ICT Training to Rural Schools: Bridging the Gap

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Abstract:
Uganda developed its initial ICT national policy in 2003 in which the framework document recognized that the country needed to embrace the goal of lifelong education for all. The policy also addresses literacy improvement and human resource capacity-building with strategies that include integrating ICT into mainstream educational curricula as well as other literacy programmes to provide for equitable access for all students regardless of level. Efforts have been made to introduce ICT both in primary and secondary schools of Uganda so as to equip learners with the necessary skills and tools.
Although the country's national ICT policy lays emphasis on providing infrastructure to schools, this has not yet been realized mainly in rural schools as the adoption level is still low. There have been hindrances ranging from low income to support the programme, limited power supply to rural schools, shortage of ICT teachers and many others.

In a survey conducted by SRI International for World Links, it was reported that the lack of adequate hardware and software as well as unreliable Internet access were significant barriers to using computers in instruction. This report reflects the fact that many schools in developing countries have a student-teacher ratio as high as 80:1, and must contend with a computer lab of ten to twenty computers for the entire school - if they are lucky to have one.

Irrespective of these challenges, the government has moved on to make ICT education as a compulsory subject at secondary levels of education. It is a very big challenge to many rural students and schools as they can't afford to own computers as their counterparts in urban schools which has created a digital divide among the rural and urban students.

It is behind this background that the Nakaseke Rural Youth Sustainable Livelihoods Initiative is conducting an ICT training programme to these schools. This case study outlines how an ICT training programme is helping students acquire skills as a means for literacy improvement and human resource capacity-building in rural areas.

Keywords: *Uganda; Nakaseke Rural Youth Sustainable Livelihoods Initiative; Digital Divide; ICT*

Introduction:

The role of technology in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy (Rosen and Well, 1995; and Thierer, 2000). Most experts in the field of education agreed that, when properly used, information and communication technology hold great promise to improve teaching and learning in addition to shaping workforce opportunities. Poole (1996) has indicated that computer illiteracy is now regarded as the new illiteracy. This has actually gingered a new and strong desire to equip schools with computer facilities and qualified personnel necessary to produce technologically proficient and efficient students in developed countries of the world.

There is no doubt that computers can aid the instructional process and facilitate students' learning. Many studies have found positive effect associated with technology aided instruction (Burnett, 1994, and Fitzgerald and Warner, 1996).
In the more advanced industrialized nations, there has been a staggering amount of research and publication related to ICT use for educational purposes during the past decade. Today, nearly everyone in the industrialized nations gained access to ICT and the purchase of computers for school use in such nations as the United States and Britain has been increasing in such a pace that is difficult to keep track of how many computer machines are now in their schools (Harper, 1987).

Background and Context:

The Nakaseke South (part of the Nakaseke District) is home to 70,039 people with 49 primary schools and 15 secondary schools. The school going children make up 50% of the total population of the area. Like other schools in rural Uganda, they too face similar challenges as far as ICT education is concerned. Among the 15 secondary schools, only 6 are government supported and are equipped with smaller computer labs with about 5 to 10 desktop computers, and serving around 400 students. This puts the computer to students' ratio at around 10:1, simply meaning that 10 students have to use 1 computer at a time, yet in a fair environment, mainly with developed schools in urban settings, the current student to computer ratio is at 1 or 2:1.

The rest of the schools are privately owned by local individuals with little or completely no hope yet of acquiring any ICT hardware for their schools. These schools take up over 70% of the total children that enroll for secondary school education from the 49 feeder primary schools around the region.

After the development of the national ICT policy in 2003, the country instituted a national testing program in Computer Studies in the following year 2004. It consists of both theory and practical use of computers (including use of word processing, databases, spreadsheets, and the Internet). Students must sit for a certain number of exams at the end of their studies, both after the primary level and four years later, when it is necessary to obtain the Uganda Certificate of Education. Computer Studies are now included in the list of elective exams from which students can meet the required total number of exam subjects.

To ensure that students meet the required standards for the exams, they must have good access to computers, make enough practice to acquire experience in typing as the exam requires good speed to match with the allocated duration, and there must be enough computer sets to be used for doing the exams.

With the prevailing situation among these schools, it is very difficult to match with their counterparts who meet these criteria and thus cannot compete effectively.

The Intervention:

In an effort to bridge the digital gap, the government of Uganda, UNESCO and other partners founded and funded a pilot project, The Nakaseke Multipurpose Telecentre, with the major aim of promoting information and communication technologies among rural communities.
It is through this project that many schools got the opportunity to have a taste of ICT services that were a big dream to them. Different schools would move long distances to the centre to have the opportunity of accessing these services at a little fee.

But as the demand kept rising and the training equipment very limited, many other schools wouldn't be accommodated on the training programme, so were left out. Some others couldn't sustain transporting their students throughout the term and even the students' movements away from school would disorganize and affect the general teaching timetable.

After properly studying the situation that existed among these schools, and being part of the Telecentre technical and training team for over 5 years, we thought that there was need for continuity and reaching more students that the Telecentre wouldn't serve. The ideas gave birth to Nakaseke Rural Youth Sustainable Livelihood Initiative. It is a rural-based youth initiative mainly aiming at equipping the young population with basic ICT knowledge and skills as a means for literacy improvement and human resource capacity-building, preparing the young people for future employment.

The project that also runs other community development programmes on agriculture and health, started with 5 laptop computers. The project has continued to benefit from hardware donations in the context of ongoing relationships of the Nakaseke community with the University of Nijmegen in the Netherlands.
As of now, the project has grown and boasts of 15 laptop computers that can effectively accommodate the average class population of 45 students at a ratio of 3:1 as compared to the government's ICT programme in the few supported schools of 10:1. Laptop computers are preferred because they are portable to be moved from one school to another and considering the poor power fluctuations or even completely no power in most areas we operate in.

With the government supporting only six (06) schools out of the 15 with smaller ICT labs, through our Computers-to-Schools project, we took over training to five (05) under-privileged schools out of the remaining nine (09) in the area, and these include; Kasagga Public Secondary School, Sana High School, God's Hope High School, Kapeeka Secondary School and Semuto Secondary School.

These schools have to meet a smaller fee of about 1.6 dollars per student, which helps us with transport facilitation, minor repairs and replacements of hardware and sustainability of the project. These charges are much lower for the schools (and yet it is paid by the students) compared to buying and maintaining computer labs with hardware of their own.

Most schools (even the government supported) that have small computer labs lack the funds for a full time computer teacher and technicians, and when one is hired and trained, he is often lured away to a more lucrative job elsewhere, leaving the school to start the search over again. Moreover, the Ministry of education is ill equipped to effectively service a large number of schools in the country which leaves them with very little technical support when inevitable technical glitches arise.

Having worked in the field with the Nakaseke Telecentre project for over five years, the project has a committed, competent and experienced training team of trainers with a very rich expertise in conducting and managing ICT training classes. Each day of the week, the team moves to the schools as per the training schedule and covers the five (05) schools in the programme in the five days of the week. The training involves both theory and practical tailor made lessons, in which, students in their final years at both ordinary and advanced levels are examined by the national examining body with both theory and practical exams.
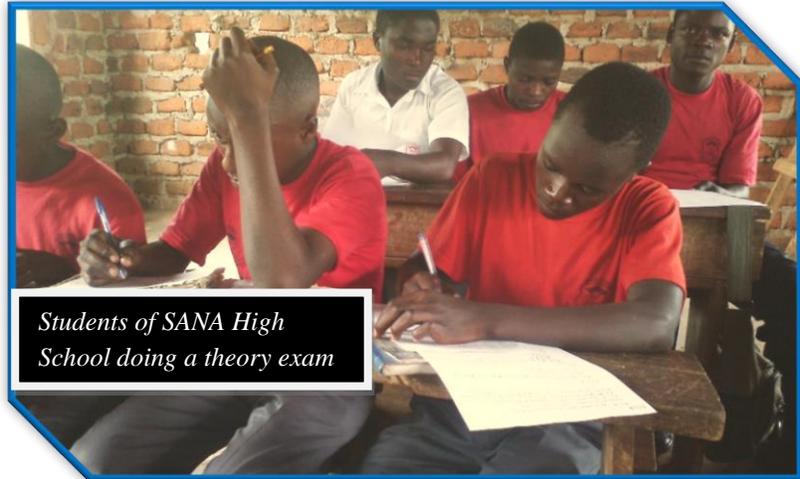
Figure 1

Students during a training session at our training Lab.

Figure 2

Figure 3

Students of SANA High School doing a theory exam

Achievements:

1. Since its establishment two years back, the programme has benefited over five hundred (500) students from the five schools that we are working with.
2. We have continued to register an overwhelming number of students offering the subject however much it's a new subject on the national curriculum, to especially rural learners.
3. We have also helped to improve on the way teachers deliver their lessons. We have organized special trainings for them to equip them with skills on how to effectively use ICT tools to simplify their teaching methods.
4. At instructional level, we have been able to help students understand how to use computers to improve their reading, mathematics, social studies, arts and using e-resources like Encarta and the Encyclopedia that have added to their generally better performance.
5. This year (2016), we have managed to register our first batch of students to sit for ICT exams for the final ordinary level examinations of the national examining body, the Uganda National Examinations Board (UNEB).
6. The project has been boosted by some hardware donations in the context of ongoing relationships of the Nakaseke community with the University of Nijmegen in the Netherlands to supplement on the available training kits.

Challenges:

We are still challenged by the following;

1. Hardware: However much the price of computer hardware and software continues to drop in most developed countries, in developing countries, like Uganda, the cost of computers is several times more expensive. While a personal computer may cost less than a month's wage in developed nations, the average Ugandan worker may require more than 5 months' income to at least buy one. So, as more students continue to discover the usefulness of acquiring ICT skills and enrolling for lessons, this has brought the ratio of training equipment to students rise to about 5:1 at some schools as compared to 3:1 at the start of this programme.
2. Unstable or completely no power supply to rural schools has greatly affected our lessons at some point, as computer power runs out and the alternative is costly to maintain.
3. Poor transport infrastructure has also greatly affected our programme and this has caused hardware breakdowns.
4. There is limited access and connectivity to the internet. Many times, we have failed to conduct internet-related lessons such as web design, email and internet searching, due to poor connectivity.

Figure 4

The ratio of training equipment to students.
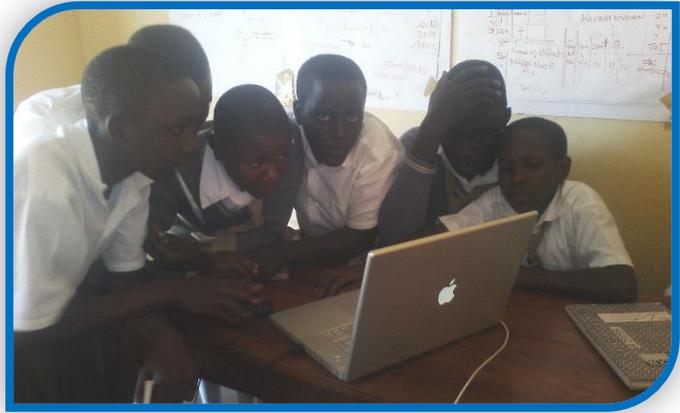
Future Plans:

1. Considering the ever increasing demand for ICT training services, we are aiming at increasing on the number of schools on this programme.
2. We are also looking forward to adding more training equipment to accommodate the ever increasing students.
3. We have plans of establishing a fully-fledged vocational training centre that will offer mainly ICT training and other developmental courses and programmes in order to equip the young generation with skills that would contribute to sustainable livelihoods.
4. We are planning to start up ICT training camps during school breaks (holidays) to equip more youths who may not be beneficiaries of our routine schools outreaches with skills.

Conclusion:

After the Economic Commission for Africa (ECA) indicating that the ability to access and effectively utilize information and communication technology is no longer a luxury but a necessity for development, there is no doubt that ICT education can empower individuals, communities, and societies to develop technologically literate workforces that are able to participate in the information society and economy of the present and future.

So, there is urgent need to embrace all programmes geared towards equipping different communities with ICT skills and knowledge so as to have an ICT compliant future generation.

Acknowledgements:

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