

INTRODUCING COMPUTER BASED LEARNING IN A RURAL COMMUNITY IN UGANDA

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ABSTRACT

The article describes the first introduction of using computers in education in the rural community of Lake Bunyonyi in Southwest Uganda. The community at Lake Bunyonyi lives without electricity or other basic infrastructure, as well as with an absence of civic institutions such as libraries. There are numerous schools in the area, though these reflect a similar level of under-development. Contrary to this is the fact that many of Uganda's universities and post-graduate institutes are based in urban centres and employ modern equipment and technology. The net result is that students in rural areas such as Lake Bunyonyi live across the 'digital divide' from many of their compatriots, and often complete their secondary education at a significant disadvantage to them - the students they will compete with for entrance to and progress through their higher education and careers. In this light, a program is beginning that will introduce computers and computer skills to teaching and learning at Lake Bunyonyi in an effort to prepare local students for the more advanced learning environment they will find themselves in, and render them more competitive. The article focuses not only on the mechanics of introducing computer learning to a rural community, such as sourcing equipment, development of electric power capacity, etc., but as well on the perceptions, attitudes and predispositions of rural citizens towards new technologies and what possible benefits or disadvantages might be realized through such an effort.

KEYWORDS

ICT in education, rural communities, development, Uganda

INTRODUCTION

This article is based upon the personal experience of the author in helping to start up computer training in a rural Ugandan community. Having formal training from a Canadian university in the use of technology in education and previous working experience with introducing Internet to primary and secondary schools in Slovakia, Uganda offered a completely new perspective on these issues. The process of introducing computers to education at Lake Bunyonyi in Uganda's Kabale District has just begun and this article describes these beginnings and first impressions.

ICT¹ FOR DEVELOPMENT

Since 1990⁷ the idea of ICT helping development became very popular, governments started to promote ICT as vital to community and economic development in rural environments and massive building of telecentres began in rural communities in both developed and developing countries. Then, at the height of the latest technology boom, "rural ICTs were heralded as catalysts for leapfrog development, information societies and a host for other digital age panaceas for poverty" (The Economist, March 10, 2005). Already there were sceptics arguing, that in situations where people are struggling to cover their basic needs like food and water it seems strange to spent money on technology. As a development worker in Nepal said: "Email is no substitute for vaccines and satellites can't provide clean water" (quoted in Beardon et al, 2004).

¹ Information and Communication Technologies

Now, after a large number of failures of ICT for development projects (Lennie et al, 2005), scepticism towards investing in ICT for development is prevalent. There are many examples of telecentres built in rural communities in developing countries, which do not bring much profit at all to local communities (Logar, 2002, *The Economist*, March 10, 2005). Even Bill Gates, who made his fortune on computers holds a sceptical view: “About 99% of the benefits of having a PC come when you've provided reasonable health and literacy to the person who's going to sit down and use it.” (quoted in *The Economist*, March 10, 2005). Bill and Melinda Gates Foundation concentrates on improving health in poor countries.

However, there are still many stories and studies (Beardon et al, 2004, Lennie et al, 2005) talking about successful projects of implementing ICT in developing countries. According to a recent study of ICT for development projects in Africa (Gerster & Zimmerman, 2003 – quoted in Beardon et al., 2004), access to communication technologies can improve people’s livelihoods, access to services, agricultural practices, participation in government (and government’s accountability and transparency), incomes, voice, security, social relationships and health.

It is possible that the main problem of many ICT for development projects was a focus on the process as opposed on the outcome. There is a great difference between a project whose goal is to build a telecentre for use, without a clear picture of what kind of use it should be for, and a project with a goal to empower communities through technologies with a clear plan of working with the community. Unfortunately, many donors prefer projects with clear objectives, such as “building a telecentre” (Peizer, 2005).

There is also a large difference between evaluating technology and evaluating the technological process. Many experts argue that projects that use ICT should be evaluated according to the same indicators as projects with the same goals that don’t use technology (Peizer, 2005). There are two aspects that are recently used to evaluate the success of a project promoting ICT for development. One is financial sustainability of the project and the other is whether introduction of ICT is really bringing more power and knowledge to the community, and whether this effort is actually helping to close the “digital divide” or if it can make the situation worse by making people realize how poor they are when compared to the industrial world (Beardon et al., 2004).

EDUCATION IN UGANDA

Uganda, an equatorial country in East Africa, is considered one of the most liberalized and flourishing economies in Africa. It has 25 million inhabitants living in the area of 241,039 km (Case, 2004). Economic development is obvious, especially in the communication and information sector: radio stations, mobile phone coverage and print media are penetrating even the most rural areas.

The education system in Uganda copies models introduced during its British colonial period. Primary schooling takes seven years, after which the students try to pass the national Primary Leaving Examination (PLE). After successful passing of PLE, students can be admitted to secondary schools. During their first four years at primary school, children are supposed to be taught in their local language, and further on in English. With over 30 different local languages around Uganda, there is often lack of local language textbooks and resources even for these first four years.

Secondary schools and universities collect tuition fees from students, while primary education is “free” since 1996, with the introduction of Universal Primary Education (UPE) launched by the government, which means provision of free primary education for up to four children per family plus all orphans. Gender balance should be maintained in selecting the children from one family. Although government provides the fees, textbooks and teacher salaries for primary schools, parents still need to provide school uniforms, meals and stationery. Thanks to UPE, enrolment in primary schools in Uganda increased from 2.3 to 6.5 million (Logar, 2002).

Secondary school lasts six years – four years of ordinary (O) level and two years of advanced (A) level. There is another set of national exams (called UNEB – Uganda National Education Board exams) after completing O level and again after completing A level. Tuition fees for secondary school vary across the country. For a student at Lake Bunyonyi Secondary, fees for 2005 are 91 000 Ugandan Shillings (Ush) per term (about US\$60). Besides tuition for three terms in a year, students need to cover fees for exams and buy their school uniforms and textbooks. The overall average annual cost of attending secondary school at Lake Bunyonyi is about \$200. With high unemployment, and salaries averaging about \$30 a month, providing secondary education to children in rural Uganda is almost impossible for most families.

Rural secondary schools also have a problem to find teachers. To teach at secondary school, a two-year teacher college degree is a minimum requirement and few college graduates from the towns or cities are interested to go back to village areas to teach for the low salaries rural schools can offer. Suffering from lack of basic equipment and qualified teachers, it is difficult for rural secondary schools to maintain a sufficient quality of education. Often, teachers in overcrowded rural classrooms get by simply making students memorize enough content to pass exams. There is little focus on applied use of the knowledge provided or on independent thinking and creativity.

LAKE BUNYONYI COMMUNITY

Lake Bunyonyi lies in the southwest corner of Uganda, in close proximity to borders with Rwanda and DR Congo, and about 6 kilometres due west from Kabale town, the administrative centre of Kabale District – the most densely populated district in Uganda outside of the capital region of Kampala. The lake itself is about 2000 meters above sea level and 1 degree south of the equator, resulting in a unique sub-tropical climate. Due to the high elevation, and with temperatures dropping to about 10 degrees Celsius in the night, the incidence of mosquitoes and malaria infection are much lower in this area relative to most other parts of East Africa.

The Lake is about 25 km long with a contoured shoreline of peninsulas, coves and steep intensively terraced hills. There are about 30 islands concentrated mainly at the lake's central area. Villages and settlements are scattered around the lake including on the peninsulas and islands. The majority of the population, belonging to Bakiga tribe, lives from subsistence agriculture. Dugout canoes are the main means of transport. People have no electric power or running water, using scarce wood fuel for cooking, and candles or paraffin lamps for light.

Most Bakiga people are Christian by faith, and a European style of clothing is preferred. Lighter skin is even considered most attractive. However, there are still many original African beliefs, conducts, dances, eating habits and other cultural aspects deeply embedded in the community. The result is a mixture of original African culture and beliefs with European cultural imports (Logar, 2002).

INFORMATION AND COMMUNICATION ON THE LAKE

Networks of two cell phone providers are available on the lake, and short-wave radio communication is possible. Recently, an option to gain Internet access through radio signal was offered by one of the national Internet service providers. However, local people are too poor to afford these technologies. One Ugandan participant in a recent project funded by ActionAid (Beardon et al., 2004) remarked: "We are too poor to communicate".

Major sources of information for Lake Bunyonyi residents are contacts with other people, very occasional opportunities to read a magazine or newspaper, and listening to radio – if and when they can afford to buy batteries.

THE BYOONA AMAGARA PROJECT & ITS EFFORTS IN INTRODUCING COMPUTERS

Byoona Amagara (which means ‘whole life’ in the local Rukiga language) is a community centre and sustainable development project based at Itambira Island at the Lake Bunyonyi. Its activities cover a wide range of issues including sustainable agriculture, indigenous forestry and reforestation, local supply services and education. To support the community programs, Byoona Amagara as well offers tourist services – accommodation, food and tour guides for budget travellers.

Educational activities at Byoona Amagara are conducted in close cooperation with local secondary and primary schools. They include a scholarship program for school fees at secondary level, transportation between islands and the mainland to enable children to get to primary school in the morning, and computer skills and Internet training.

A library, which should contain numerous books and computers with Internet connection, is recently under construction at the Byoona Amagara site. The first supply of donated books is on its way, and SchoolNet Africa has donated ten ‘Smart Keyboards’ to the project in October 2004. A volunteer also donated one PC laptop with Windows 2000 operating system to the project. The Smart Keyboards and laptop are powered by solar panels.

THE FIRST COMPUTER TYPING CLASSES

The computer typing classes started in October 2004 for two groups of learners: secondary school students from neighbouring Bwama Island, and teachers and adults from the secondary school and the community at large. Teachers Sira Kabahena and Sam Asiimwe from the Bwama Island schools were provided computer training in nearby Kabale town, and teach both groups. These teachers had never taught computers before, so they had to develop their own working methodology. They started with introduction to computers, then began competently teach typing.

Smart Keyboards have a simple LCD display where the student can see about five lines of text at a time. Each keyboard can save up to eight files and each file takes up to twelve pages of typed text. These files can be downloaded to a standard computer.

For these learners, this was the very first contact with a computer. In two months of one or two 1.5 hour lessons per week, they have gone from laboriously typing the “home keys” – asdf jkl; to being able to type several paragraphs in a few minutes. More advanced students started training on the laptop supervised by a volunteer from the UK Tom Mahon.

The main difficulties met during the first classes were logistical – out of ten donated keyboards, only eight worked properly right from the start and another one has failed shortly thereafter (Mahon, 2004). Due to very high interest in this training it was quite a challenge for teachers to schedule enough classes so that more people could be accommodated.

THE FIRST IMPRESSIONS

The most amazing thing for me about the start-up of this project is an incredible enthusiasm to learn, and the hunger for new information these people show. They paddle long distances on the lake to get to their class even if they end up sitting crowded two over one keyboard, and they are even willing to attend a class scheduled in the evening, which means they would need to paddle home in dark. With their very limited access to education, people are eager for new knowledge and information sources: “Before we just heard about computers on radio or seen pictures of them in the newspaper and now we can know it and learn how to use it.”

When asked for their reasons for attending these courses, most of them said, that they want to be better educated, to have more skills, better qualification, and capable of getting better jobs. To put it in their own words:

“Through learning computers we get employment opportunities like other people have.”

“I shall be proud to have knowledge about computer services and this will help me to earn my living.”

“I want to get knowledge to become a teacher.”

“After knowing all things on the computer you can get a job and start working, which brings income... you can get a job and avoid poverty.”

“I am planning to be the secretary/clerk at some place and it is good.”

When asked for their future plans, it is clear that they believe this can improve their lives and the lives of the local community:

“After learning typing and computers I can be self-employed and so that I can help poor people by employing them”.

“After learning typing, computers and Internet I would like to teach these skills to those who did not have enough money to go to the school, so that then they can make enough money for the future”.

“I will make sure that the people or schools around our home are being supplied good services by computer.”

When asked how they want to use Internet connection once acquiring it and what it can bring to the community, they have great expectations:

“Internet helps to know the email and address of a person from outside countries.”

“Computers and Internet will attract tourists to come to see how it operates here and this will bring a lot of foreign exchange which will in turn develop the community”.

“Internet will help people to see good things outside the country.”

“Internet is good to know what takes place from another countries, to get information and knowledge from another country.”

“You can communicate with other people outside the country, because Internet sends messages.”

“Internet helps people by easy and fast communication.”

“After learning this... I will fight against ignorance in my home Uganda!”

When I was part of the project introducing Internet to secondary schools in Slovakia in the second half of the nineties, many students and teachers there were enthusiastic about the new medium too, but it is incomparable to the motivation that people have at Lake Bunyonyi. For Slovak students and teachers, the arrival of ICT into schools was leading to a change in education, for people at this lake in Uganda, they are talking about a change of life.

FUTURE PLANS

The first Internet email was sent from Itambira Island on January 27, 2005, through a radio signal connection. The next step is to add more solar power capacity, so that more computers can be placed in the new library, connected to the Internet and used by students. This should be achieved in next couple of months.

After setting up technology and providing basic computer and Internet training to interested students, we will face the larger challenge of finding ways of using the Internet and information for the benefit of local people which should keep them interested and bring some positive influences for the community. For example, concerning the secondary school teachers and students, the plan is to join the online global education network ‘iEARN’ (International Education and Resource Network) which connects teachers and students around the world in collaborative project-based learning. The headmaster at the Lake Bunyonyi Secondary School has shown keen interest in the network and the projects and learning community it provides access to.

CONCLUSIONS

As mentioned earlier, there are two issues that can indicate the success of a project promoting ICT for development. One is financial sustainability of the project and the other is whether introduction of ICT is really providing a tangible benefit to the community - whether this effort is actually helping to close the “digital divide” or making the situation worse by making people realize how poor they are in comparison to the industrial world (Beardon et al., 2004).

In the case of the Byoona Amagara effort, potential for financial sustainability is rather high. Tourist attractiveness of the Lake Bunyonyi area is growing dramatically in recent years, and even a moderate flow of visitors using the project’s facilities can support the running costs for most of the project’s efforts. The start-up funding however, needs to be raised from grants and in-kind donations.

Drawing any durable conclusions on the issue of knowledge and empowerment of the community through using ICTs, is more complicated and will only be realized over time. With the incredible enthusiasm local people have towards gaining the skills to use computers and Internet, it is clear that they believe at the outset that they are going to succeed in gaining the personal profit computer and Internet training can bring them. Students from the Lake Bunyonyi Secondary School will be better prepared to compete with their peers from larger towns when entering colleges, and local adults are gaining new skills and qualifications that can lead to better jobs and larger salaries for them.

Only the future development of the ICT program at Byoona Amagara can show whether this local community will be able to use opportunities offered by access to new sources of information for gaining more influence at governance level, to be more seen and heard, and to improve their lives on various levels. Naturally, realizing the potential of ICTs in education for this community will become one of the major future challenges, and focal points, for development of Byoona Amagara.

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