible range of identities expanded over the course of the research, with a

special emphasis on their imagined identities and communities. The indigenous

knowledge framework used to analyse the data in section 5.2 focuses primarily on the

work of Yatta Kanu and George Dei. The section is centered around the concept of

s*ankofa* and the African indigenous tradition of communalism.

5.1 Identity

"Because learning transforms who we are and what we can do, it is an experience of

identity. It is not just an accumulation of skills and information, but a process of

becoming…" (Wenger, 1998, p. 215).

      The data indicates that an evolving relationship with digital technology led to an

expansion of the library scholars' possible range of identities, both real and imagined. At

the beginning of the research period, library scholars were learners and trainees. They

possessed little computer knowledge and were eager to participate in the research and

develop computer skills. Comments written for the first questionnaire show the library scholars' strong desire to learn computers, and indicated that the students already associated computer knowledge with academic success, improved communication and professional career goals.

They might help me to pass my exam through making research and knowing more about other features (Joseph, questionnaire 1, October 3, 2008).

Through knowing how to use granaries, I could enjoy with it. Through knowing how to send greetings to some people, I could start communicating with them easily (Nakalema, questionnaire 1, Oct. 3, 2008).

It can be help for getting job, you can get a job of teaching computer in the country, it can help you find more things (John, questionnaire 1, Oct. 2, 2008).

As the library scholars developed their skills and it became known at the school that this select group of students had access to information and technology, they became valuable members of the school community due to the possibility of them sharing this knowledge. It was well known at the school and even by some other members of the community that the library scholars had this access and that to gain access themselves, they would have to rely on the assistance of and sometimes even permission from library scholars.

The library scholars, the e-Granary has helped us to be famous, known, because many students have come to know that we are (?) whereby we use the e-Granary to teach them how to find information on the e-Granary and also the outside people have tried to come

across us so that we can teach them (Mohammed, interview, November 24, 2008).

In many cases, the students even had access to more information for certain subjects than the school teachers. From time to time the students would be required to share the computer with teachers who wished to experiment with the EG. The library scholars sometimes even assisted the teachers with the technology and their information searches on the e-Granary.

Part of negotiating this new identity involved dealing with peer conflict. Because their roles as library scholars granted them access to much desired tools and information, other students began to see them as an elite group of privileged students and protested through teasing. As several of the scholars mention, certain students at the school would verbally attack the library scholars in my absence, saying that because the library scholars did not own the computer, everybody should be able to learn it and use it, without preference of any sort. On several occasions this behaviour resulted in the mistreatment of computer equipment and the removal of the computer and e-Granary for one day. *Because we have only one e-Granary and one computer we could find problems like, often students could come and in the absence of Madame Carrie, some students would disturb us, saying that the computer is not ours, let us also give them so that they can learn well, while it's our time to learn, because we are the first learners to teach them. That has been the problem with students (Mohammed, interview, November 24, 2008).*

And another problem is that as you have one computer and one e-Granary, so many, many people were interested in using it and they could not know very well how to use it, so, they sometimes tried to destroy it, to disturb it in its functions…(Joseph, interview,

November 24, 2008).

       In the learning process, the library scholars earned and acquired social and cultural capital (Warschauer, 2003; Bourdieu, 1997). The e-Granary and the laptop computer were no longer mere physical tools and material resources – they became meaningful symbolic resources as well. The e-Granary for them was immediately linked to social relationships and networking, improved academic performance and opportunities, and possibilities of employment, leading to income generation, financial resources, and further social networking.

       The library scholars were invested (Norton, 2000) in the new technology on multiple levels, sharing common investments at a community level, and also investing in future hopes and careers specific to each individual. Their imagined communities, which were also made apparent in interview comments on future career goals and wishes, also emerged.

       The following quotes and interview excerpts reflect the relationship between student identities, learning and imagination.

Zuena: It means our future is bright!

CJ: How does it make it bright?

Zuena: We will become experts in the computers...I want help my generation also, our young sisters and brothers to have computers and to be allowed to come here in the community library and use computers because it is more important in the future to be knowing the computers (Interview, Nov. 24, 2008).

As will be further discussed later in this chapter, Zuena hopes to become a social worker

in the future so that she may help her "young brothers and sisters" learn and progress, and help local residents who are suffering from various health and social problems. She emphasizes the importance of computers in the future education and progress of her generation, indicating that their future will then be bright. She is eager and willing to take on an important role in this transformation.

Joseph: Yeah, it's, computer can give us advantages. Even you can get a job in the future for computer in, for example, in supermarkets you can get a job for accountants with a computer... I like to be a teacher! ...I would like to teach biology and mathematics.

CJ: Oh great! And maybe computers!

Joseph: Yeah, even computer! (Interview, Nov. 24, 2008)

Once again feelings of responsibility towards the community are reflected in the students' words and wishes. In his desire to become a teacher lies evidence of the development of James' individual identity as well as part of the collective identity of the greater community.

In the following quote from Joseph, we see the value he places on being known by the community. Throughout his interview he emphasizes fame both for himself and for the library. Personal fame will make him known as an intelligent, well-educated and well-trained individual. The desire for community fame also reflects his desire to share his knowledge and to help others. By being known, he will serve as a resource person in the village.

Joseph: For me, I think it is important for me because I will, first of all I will be known, as I have some knowledge of using the e-Granary. Some people will be, who will have

come from very far, will tell others there is a gentleman, I am a gentleman, Joseph, eh?

That he knows the e-Granary, who can help you, can guide you, that is on my side very

useful to be known by the community. It is a good thing (Interview, Nov. 24, 2008).

Joseph also states that he wishes to become an electrical engineer, an ambitious goal. No wish or imagined future identity is invalid or illegitimate, however. Joseph imagines himself as a well-known, successful individual in the future. His imagined future self relies on a strong educational background and a relationship with technology in order to be successful, therefore the value he places on a solid educational foundation is evident.

Well aware of the uncertain nature of his educational opportunities, and given the fact that the continuation of his education depends fully on the availability of funding and assistance with school fees, Mohammed uses his opportunity to learn the e-Granary and the computer as an opportunity to develop a "plan B". In the event that he should no longer be able to attend school due to financial constraints, he can take advantage of his computer skills to seek related employment until he is able to return to school. Being so aware of his conditional education, he very responsibly considers his options and commits to learning more than he normally would in order to be prepared should circumstances change.

Mohammed: For me, it will help me because I may, I may, I may leave the KCSS, I could, I should, I could finish my "O" level when I have no further assistance for further education, so I may use that knowledge that I acquired from the e-Granary to get jobs like secretariat and also some simple jobs like playing discos, playing music on discos, and also other jobs in the category of computers, so I'm gaining future knowledge on the e-Granary (Interview, Nov. 24, 2008).

Kanno and Norton (2003, p. 248) discuss the temporal dimension of imagination and identity construction, proposing that future events that have not yet occurred but are imagined as occurring at some point in the future can be a reason for what learners do in the present. This is true in the case of Mohammed, whose future visions are directly related to his current actions. They add that identity must be understood in terms of our investment in the "real" world as well as in terms of investment in possible worlds. When considering his future career options, he lists three goals that require extensive educational backgrounds.

Mohammed: For me, I want to become an accountant and a mechanic engineer, and also to become an entrepreneur (Interview, Nov. 24, 2008).

It is interesting to note that Mohammed uses the word "and" instead of "or", as though accountant, mechanical engineer and entrepreneur are multiple identities that he will experience all at once instead of identities that he may evolve into or pass through at different stages of his life. His rationale is likely influenced by the fact that, in rural Uganda as in other rural regions of the world, it is typical for key community members to hold several jobs and perform many roles and duties at once.

On the day of Theo's interview, I asked him if he would like to be videotaped in addition to his voice recording. I gave him this opportunity to send greetings to people at UBC and in Canada. The video was originally intended as a personal message, but I now include it in my data because Theo's words not only speak of his imagined communities, but also of his perception of the relationship between KCSS and UBC. Earlier in this paper, I noted a quote by Nakalema, in which she associates receiving with UBC

researchers and volunteers. Similarly, Theo's understanding of KCSS's relationship with UBC is one that highlights closeness, favours and reciprocity.

CJ: If you could say anything to the people of UBC or to the people of Canada, what would you like to say?

*Theo: My name is Theo. So mostly I want to ask different questions about the people of the University of British Columbia. **I'm willing** to join you in next two, three years. So that's after my S6. So because I'm just remaining with two years then to be almost done with my S6. So **I expect** to join your university. So that's where I become… I wanna become a doctor (interview, Nov. 24, 2008).*

Theo's future self is located in Vancouver, Canada. He imagines himself, very specifically, as a student of the University of British Columbia where he will attend medical school. His imagined communities include the greater community of Vancouver, a community of medical students at UBC, and a community of doctors. The words in bold print are words I find particularly interesting. Theo's choice of words is indicative of a strong determinism: "I'm willing" and "I expect" demonstrate high expectations and an established imagined identity that he intends fully on making a reality. Theo's outward, internationally focused orientation is in line with Mitsikopoulou's (2007) cosmopolitan discourse. Theo looks forward to using ICT as a tool for development in his community but also plans on situating himself in Canada for his tertiary studies. While his life circumstances locate him more within the progress and development discourse, Theo's imagined community, despite his socio-economic status, also locates him within the

cosmopolitan discourse, making him a hybrid of the two.

It would be interesting to look further into the students' imagined communities as they relate to the UBC researchers and volunteers with whom they have come into contact and developed relationships. One might ask how these relationships affect how the students situate themselves in a global context or how they see their future life chances in relation to their connections with UBC and Canada.

Appadurai (1996) posits that the imaginations of the current generation are heavily mediated by developments in ICT coupled with mass migration. With a new global tendency to live and work abroad when such opportunities are available, regardless of one's socio-economic status and how one is globally positioned, Appadurai's statement is applicable across global contexts. He also argues the indisputable influence of rapidly developing ICT systems on the scope of imaginable communities. Appadurai's point is validated in this data, especially in Theo's case, where we observe the evolving relationship between his imagined identity and his use of technology. It is also worth noting that on the occasions when Theo did go to the Internet café, he used his precious time and money to navigate and search for information on UBC's web site.

By the end of the research, the library scholars had reached a third stage of identity in relation to the computer. They had transitioned from being learners and trainees to teachers and trainers, passing on knowledge, skills and information to other students and members of the wider community. They appeared to take their roles as teachers very seriously, considering it their responsibility to make the e-Granary accessible to the community, residents of other villages, and even "far away" centres

such as Kampala and Mbarara. Communalism is evident here again, as well as the importance and local significance of communalism.

Related to communalism and also to identity construction are communities of practice (Wenger, 1998) and communities of inquiry (Bruce & Bishop, 2008). In many ways, the Kyato Community Library already serves this purpose as it is a location where community groups meet to engage in literacy practices together and to hold meetings related to community affairs. If the e-Granary were to become a focal point at the library, the tool could play a vital role in the examination and discussion of issues that affect the community such as health crises and agricultural problems.

Following the work of Bruce and Bishop, we can say that the library scholars have formed a community of inquiry around the e-Granary that "emphasizes the need for people to come together to develop shared capacity and work on common problems in an experimental and critical manner" (p. 711). Involving other members of the community in actively researching and discussing locally relevant concerns is the next step in the development of a community of inquiry.

5.2 Communalism

The library scholars' introduction to the e-Granary Digital Library was coupled with an introduction to basic computer literacy, which, combined, opened up numerous possibilities to the young scholars. By using the e-Granary to access multimedia files such as videos and songs (some of which were related directly to their communities, e.g. Kataka Hospital in a video on AIDS in Uganda), the students also became interested in importing more local media and making it accessible through the computer while they were unable to update the e-Granary's content themselves

Using Yatta Kanu's work on tradition and indigenous knowledge as a framework, particularly the aspect of communalism, I will analyse how the library scholars make the computer a digital location where oral tradition, popular culture and technology come together. I will also discuss the ways in which they view the e-Granary as a tool that will unite and develop their local community.

There is strong evidence in the data to suggest that communalism is alive and well in rural Uganda. Community is a word that appears frequently in the data and much of what library scholars said in relation to the e-Granary reflects a strong sense of commitment to the local community – to future progress and development, and to its present well-being. A couple of main themes that indicate a commitment to community are apparent in the interview data. These themes include public knowledge dissemination, teaching and future careers.

Finding ways to share their new knowledge was important to the library scholars. Making reference to the I Need to Know forms, Zuena explains that

…they're useful to the students, to the community, uh….the students, help the students to improve on their academic performance, help them to become the teachers of tomorrow, because if you get the question that you have been looking for, you can help and teach others and you will help the community to understand the, our daily life because e-Granary consists of anything, any question you want (Interview, Nov. 24, 2008).

In Zuena's view, INK forms are applicable to the present and future lives of students and community members. The present and the future are one under this view – knowledge that is gained today helps users understand their current lives and progress into the future. In a discussion about the community computer lab under construction,

Zuena adds: *I would like to have more to become, to become more trained. And other students at KCSS so that they can also help to teach the community.* The fact that Zuena believes today's students will be tomorrow's teachers implies that she sees it as her generation's responsibility to share knowledge and skills with the wider community, where knowledge is communal and not owned by individuals.

Joseph also sees the INK forms as an opportunity to spread knowledge, promote technology and connect communities throughout Uganda.

It is helpful that it can attract people to come and use it eh? So that the e-Granary can be known by many people, the library can be known, e.g., someone from far like, from Kampala, can come and see that machine can display such information...And it can help us library scholars and the students of KCSS and even the community, that they can get some information from it and use it, hmm? They can get more than they knew. So, that can help many people e.g. people in Mbarara can get to know. They can hear from the radio, eh? (Joseph, interview, Nov. 24, 2008).

The above quote also speaks to the importance of shared knowledge and advancing the knowledge of all community members, extending even to a wider, more large-scale community. According to Joseph, oral broadcasting could be an effective and efficient way of sharing the e-Granary. With radio broadcasting reaching listeners all over the country, orality as well as communalism are emphasized here. A particular point of interest in this excerpt from Joseph's interview are the words "*from far like, from Kampala.*" These few words tell us a great deal about where and how Jimmy positions himself within a global context; where coming "from far" is coming from Kampala, just a couple of hours away.

Interestingly enough however, despite the library scholars' perception that the INK forms and the e-Granary would unite the community (and even extend beyond their community) and bring them together through knowledge and technology, it must be acknowledged that INK and e-Granary actually divided the community in some ways. The positive influences of the e-Granary should certainly not be diminished, but, again, the tension they created between students must not be overlooked. That being said, the library scholars were very proud of their new skills, saw them positively, and looked forward to sharing them with the community.

Mohammed also stresses that the library is meant for the greater community, not just for members of the school or residents of Kyato. He notes that people come from many different villages to meet and share with each other.

Since the library is for the community, many people come from different villages, schools, and also some from other districts, e.g. when the students are in their holidays, they join other places, so we visit many people (Mohammed, interview, Nov. 24, 2008).

Like Zuena, Joseph and Mohammed, Theo considers himself responsible for sharing knowledge and making it accessible to locals and to members of a wider, global community. He also takes on the role of teacher, concerning himself with the education of others and the promotion of literacy.

I want to spread technology about, over the village and then, if time goes on, even the world in general. Because there are many of people in our villages that don't know about using the computer. And they cannot read, but if I train them how to use the computer, you never know. They can use it (Theo, interview, Nov. 24, 2008).

When asked how e-Granary could benefit the community, Ahimbisibwe

commented on the vast resource of information contained within the digital library. *You see, e-Granary has a lot of stuff: farming, yeah…development issues, like journals of what is happening elsewhere around the world. I think it can help them very much to improve what they are doing.* Ahimbisibwe's comment can be illustrated by the following example. One teacher from Kyato Comprehensive approached me for assistance in locating information about bees and bee hives on the e-Granary. His interest stemmed from a hope to develop a top-bar hive, which are common in developing countries due to the low costs involved. He was hoping to make some to put in trees and produce honey as a money-making and development project for the school and community.

Like, for example, they have a video of a, HIV video like, seeing people in a locality like, in a hospital like Kataka here in Ganda. So the computer then becomes part and – part of life… Here, Ahimbisibwe is speaking of a video on the e-Granary that focuses on the AIDS legacy in Uganda. In this video, a doctor from Kataka Hospital, which is located nearby within the Ganda District, is interviewed. Local health knowledge and issues are thereby broadcasted digitally through the e-Granary and users are able to connect with the realities of their very own local community through the computer.

In the section on identity, I outlined the various career goals of the library scholars. The career goal that most directly connects to the theme of communalism however, is that of social worker in the case of Zuena.

I want help my generation also, our young sisters and brothers to have computers and to be allowed to come here in the community library and use computers because it is

more important in the future to be knowing the computers (Zuena, interview, Nov. 24,

2008).

Here Zuena refers to her peers as brothers and sisters, indicating a belief that community

is synonymous with family. The library is meant for the use and enjoyment of the whole

community and sharing computer knowledge with others will mean that this knowledge

will continue to be constructed and shared by new users.

       I want to become a social worker… I want to help. Because I see people suffering,

have different problems. Since now I don't have …I don't have ability to help because

I'm still studying. I would like very much to help those who are suffering.

Suffering is a strong word and Zuena's apparent empathy is just as strong. The suffering

of one member of a group affects the well-being of the group as a whole, including all

other individual members. If one person is experiencing hardship, others also share in

their hardship and it is therefore the responsibility of other community members to help

solve internal problems that affect even single members.

       As has been demonstrated in the data above, the library scholars are actively

combining their local knowledge and practices with contemporary technology and global

knowledge. Influenced by the traditions of their villages and country as well as by global

media and technology, these students have taken the best of both worlds to form a hybrid.

With this hybridized knowledge, the students have the capacity to seek solutions to

pressing local problems in health, education and agriculture and share the information

and skills they accrue with others for the betterment of their community. There is a

postmodern view that the notion of hybridity gives life to the local (Canagarajah, 2002).

However, there is also a concern that the potential of indigenous knowledge and

practices, as well as the specificity and peculiarity of the local is lost when fused with more dominant discourses (Canagarajah, 2002, p. 247). As the research participants have demonstrated, with the negotiation of dominant discourses, local knowledge can still be constructed and communities can continue to develop and thrive using ICT. A recent example of community-based ICT in Kyato is that of www.afripads.com, a local business website that features local tailors and promotes a local initiative to keep girls in school. The web site is a wonderful opportunity for the community to promote their business activities and their efforts to address local issues in girls' education. It is also an opportunity to use ICT in a community of inquiry. In this way, local information is produced as knowledge is constructed and, through the website and the site's blog, interested parties can stay informed on the progress of the situation in the community. The construction and reconstruction of local knowledge can help locals respond to a broad range of contemporary needs like evolving farming practices, health care solutions, etc., and help communities respond to the constantly changing conditions and emerging questions they face day to day. Dei also argues that local communities should own and control the solutions to their own problems, that they can have real and effective control over development if they seek to centre indigenous knowledge systems in the search for solutions to human problems. When a community takes charge of its own knowledge, they are actors and subjects of, rather than objects of development, providing practical and social meaning to the development process.

    The implications of this data for local educators and education are great. The research shows that a return to valuable indigenous knowledges and traditions balanced with contemporary knowledge can inform the development of educational curricula in

postcolonial Africa. An interwoven, hybrid curriculum could allow

> teachers to facilitate the development of students' identities, self-
>
> understandings, and understandings of the world by providing them
>
> with insights into the cultural values and the tools that they need for
>
> interpreting ambiguous cultural contexts in which they are now living
>
> (Kanu, p. 216).

Instead of the current curriculum that still transmits outdated, colonial knowledge, a new

curriculum would reflect the current needs, values and goals of the local society by

employing local cultural resources as well as imported resources. Kanu suggests that a

curriculum reform needs to be based in imagined communities. In such a curriculum,

knowledge, like *sankofa*, would flow in a circular motion and would no longer be

"unidirectional or univocal" as it has been since colonisation. A reform of this type could

be greatly informed by the data collected from the library scholars that speaks so loudly

of their own identities and imagined communities. Under this curriculum, the local would

be enriched and empowered as the traditions of the community are revived and combined

with newly constructed local and global knowledge on the road to progress.

5.3 Summary

The analysis of the data in this chapter suggests that the library scholars are invested in

the e-Granary as both a digital and social tool. As material resources, the

e-Granary Digital Library as well as the computer itself are access points and gateways to

much desired knowledge and opportunities. The library scholars have clearly indicated

their belief that the skills they've developed from these tools grant them power and social

capital that they did not possess before. This capital comes in the form of improvement in academic performance due to their access to material and educational resources, the potential to attain better employment and their increasing value as community members.

On a more cultural level, their experience with the e-Granary and the computer is permitting them to retain and revalue their local traditions and indigenous knowledge practices by allowing them to illuminate and place emphasis on communalism.

Over three months of learning this technology, the library scholars changed both intellectually and socially as their identities evolved from that of willing, eager learners to that of community teachers. Differences were noted in their "real life" roles and identities as well as their imagined identities and communities. With this new knowledge, the library scholars imagined themselves incorporating technology in their future, gaining meaningful employment, and, once again, sharing this success and potential with their communities.

The potential of the e-Granary to develop the digital literacy skills of these students is great. Although connectivity is not available in the form of the Internet, the library scholars are using the e-Granary to develop their Internet skills while they wait for connectivity. The e-Granary allows its users to develop various skills in the areas of navigation and research; skills that are essential in order for full connectivity to be achieved. Even when the e-Granary itself is not connected due to power shortages or technical difficulties, the library scholars take advantage of the opportunity to learn new programmes and develop additional skills such as Microsoft Word and Excel, typing, digital art, music programmes, and refining basic computer operation skills such as controlling the mouse, minimizing and maximizing windows, downloading images,

saving files, etc. When offered the opportunity to use the computer for academic or job

related purposes in the future, the library scholars will undoubtedly have little difficulty

"catching up" and learning new tools such as the Internet, for which they ensured

themselves a basic foundation in preparation for both present and future opportunities.

Chapter Six: Discussion and Conclusions

6.1 Summary

November 26th, 2008. Day 76.

"I think when you spend a month in a place, you get some emotion about that place" said

Davies[7]. He was seated at the breakfast table on his last morning in Rwanda, gearing up

to return to China. He was excited to go home but on his last day felt "like maybe I don't

want to leave. How do you call this?"

"Nostalgia" I told him. "You're no-stal-gic."

"No...stal-gic" he repeated.

Sitting here in the library for the last time, and right in the middle of packing, I

feel a little bit like Davies today: no-stal-gic.

My three months in Uganda provided me with a better understanding of the

unique challenges and great potential involved with developing ICT and digital literacy in

rural, developing regions. Three months is still a short period of time however, and the

introduction of the e-Granary to Kyato marks just the beginning of what could potentially

become a digitally rich community in terms of literacy and curriculum development as

well as local human resources.

The information age in which we now live is propelled not only by information

alone, but by globalization, migration, communication, and access to resources. Despite a

shortage of resources in areas such as Kyato, both material in terms of equipment and

human in the sense of digital "experts" and instructors, my research suggests that through

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[7] A Chinese engineer I befriended in Kigali, Rwanda.

technology such as the e-Granary, the knowledge economy and the information age can at least partially reach developing regions regardless of a digital divide. Admittedly, there are challenges and limitations associated with introducing the e-Granary in a local setting. Firstly, although the e-Granary does not require connectivity, it does require electricity, which is sporadic at best in much of Uganda. While the machine functions well with connection to solar power, it can often drain what little power is available on overcast and rainy days, especially if this weather lasts for an extended period of time, such as in the months of rainy season. Secondly, the e-Granary is somewhat limited in its capacity to respond to the questions and information needs of local users in two main ways. With the exception of a small selection of language learning web sites, the content of the e-Granary is written in English, limiting users with less developed English language skills. Operating as a source of public, global knowledge, local content is extremely limited and does not necessarily respond to the immediate concerns of local community members such as national politics, agriculture, and health. However, opening in an Internet browser and providing access to countless resources such as Wikipedia, lesson plans for teachers, and locally meaningful health information, the e-Granary Digital Library could potentially allow its users to develop critical research and navigational skills while "waiting for connectivity."

The library scholars at the Kyato Community Library demonstrated the development of digitally literate selves as they learned the computer and trained with the e-Granary. As mentioned later in this chapter, these digitally literate identities may already have existed to some extent before the e-Granary and cannot necessarily be linked to a causal relationship with the introduced ICT. Despite the challenges and

limitations the participants faced while using the e-Granary, they agreed that access to both a laptop computer and the e-Granary allowed them to learn a host of basic computer skills. These skills ranged from knowing how to turn on and properly shut down a computer, to manipulating the mouse, learning to type, quickly and efficiently navigating the Internet, and conducting web-based research, among many others. With this new skill set, the library scholars and other users gained confidence in their abilities and developed the attitude that the computer is a useful resource that everybody, regardless of age and experience, can use and learn from.

This newfound confidence, coupled with an opportunity to spend countless hours exploring the e-Granary and learn through trial and error lead to a significant identity shift for the library scholars. As they became more confident and more experienced, new doors and new opportunities opened up to the students. They began their learning trajectory in a novice/expert situation, in which I, the expert, taught them how to use the computer and its various programmes as well as how to navigate the e-Granary and locate desired information. Most participants had never used a computer before their introduction to the e-Granary and some were quite timid and intimidated at first by the seemingly complex machinery and procedures. The dedicated students made appointments to study with me and consistently practiced and developed their typing, research and navigational skills each day. With time, they evolved from their position as trainees and became trainers, teaching interested students and community members and proudly sharing their knowledge with interested parties. Realizing the capabilities of the machine to assist them in their studies and understanding their new power as their social status grew within the school, the library scholars began to see their roles as library

scholars differently and saw more possibilities in their futures. They began to imagine their future careers as social workers, doctors, engineers, teachers, and DJs, identities they imagined when considering how their futures would unfold now that they had knowledge of modern technology. As library scholars, they were no longer mere assistants, but teachers, as they possessed knowledge and skills that so few others possessed and had access to equipment and information that no other students and staff did.

The real and imagined identities of the library scholars are linked in interesting ways to the theme of communalism. Later in this chapter, I will problematize the pedagogical model of library scholar as trainer and the adverse impacts it had on the school's social dynamics. Each of the library scholars imagined themselves contributing to their community and helping their "brothers and sisters" to overcome hardship and collectively solve problems through the fields of medicine, social work and education. At the time of the research, the participants had willingly and eagerly taken on the responsibility of teaching computer skills and the e-Granary to other community members. They concerned themselves with sharing their knowledge not to boast or for selfish gains, but so that others could have the same access to information and learning opportunities as themselves. When asked how they could effectively spread the technology and knowledge, the library scholars came up with a variety of ideas such as distributing I Need to Know forms at the library and even broadcasting their services on the radio so that even people from as "far away" as Kampala would have the opportunity to benefit from the e-Granary. Linked to both communalism and digital literacy are communities of inquiry (Bruce & Bishop, 2008). The e-Granary served as a tool that

often brought interested parties around the computer to investigate matters of local concern and search for explanations and solutions to their everyday problems such as malaria, AIDS and agriculture.

The benefits of the e-Granary in rural Uganda are numerous and can positively enhance the educational opportunities and everyday lives of several different groups. Keeping a local orientation, I will discuss the implications of the new technology for the students, school and community, as well as offer suggestions as to how they could continue to introduce the technology into various facets of community life.

For the students of Kyato Comprehensive School, having access to the e-Granary means developing skills, developing digital literacy and creating new possibilities for the future. As we have already seen, students can use the digital library to study topics covered in class in further detail, to assist them with their homework and to study for exams. As a result of having access to vast resources of information, the students report feeling more confident and are likely to improve their academic performance and score higher on in-class tests as well as national exams and other forms of assessment. With more knowledge, more access and therefore more power, the students will possess skills that give them an advantage on the job market or when applying for entry to other educational institutions.

Teachers can also take advantage of and benefit from the Granary. Teachers can vary their lesson plans and lessen the amount of outdated and irrelevant material in their course plans and curricula by accessing ready-made lesson plans on the e-Granary or by looking for further information on topics being taught in class. Teachers can also bring their classes to the computer lab once it is completed and encourage students to use the

e-Granary and other computer programmes to complete assignments. Being familiar with the technology and being able to incorporate the e-Granary in class will also make teachers more marketable and increase their cultural capital.

The school and the library can work collaboratively to offer the computer lab and computer training and workshops to teachers, teacher trainers, and various community groups. Encouraging computer learning will promote literacy and provide the community with a tool that could be potentially used for purposes of development. The combined force of students, teachers, schools and libraries could potentially have a great impact on policy and curriculum development in Uganda, for example, by petitioning to bring digital literacy and technology education into the official curriculum in areas where adequate resources are available.

There are also some suggestions to be made for the improvement of the e-Granary itself, some of which were contributed by the library scholars. Keeping in mind that the contents of the e-Granary are written in English and that its users have varying levels of proficiency, Theo suggested that, in the future, the makers of e-Granary might include resources designed for English as Second Language (ESL) users. The makers of e-Granary might also consider a new initiative involving local users in content development. Such a programme offered to locals would give them the opportunity to learn new skills as well as to claim ownership over their own content, designing material that is meaningful to their local contexts and written in local languages.

Emphasizing ownership, collaboration and learning and lessening the preoccupation with the acquisition of new equipment could mean revolutionizing digital literacy in rural Uganda and other developing regions. With an opportunity to take charge

of their own learning, Ugandans could lead their communities towards achieving attainable progress and development goals. To conclude this chapter I will review past and current e-Granary practices at KCL and offer suggestions for further research into ICT and digital literacy in Uganda.

6.2 Review of e-Granary and Computer Practices

It is unknown whether the presence of the e-Granary at KCL during the research period stimulated new activity and digital literacy practices that were non-existent prior to its introduction. If we are to assume that there is no causal link and that these practices, for example, using word processors or playing music videos on the computer, were already taking place in the community, we might say that they were made visible through the presence of the e-Granary. Reflecting on digital literacy practices within the context of the Kyato Community Library, it can be said that e-Granary activity and digital literacy development co-existed. In order to engage with the e-Granary, users had to understand the computer and its basic functions as much as possible. E-Granary activity could not have been possible without a familiarity with other computer skills, including, but not limited to typing, mouse navigation, and some general knowledge of how the computer operates.

In light of concerns over placed resources (Prinsloo, 2002) as well as interest in developing further research questions, the research team decided it would be important to follow up with KCL to see if the e-Granary was still being utilised. Recent e-mail communication (July, 2009) with Dan Ahimbisibwe stated that the e-Granary has not been in use.

…currently we are not using the e-Granary much, because the computer is faulty and as you witnessed it requires someone to be there to help and monitor the users especially students who are very interested in using computer and e-Granary as well but they don't know how to use the computer well… Of course the library scholars are there but they cannot take charge of e-Granary or other important task because they are busy with class work during the day. The good news is that the computer lab is almost over and within two three weeks from now, we shall have a computer lab functioning with working computers which we will connect to the e-Granary and someone to watch over the computer lab. That is the arrangement we are putting in place for the use of e-Granary. So hopefully it will be functioning without interruption.

Ahimbisibwe's response is positive and suggests that the idea of the e-Granary's potential need not be diminished. His e-mail also reiterates some of the concerns and limitations associated with e-Granary use that were outlined in this thesis. Speaking of the faulty computer is a reminder that there is not enough equipment to support the development of digital literacy at a school or community level. It is also a reminder that the computer technology that is currently available in the library is outdated, incompatible, or even obsolete.

As Ahimbisibwe says, "the good news" is that the community computer lab will soon be open and there will be a set of working computers on which to train interested community members. In the following sub-sections I will problematize the pedagogical model of library scholar as trainer used in this thesis and make recommendations for the operation of the new computer lab.

6.2.1 Pedagogical Model

The pedagogical model of library scholar as trainer was, I believe, less a result of poor judgment and more a function of circumstance. The research for this study was experimental in nature and a trial and error approach was taken to identifying the best system for e-Granary and computer use at the library. Given that there was one e-Granary, one computer and hundreds of interested learners in a context where the technology was relatively new and students were curious and eager to experiment and learn, it was difficult to know which strategy would work best from the beginning. In addition, the level of excitement and interest generated was unforeseen and, as it escalated, so emerged an unexpected series of questions, concerns, problems, and attempts at responding to them all.

As discussed in earlier chapters, computer rules and privileges divided students in some ways. Library scholars were given priority as employees of the library because they would be able to train other library users as part of their work duties. Other students at the school were understandably frustrated when interest grew to the point that computer use had to be monitored and limited. While undeniably a negative result, the tension was never reported nor was it observed to have affected student relationships beyond a level of frustration around computer use in the library. As an outsider myself, imposing the rules alone would also have raised a number of concerns and problems at the library and school. Because Ahimbisibwe had many other duties and there were no other adult librarians or assistants to help organize computer usage, in some ways the library scholars served as a bridge between me and library authority.

Fortunately, Ahimbisibwe was able to speak to non-participating students and

address their concerns in a meeting. He explained our rationale behind putting the library scholars "in charge" and explained that in the near future, all students would have an equal opportunity to learn and benefit from ICT in the computer lab.

The library as trainer pedagogical model was not necessarily ideal under the given circumstances, but it did raise legitimate concerns and provide important lessons about models to avoid or adapt in the future.

6.2.2 Recommendations for Computer Lab

The successful integration of a computer lab in the Kyato community will require a number of considerations. First and foremost, the lab will require functioning computer equipment. While donated computers are acceptable, the library must assure that they are in good working order. "Hand-me-downs" of faulty or obsolete technology from Western donors will only cause problems and will not serve their purpose in a community computer lab where the intention is to provide access to many people and develop skills. In a similar vein concerning issues of ownership and donor dependence, we might ask questions regarding the effects of providing donated computers to the school such as how libraries and communities can gain a stronger sense of ownership over technology. Secondly, a trained and knowledgeable computer instructor must be available to monitor activity and teach and assist users. Lessons must cover basic computer care and basic computer functions. Ideally, classes would be made available to all students at the school and training courses would be offered to members of the wider school community including adults, parents, and younger children.

For ultimate engagement and to foster a community atmosphere, the library might consider inviting local groups to the lab to research issues of local concern on the e-

Granary. This group would act as a community of inquiry and work together to produce local content. One group for example might be interested in typing out and uploading local language stories to the e-Granary or meeting to discuss the production of local content that would be useful and beneficial to community members.

6.2.4 E-Granary Updates

With the generous support and contributions of Dr. Anthony Peirce and Mr. Nick Early to the ICT Uganda team, recent developments have been made in relation to the e-Granary Digital Library. In recent workshops, we have continued to explore the e-Granary's capacity as an information source and have experimented with the uploading of content onto the hard drive. Word documents, images, Power Point presentations, and even music videos have been uploaded to the e-Granary hard drive as experiments in uploading local content. While this development has exciting implications for local users, it also has limitations. Viewing uploads in a positive light, local users can work together to digitally produce and archive locally meaningful materials to the e-Granary that can be made available to other users. Because the e-Granary has an enormous memory capacity, users have the freedom to upload whatever they think would be relevant or interesting to their community, promoting indigenous knowledges, traditions, and local languages.

There are also drawbacks and limitations, however. Once uploaded, content is available only on the e-Granary in use and would have to be transferred to any other e-Granary hard drives available within the community or network of communities using the e-Granary. The primary concern with the uploading of new material is that it is not "searchable" within the e-Granary. Rather, in the address bar, users must type in the name of the uploaded file in order to access it. The challenge here is creating, updating,

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and making available an easy-to-use computerized (or even a printed record) index of all additional resources so that they may be located by users. In light of this positive development/challenge, further items to consider include discussing the benefits of uploading new content to the e-Granary hard-drive versus storing them on CDs sorted by subject matter that can be inserted into any computer. The team is also investigating the possibility of connecting the e-Granary to wireless Internet.

6.3 Directions for Future Research

The development of a digitally literate society is dependent on several factors, perhaps the main factor being access to digital technology and equipment. The research for this project raises important questions about digital literacy practices in rural Uganda. e-Granary was the initial focus of this thesis, however, it would be remised not to mention other digital literacy activities that were observed in the community, including watching music video CDs and cell phone usage.

6.3.1 Music and Orality

Work around the e-Granary at the library generated activity that poses a number of questions related to the prior digital literacy practices of students. Although entertainment as a digital literacy practice and orality as a theme of indigenous knowledge were not central to the research questions for this thesis, questions in relation to these topics are emerging.

Hagood (2008, p. 532) suggests that the development of literacy involves cognitive as well as social and cultural development. Because popular culture (here referring to popular music and celebrities) tends to be a part of community life and also

often reflects the daily life of the community, it is also a part of community-based identity construction as is demonstrated by the digital literacy practices of the library scholars.

Students of Kyato Comprehensive and other community members would frequently bring burnt CDs to the library to listen to, view and share with others, as popular music and videos in Uganda are extremely popular and widely enjoyed. From observation, it is quite common to see music videos playing on televisions located in restaurants, stores and other small establishments in rural and semi-urban areas of the country. Knowing only a handful of Luganda words, I didn't understand the lyrics I heard but very much enjoyed the music that sounded constantly out of radios in the village and through loudspeakers and sound systems in the trading centre at night. One day at lunch hour some hip hop music was playing on the radio and I decided to ask Ahimbisibwe what the song was about. Much to my surprise, the impressive beats and raps in the song were put together to tackle the taboo topic of AIDS. The song was delivering messages about the importance of safe sex practices and the deadly consequences of unprotected sex resulting in HIV/AIDS and loss. The discussion at the table that afternoon was centred around the important role that popular music and Ugandan artists play in transmitting critical knowledge and influencing values. Performance has proven to be an effective medium for delivering health information in Uganda and contributes greatly to the country's growing resource of health literacy (Kendrick & Mutonyi, 2007). Local hip hop music adds to this list of oral performance types that may be influential in the decision making of young Ugandans and puts a modern twist on traditional forms of dissemination.

In "preliterate" Africa, stories, anecdotes and proverbs were used to teach and provoke reflection. This orature was a tool for non-intrusively teaching morality and appropriate behaviour through folklore and traditional wisdom (Kanu, 2006). In various ways, oral tradition continues to thrive, one means of its transmission being popular music videos.

An adult student of mine from the community presented me with a music CD containing videos that he often played on his cell phone or shared with younger students on the computer. The following is an analysis of some of those videos. The clips can be divided into three major categories that I will call American hip hop and pop, Ugandan hybrid, and Ugandan local.

The American videos prominently featured African-American hip hop artists such as T-Pain, Chris Brown, and Beyoncé. Videos by Jamaican artists such as Sean Paul and Sean Kingston who base their careers in the United States, as well as Canadian country singer Shania Twain and British pop singer Natasha Bedingfield were also included. The majority of these videos display images depicting American hip hop culture, particularly that of money. Luxury in these videos often symbolises status and success as well as the ability to be self-sufficient and financially provide for close friends and family. It struck me that the North American songs I heard on the radio and in the Kitengesa Trading Centre were the same songs that were playing on the radio in Canada at the time. Although East Africa and North America may seem to be worlds apart, they are steadily connected by music, with songs produced in Los Angeles instantly reaching even the smallest villages of Uganda.

Ugandan hybrid videos draw from both the global and the local. Bebe Cool, for example, who sings in Luganda, Swahili and English, is heavily influenced by Jamaican reggae with elements of American hip hop culture. In one video in particular, Bebe Cool is shown in a high-end clothing store in one scene and in a casino in the next. Although he is a Ugandan artist, Bebe Cool's images portray a lifestyle that is a far-cry from that of the average Ugandan. In the casino scene, Bebe is shown dancing with white female models. However, black women are also portrayed as sexy and powerful in appearance and status. In the clothing store scene for example, Bebe is accompanied by African women holding fistfuls of money. Bobi Wine is another Ugandan artist who mixes the global and the local in his videos. One of his video clips is shot around luxurious cars and motorcycles with the license plate "GHETTO". A young child in the scene is shown standing with an umbrella under falling money, and women and men in African dress are dancing at the scene. This interweaving of ideas and forms of expression could be considered a type of postcolonial third space where the global and the local meet and coexist (Kanu, 2006).

Perhaps the most relevant to the concept of *sankofa* and the preservation of oral tradition are the local Ugandan videos, some of which were made by artists in the Ganda District. All these songs are sung in Luganda and their popularity contributes greatly to the promotion of the local language in a society that is still heavily influenced by English, the colonial language. There are several Luganda language videos that tell stories and show images of the traditional Ugandan introduction ceremony, which takes place before weddings. The introduction ceremony, at which the groom, his family and guests are welcomed into the bride's family, is still a big and important celebration in Ugandan

culture. Another video on this particular CD begins to unfold the story of a couple as they fall in love. The story is set at a rural home where domestic chores are being carried out and the man and woman flirt as they cut open and share a jackfruit from the garden. From watching these videos that reach so many young people, it is evident that local language and local traditions are being promoted and celebrated alongside each other by way of community artists and icons.

Music then, can act as both a storyteller and a teacher. As shown in Chapter Four, a couple of the library scholars mentioned an interest in becoming "PC DJs" and even playing at local discos. *I may use that knowledge that I acquired from the e-Granary to get…some simple jobs like playing discos, playing music on discos (Mohammed, interview, Nov. 24, 2008).* By using their computer skills to play music, students would be engaging with technology and serving the local community at the same time by providing entertainment, and promoting local and traditional, yet modern forms of orature.

6.3.2 Home and School Practices

In light of the information revealed in the above section on music and orality, I would like to back up Norton and Mutonyi (2007) and call for the investigation and integration of home and school ICT/digital literacy practices. Using the CD of music videos as an example, some questions that come to mind include who produces, distributes and cells these CDs? What technology is being used to produce them and where? What are they typically played on and where are they viewed (e.g. computers, DVD players, TV, in Ganda Town, in the Kyato Trading Centre)? What other types of digitally literacy practices are community members engaging in? In line with Moll,

Gonzalez and Amanti's funds of knowledge (2005), it is important to investigate and understand the home and community knowledges that students go to school with, and to explore how they intersect and produce hybrid knowledges that students can use to contribute to the development of digital literacy in their communities.

6.3.3 Cell Phones

While computer equipment is not easily attainable in rural Uganda, the average citizen owns or has access to a mobile phone. With the omnipresence of cell phone companies in Uganda, it would be interesting to investigate how cell phones could be used to advance the digital skills of its users. The same young man who gave me the CD of music videos also had a selection of videos uploaded to his cell phone (which has audio and visual) that he occasionally played for me and other students at the library. The presence of such technology in the village suggests that somewhere nearby there must be locals who are tech-savvy and have access to modern equipments and cell phone applications. What else can the cell phone do? Here in North America, iPhones, Blackberries and even basic cell phones have Internet capabilities. How could this or an adapted technology be made available to rural Ugandans?

6.4 Final Summary

In this thesis I present and analyse data that answers questions about the e-Granary digital literacy practices of rural Ugandan students as they relate to their identities and communalism in African indigenous knowledge. I found that engagement with ICT lead to an expansion of students' possible range of identities, the development of digital

literacy skills, and the illumination of communalism as an African indigenous tradition.

My research began with questions, answered some and ended with the emergence of even more. Because the research for this case study only lasted three months, I was limited in the depth of my investigation. However, as seen in this chapter, the research I began with the e-Granary and the library scholars in Kyato is just a beginning. This project raises a number of new questions to investigate in relation to ICT in Uganda and, with time and careful implementation, I am confident that ICT practices in Kyato will soon develop further and demonstrate Uganda's potential to succeed as ICT users and developers in the years to come.

November 30^h, 2008. Day 79.

I'll have to confirm with Davies that I do indeed "have some emotion about this place." My room is cleared out and my mosquito net has been hung up. Zesta and bread with tea for the last time. A beautiful and tranquil Sunday morning in Kyato. Good-bye for now…

References

Anderson, B. (1991). *Imagined communities.* London: Verso

Andema, S. (2009). Digital Literacy and Teacher Education in Uganda: The case of Bondo Primary Teachers' College (PTC). (Master's thesis, The University of British Columbia, 2009).

Appadurai, A. (1996). *Modernity at large: Cultural dimensions of globalization.* Minneapolis: University of Minnesota Press.

Bawden, D. (2008). Origins and concepts of digital literacy. In C. Lankshear & M. Knobel (Eds). *Digital literacies: concepts, policies and practices* (pp.17-32). New York: Peter Lang Publishing, Inc.

Bourdieu, P. (1997). The economics of linguistic exchanges. *Social Science Information*, 16(6), 645–668.

Bruce, B., and Bishop, A. (2008). New literacies and community inquiry. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu, (Eds.), *Handbook of research on new literacies* (pp. 699 - 742). New York: Lawrence Erlbaum Associates.

Buckingham, D. (2008). Defining digital literacy: What do young people need to know about digital media? In C. Lankshear, & M. Knobel,(Eds). *Digital literacies: concepts, policies and practices* (pp.73-89). New York: Peter Lang Publishing, Inc.

Burbules, N. C. (2000). Does the internet constitute a global educational community? In N. C. Burbules & C. A Torres (Eds.), *Globalization and education: Critical perspectives* (pp. 323-355). New York: Routledge.

Canagarajah, S. (2002). Reconstructing local knowledge. *Journal of Language, Identity, and Education, 1*(4), 243-259.

Coiro, J., Knobel, M., Lankshear, C., & Leu, D. (Eds.). (2008). *Handbook of research on new literacies*. New York: Lawrence Erlbaum Associates.

Dei, G., Hall, B., Rosenberg, D. (Eds.) (2002). *Indigenous knowledges in global contexts: Multiple readings of our world*. Toronto: University of Toronto Press.

Dei, G. (2002). African development: The relevance and implications of 'indigenousness'. In G. Dei, B. Hall & D. Rosenberg (Eds*.), Indigenous knowledges in global contexts: Multiple readings of our world* (pp. 70-86). Toronto: University of Toronto Press.

Dei, G. (1994). Afrocentricity: A cornerstone of pedagogy. *Anthropology and Education*

Quarterly, 25(1), 3-28.

Dei, G. (2000). Rethinking the role of indigenous knowledges in the academy. *International Journal of Inclusive Education, 4*(2), 111-132.

De Roy, O. C (1997). The African challenge: Internet, networking, and connectivity activities ina developing environment. *Third World Quarterly, 18*(5), 883-1000.

Duff, P. (2008). *Case study research in applied linguistics*. New York: Lawrence Erlbaum Associates.

Dye, J. F., Schatz, I. M., Rosenberg, B. A., & Coleman, S. T. (2000). Constant comparison method: A kaleidoscope of data. *The Qualitative Report*, *4*(1/2). Retrieved on July 23, 2009 from http://www.nova.edu/ssss/QR/QR3-4/dye.html

Glaser, B. & Strauss, AL. (1967). *The discovery of grounded theory: Strategies for grounded research.* London: Weidenfeld & Nicolson.

Gonzalez, N., Moll, L., & Amanti, C. (2005). *Funds of knowledge: Theorizing practices in households, communities, and classrooms.* Mahwah, NJ: Lawrence Erlbaum Associates.

Hagood, M. (2008) Intersections of popular culture, identities, and new literacies. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.), *Handbook of research on new literacies* (pp. 531 – 551). New York: Lawrence Erlbaum Associates.

Hornberger, N. & Skilton-Sylvester, E. (2000). Revisiting the continua of biliteracy: International and critical perspectives. Language and Education, 14, 2, 96-122

Ibrahim, A. (1999). Becoming black: Rap and hip-hop, race, gender, identity, and the politics of ESL learning. *TESOL Quarterly, 33*(3), 349-369.

Jones, S. (2008). Secondary schooling for girls in rural Uganda: challenges, opportunities and emerging identities. (Doctoral thesis, The University of British Columbia, 2008).

Kam, M., Ramachandran, D., Raghavan, A., Chiu, J., Sahni, U., & Canny, J. (June, 2006) Practical considerations for participatory design with rural school children in underdeveloped regions: early reflections from the field, Proceedings of the 2006 conference on Interaction design and children, Tampere, Finland .

Kanno, Y., & Norton, B. (2003). Imagined communities and educational possibilities: Introduction. *Journal of Language, Identity, and Education, 2*(4), 241-249.

Kanu, Y. (Ed.). (2006a). *Curriculum as cultural practice: Postcolonial imaginations*. Toronto: University of Toronto Press.

Kanu, Y. (2006b). Reappropriating traditions in the postcolonial imagination. In Y. Kanu, (Ed.), *Curriculum as cultural practice: Postcolonial imaginations* (pp. 203-222). Toronto: University of Toronto Press.

Kendrick, M. & Mutonyi, H. (2007). Meeting the challenge of health literacy in rural Uganda: The critical role of women and local modes of communication. *Journal of Diasporic, Indigenous and Minority Education, 1*(4) 265-283.

Kendrick, M., Jones, S., Mutonyi, H. & Norton, B. (2006). Mulitmodality and English education in Ugandan schools. *English Studies in Africa, 49*(1), 95-114.

Kickbusch, I. (2001). Health literacy: addressing the health and education divide. *Health Promotion International, 16*, 289-297.

Lankshear, C. & Knobel, M. (Eds). (2008a). *Digital literacies: concepts, policies and practices.* New York: Peter Lang Publishing, Inc.

Lankshear, C. & Knobel, M. (2008b). Introduction. In C. Lankshear & M. Knobel, (Eds). *Digital literacies: concepts, policies and practices* (pp.1-16). New York: Peter Lang Publishing, Inc.

Lightbown, P. & Spada, N. (2006). *How languages are learned (3rd ed.).* Oxford: Oxford University Press.

Lincoln, YS. & Guba, EG. *Naturalistic enquiry.* Beverley Hills: Sage Publications

Masgoret, A.M, & Gardner, R.C. (2003). Attitudes, motivation and second language learning: A meta-analysis of studies conducted by Gardner and associates. *Language Learning 53(1), 123-163.*

McConnell, S. (1998). NGOs and Internet use in Uganda: Who benefits? In C. Ess and F. Sudweeks (Eds). *Proceedings Cultural Attitudes Towards Communication and Technology* (pp. 147-167) University of Sydney, Australia.

McKinney, C., & Norton, B. (in press). Identity in language and literacy education. In B. Spolsky & F. Hult (Eds.), *The handbook of educational linguistics*. Blackwell.

McMillan, D., & George, D. (1996). Sense of community: A definition and theory. *Journal of Community Psychology, 14*, 6-23.

Microsoft (2007). Uganda Develops Curriculum-based ICT Learning Materials. Retrieved from www.microsoft.com/education/partnersinlearning.mspx on January 28, 2008.

Mitchell, R. & Myles, F. (2004). *Second language learning theories (2nd ed.).* London: Hodder Headline Group

Mitsikopoulou, B. (2007). The interplay of the global and the local in English language learning and electronic communication discourses and practices in Greece. *Language and Education, 21*(3), 232-246.

Mutonyi, H., & Norton, B. (2007). ICT on the margins: Lesson for Ugandan education. *Language and Education, 21*(3), 264-67.

Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the Internet worldwide.* New York: Cambridge University Press

Norton, B. (2000). *Identity and language learning: Gender, ethnicity and educational change.* Harlow: Pearson Education Limited

Norton, B. (1997). Language, identity, and the ownership of English. *TESOL Quarterly, 31*(3), 409-429.

Norton, B., & Kamal, F. (2003). The imagined communities of English language learners in a Pakistani school. *Journal of Language, Identity, and Education, 2*(4), 301-307.

Norton Peirce, B. (1995). Social identity, investment, and language learning. *TESOL Quarterly, 29*(1), 9-31.

Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International, 15*(3), 259-267.

Smith, L. (1999). *Decolonizing methodologies: Research and indigenous peoples.* London: Zed Books Limited.

Snyder, I. & Prinsloo, M. (Eds.) (2007a). The digital literacy practices of young people in marginal contexts. *Language and Education, 21*(3).

Snyder, I. & Prinsloo, M. (2007b). Young people's engagement with digital literacies in marginal contexts in a globalised world. In I. Snyder & M. Prinsloo, (Eds.). The digital literacy practices of young people in marginal contexts. *Language and Education, 21*(3), 171-179.

Street, B. (2006). Understanding and Defining Literacy: Scoping paper for EFA Global Monitoring Report.

VanWynsberghe, R. & Khan, S. (2007). Redefining case study. *International Journal of Qualitative Methods, 6*(2), 1-10.

Warschauer , M. (2002). A developmental perspective on technology in language
    education. *TESOL Quarterly, 36*(3), 453-475.

Warschauer, M. (1999). *Electronic literacies: Language, culture and power in online
    education.* London: Lawrence Erlbaum Associates.

Warschauer, M. (2003). *Technology and social inclusion*. Cambridge: The MIT Press.

Wenger, E. (1998). *Communities of Practice: Learning, Meaning and Identity*.
    Cambridge: Cambridge University Press.

Wright, H. (2007). Is this an African I see before me? *Diaspora, Indigenous, and
    Minority Education, 1*(4), 313-322.

Yin, R. (2003). *Case study research: Design and methods* (3rd ed.).
    Thousand Oaks, CA: Sage.

Appendices

APPENDIX A

Carrie-Jane Williams
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The University of British Columbia

Questionnaire 1 – Computers

1. How familiar are you with computers?

a) Unfamiliar
b) Somewhat familiar
c) Very familiar

2. If you are familiar with computers, what have you used them for in the past?

a) Microsoft Word
b) Excel
c) Powerpoint
d) Internet
e) music
f) movies
g) other
   please specify: _____

3.1) Have you used the Internet before?

Yes
No

3.2 If yes, what have you used it for?
              a) Web surfing
              b) E-mail
              c) Research
              d) Other
                 Please specify: _____

4) What would you like to learn about computers?

5) How do you think computers can help you with your studies?

Carrie-Jane Williams
Language and Literacy Education Department
The University of British Columbia

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1. How familiar are you with computers?

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3.1) Have you used the Internet before?

Yes
No

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           a) Web surfing
           b) E-mail
           c) Research
           d) Other
             Please specify: _____

4) What would you like to learn about computers?

5) How do you think computers can improve your teaching experience?

Final Interview Questions – Student Version

1. Compared to when you first started, how comfortable do you feel using the computer now?

2. What skills have you acquired and what programmes have you learned to use? In other words, what do you know now that you didn't know before? Which skills do you think will be most useful to you?

3. How can your computer skills, especially with the EG, help you with your studies?

5. Do you think having computer skills gives you an advantage over students who do not have the same skills? How so?

6. Have you used the EG for homework or school projects? What else have you used it for?

7. What types of information did you look for on the EG? Did you always find what you were looking for? Did you sometimes find more than you were looking for? Give examples.

8. What challenges did you face while using the EG? Do you have any suggestions on how the EG could be improved?

9. How does the EG help you as a library scholar?

10. How is the EG beneficial to other students at KCSS? What about other community members?

11. How would you like your teachers to use the EG?

12. Do you find INK forms useful? If so, what do you think is the best way to distribute them?

13. What has been the most exciting part of learning the computer for you?

14. How would you feel about having a computer lab at school? What would it mean for students' futures? What additional skills would you like to learn? What additional resources would be necessary for the computer lab to be successful?

15. What do you hope to be when you graduate?

16. Do you have any additional comments, questions or suggestions?

Final Interview Questions for Dan (plus partial transcript)

1. What has the introduction of the eGranary meant for the Kitengesa Community Library?

2. How do you think the EG has and will continue to benefit library scholars? What about the school? The community?

3. From the perspective of a librarian and a student in development, how can computers and the EG help advance education and development in Uganda?

4. From what you have observed about EG activity, what has excited or impressed you the most?

5. What have been the greatest challenges as far as the EG and computers have been concerned?

6. You have observed both students and adults using the computer for the first time. Would you comment on the experience?

7. How can computer culture be built around reading culture? In your opinion, can they be developed simultaneously?

8. A new library and computer lab is being built in the community. What will it take for the computer lab to be successful? What are your hopes?

9. Do you have any additional comments, questions or suggestions?

Interview with Dan Ahimbisibwe, Librarian

In this final interview with Ahimbisibwe, we discussed the success of the e-Granary at

the library and in the community as well as possibilities for the future.

Ahimbisibwe: Yeah, the introduction of e-Granary means a lot to the Kyato Community Library. First of all, it adds like, ten million texts to the library, and ah, secondly, yeah, it is a way of like, learning the computer and how to use it, which is very mu….very big to our library users. Yeah, and accessing so many things and learning different things so it's a big deal for the library.

CJ: Ok and how do you think it has and will benefit the school and the general community?

Ahimbisibwe: Yeah it will benefit the school first of all getting like, the reading materials. That is for the students. Yeah, and I think yesterday you saw this gentleman Katelega (?) with Martin like, getting some stuff, calculating, science, mathematics, so it is ah, it is very good for the students because they get reading materials which they wouldn't have accessed if there was no e-Granary. And to the teachers, I think, if used well, they can develop teaching materials and what, which they wouldn't have got access. Yeah.

CJ: What about other community members who are not necessarily members of the school? How do you think that they could use it?

Ahimbisibwe: Yeah they can use it. You see, e-Granary has a lot of stuff: farming, yeah…development issues, like journals of what is happening elsewhere around the world. I think it can help them very much to improve what they are doing. Yeah and ah, politics. (laughter). Yeah, they can know what is happening around the world, although it is a 2006 version but there are so many things, interesting things to learn about world leaders, about nature, about ah….about like, for example animals, those things are interesting to learn.

CJ: Ok. From the perspective of a librarian and also a student in development, how can computers and the e-Granary help advance education and development in Uganda?

Ahimbisibwe: Yeah, I think it, it, it is really very important to get ah, like, those e-Granary because first of all, there are so many like, text reading materials, which they're easier to get on the e-Granary or in computers, on the Internet, which it is very hard like, to get in print. Like for example, the course I'm doing in development studies – right now I'm doing a module of urban development. And then when you see the challenges of urban development, especially in developing countries, right now, it is hard to find a book written about those issues because they are current issues. What is available now is papers, which they discuss in workshops, in conferences, yeah. Right now, I actually, I got a journal from the e-Granary, which was highlighting some of the issues but the real materials about this course you will only get them in like, in journals, in papers from which they are only available on the Internet or, it's not really written in books. So it is really important.

CJ: From what you've observed so far about the e-Granary activity in the library or even in Bondo when we did the workshop, what has excited or impressed you the most?

Ahimbisibwe: Yeah, the exciting part of it was to see someone who had never touched a computer (laughter), trying to touch the computer. And in mind that actually someone will find something relevant on that issue. So the computer then changes from like, no longer - I heard someone saying that the computer is no longer something you see there that it is for those people who use them but it is only relevant to me because they see what is there. Like, for example, they have a video of a, HIV video like, seeing people in a

locality like, in a hospital like Kataka here in Ganda. So the computer then becomes part and – part of life, not something you see there and say "Oh, it is for those people!" (laughter). Yes. Yeah.

CJ: Ok. Going back for just a minute to the comment you made about people using the computer for the first time. So you've observed both students and adults using the computer for the very first time. Are there any differences that you remarked between the two groups?

Ahimbisibwe: Yeah. I think young people, that is students, they tend to get things quickly, where the old people, they're like, cautious and, and they take long to learn. Yeah, that's what I've observed.

CJ: How can computer culture be built around reading culture? And in your opinion, can both be built simultaneously? Can they both be developed together?

Ahimbisibwe: Yes, I think so. Yeah, because you see, like, for example, for academics, and even for those people like farmers who would want to get like reading materials to help them in their work they do. It is very hard to read from the computer but it's easier to access documents from the computer. So you will see like, so many people after like, looking at the paper or journal or document, they are really interested in it, but they want to photocopy it or to print it so that they can read a hardcopy. So I think it complements each other: easy access with the computers and then printed material for proper reading and analysing. I think it, it works hand in hand, yeah.

CJ: So, a new library and computer lab is being built right now in the community. So, what do you think it will take for the computer lab to be successful? And what are your hopes for the new centre?

Ahimbisibwe: Yeah, I have ah…like, big hopes for this computer (laughter), computer lab. Yeah, because right now, as I've told you earlier, you see that, the need for like, everyone to use computer. Like, people are standing everywhere, they want to see what you are doing and they want to touch it, but there is only one person who can use it at a time. So, if we get at least 15 to 20, so 20 people at a time, it will be really good. And I think people are enthusiastic about it so, for sure. I think it will be very interesting to see how it will help the community to develop both academically and materially.

CJ: Ok. So other than actually having computers in the lab, what else do you think will be needed to make it successful in terms…it could be training, or additional resources…

Ahimbisibwe: Yeah, I think if we get computers and we get it connected as, as at first we received the e-Granary, but we did not know how to use it, how to get access to like, all the documents. So when you came, it really, yeah, like, helped us to know how it is, what is available there, and how to get around it. So I think the same thing, I think we shall need the personnel at least, to train those people who will be there so that they know how to get everything, how to use it, how to get on different documents. Yeah, and then we can

have full use of that facility.

CJ: We only have one computer right now, so it's, kind of obvious to understand why there's been so much chaos and so much crowding and there hasn't exactly been a lot of order around it. But how do you think that we could successfully establish order in a computer lab to make sure people are following rules and to make sure that computer etiquette is learned?

Ahimbisibwe: Yeah, I think we shall do that from the start. So, the chaos around like, computers you see, right now, we have only one computer and like, the way we started. So if you, in the middle of it, you just start with like, bringing in laws, like, order and what, people will think that maybe you are trying to push them away, maybe you are trying to segregate between who and who. So, it's difficult dealing with so many people, you need to do it in a certain way that it's not only like choosing this, or so and so because of so and so, but it is, you want to bring in order. So, I think starting opening the new lab will give us a window of putting this order in place. Because, and the other thing we've been learning, so we learn as we are doing and we, we didn't know that maybe this will happen, but now that we know, I think it will help us to shape how we shall operate in a new, in a new, computer lab.

Notice to All Computer Users

☺ A few friendly rules to follow ☺

1) No more than **2 (TWO!)** people at a time. <u>**NO CROWDS ALLOWED!**</u>

2) You may use the computer for **20 minutes** at a time. If nobody is waiting after you, you may continue working.

3) If you wish to use the computer, you will put your name on a **signup sheet**. First come, first serve!

4) If you would like to watch **videos** or listen to **music**, you <u>**must**</u> use **headphones**.

5) Please *be gentle* with the computer and treat it nicely. *Be patient*, it's slow because it's a bit old.

6) Please do not shut down the computer! (Only library scholars may do this at the end of the day)

7) Learn lots and enjoy the e-Granary! ☺

Name: _____

Questionnaire 2

E-Granary and INK

1. Did you find the answers to the questions?
a) Yes
b) No

2. If yes, was it challenging to find the answer?
a) Easy, not challenging
b) Somewhat challenging
c) Difficult, very challenging

3. Which search function(s) did you use?
a) search bar
b) categories
c) resource type
d) Wikipedia
e) other

4. Which search function(s) worked best?

5. Describe the steps you followed to find the answer(s). (i.e. What words did you use to search? Did you get the answer on the first try? If not, what did you do?)

6. Do you think INK forms would be useful in the future of the Kitengesa Community Library? Why or why not?

UBC

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Behavioural Research Ethics Board
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CERTIFICATE OF APPROVAL- MINIMAL RISK RENEWA

PRINCIPAL INVESTIGATOR:	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' Colleg Tororo, Uganda, Gulu Primary Teachers' College, Gulu, Uganda) Primary and secondary school classrooms associated with Kyambogo, Mukumu, and Gulu Teacher Education Programmes

CO-INVESTIGATOR(S):
Carrie-Jane M. Williams
Alexandra Abraham
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Lauryn M. Oates

SPONSORING AGENCIES:
UBC Hampton Research Endowment Fund

PROJECT TITLE:
Digital Literacy and Teacher Development in East Africa

EXPIRY DATE OF THIS APPROVAL: November 12, 2009

APPROVAL DATE: November 12, 2008

The Annual Renewal for Study have been reviewed and the procedures were found to be acceptable on ethical gr for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board

Dr. M. Judith Lynam, Chair
Dr. Ken Craig, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair
Dr. Daniel Salhani, Associate Chair
Dr. Anita Ho, Associate Chair