

ALL for the ‘e’: Initiatives in a limited access environment

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abstract: Information and Communication Technology (ICT) has staked a claim as an indispensable backbone for development in all sectors. While a vigorous promotion of ICT is underway in almost all fields, the challenges of access, to most people, cannot be disregarded, much more so in a Capacity Development and Training environment.

This paper aims to share the initiatives being developed and implemented in Information and Communication Technology (ICT) training in an environment with limited ICT access. The paper discusses ideas for the creation of an all inclusive environment for ICT skills development based on the findings of a brief survey on the ICT infrastructure capacity of some institutions of higher learning in Lusaka, Zambia. The paper then presents the results of some initiatives being implemented by the Commonwealth Youth Programme Regional Centre for Africa in supporting the development and use of ICTs, especially for education

keywords: *limited, access, open, educational, resources, training, development, technology, open source*

1 Introduction

Advances in information communication technology (ICT) have made it possible to work and communicate faster and more efficiently than before. Countries, particularly those with more resources and expertise, have harnessed the opportunities made available through this technology and used them to enhance their development.

‘We view ICTs as powerful instruments of development rather than ends in themselves, delivering savings, efficiencies and growth in our economies. We also recognise the ability of ICTs to act as catalysts in creating new economic synergies, offering opportunities to overcome the constraints of remoteness, small size, and other factors which have traditionally acted as a brake on development.’ (Malta Declaration on Networking the Commonwealth for Development, Commonwealth Secretariat)

The importance of ICTs is further highlighted in its abilities to not only provide the much needed skills for the workplace, but the impacts of ICTs on social development in general. The sustainability of many development programmes today hinges on how well the beneficiaries are able to access data on their own on the progress of the programme, benchmarking, and the conduct of analysis of critical data generated through Project Management Information Systems (PMIS). ICTs are indeed at the core of the sustainability of livelihoods. The savings to be made from the employment of ICT

platforms by small businesses, small rural schools and community self-help associations are enormous, hence the increasing demand for, and use of, ICT services in these sectors.

However, despite the global spread of ICTs, large parts of the world, Africa included, remain technologically ‘disconnected’. ICT penetration in Africa remains the lowest in the world¹. At 5% of ICT penetration and less than .5% of internet penetration, Africa lags far behind Europe and the America with 15% ICT penetration². In most of Africa, access to ICT is often not only scarce but also expensive, thus inaccessible to most people.

Young people, particularly in Africa, have largely been denied meaningful access to the information society and its rewards. Young people must be empowered as learners, developers, contributors, entrepreneurs and decision makers as they are the future workforce and are best placed to adopt ICTs. Adoption should not just be on basic ICT skills but also the development of skills in various ICT platforms. But as the need for ICT is becoming increasingly evident by the day, some institutions and individuals are making efforts to help young people in Africa gain access to ICT. These include introducing educators to new and cost effective ICT platforms, encouraging collaborative education content development as well as introducing learners to new platforms such as open office and other Open Source applications. For marked benefits to be reaped by all stakeholders, young people should be given the capacity to use Sustainable Information and Communication Technologies (SICTs) platforms instead of platforms that confine them to set parameters and proprietary limitations.

Enhancing the technological education and training of African youth in ICTs can be an effective method to empower young people so they can grasp economic opportunities, benefit from social programmes and participate in the democratic process.

2 Creation of an all inclusive environment

In an effort to promote ICT knowledge and facilitate easy access among young people in Africa, The Commonwealth Youth Programme Regional Centre for Africa (CYP RCA) has been using ICTs as a mechanism to bridge the digital divide so that young people have access to ICT, irrespective of where they live or their socio-economic status. Improving young people’s ICT skills is also another way to reduce poverty and enhance their marketability and employability.

The ICT for Youth Development (ICT4YD) programme – currently in its pilot state – is a CYP RCA initiative that is testing various approaches to meeting the ICT needs of young people across the Region. Under the programme’s ambit are several initiatives including assistance to community schools, training institutions and youth development centres in the development and use of Open Education Resources (OERs) through collaborative efforts. The ICT4YD platform has so far also brought together some 25 institutions from Lusaka, Zambia to discuss mutual collaborative efforts in tutor and institutional capacity building.

¹ <http://www.afrol.com/articles/32562> ICT Development Index (IDI), by the UN International Telecommunication Union (ITU)

² <http://www.itu.int/ITU-D/ict/statistics/ict/index.html> Global ICT Developments 2006

3 ICT for Youth Development (ICT4YD) Initiatives

The programme covered the use of ICTs in youth development institutions particularly in capacity building/training. Interventions covered two general themes; 1) networking and collaboration, and 2) Capacity Building of Educators and Learners in IT. In all, six initiatives were covered under these two themes. Under Networking and Collaboration, three initiatives – networking and knowledge exchange; collaborative content development; and peer support for IT infrastructure development were explored. Under the Capacity Building of Educators and Learners in ICT theme, three initiatives – OER Capacity Building; Introduction to Open Source Platforms; and training of trainers and IT expert users - were explored.

3.1 Networking and Collaboration

Several educators were brought together over a series of monthly meetings to discuss networking and exchange knowledge on various IT issues facing their institutions and their work as professional educators. During this initiative, several challenges were unearthed as well as institutions with particular capacity identified in a needs assessment conducted by CYPRCA. 18 institutions responded to the needs assessment exercise. Bilateral discussions were encouraged among institutions. Through this initiative, the University of Zambia for instance announced the offering of free training programmes and websites for secondary schools participating in the network.

Lack of relevant, up-to-date educational content was identified as a need. Collaborative content development was identified and promoted as a solution to some of the resource limitations identified in the needs assessment. A training programme was therefore recommended by participants to build their capacity in methods of collaborative content development.

As part of networking and close collaboration among participating institutions, peer support for IT infrastructure development was achieved. Through this project, several institutions, including Kamwala High School and the Technology Empowerment Center received hardware support. Most institutions received an average of twenty Pentium IV personal computers from Fair International through Evelyn Hone College. All the computers were received with Ubuntu 8.04 operating system and open office suite. As part of the support, Evelyn Hone College provided systems networking and support while CYPRCA provided expert user training in Linux administration to ensure sustainability of use.

3.2 Capacity Building of Educators and Learners in IT

CYP RCA engaged in building the capacity of educational institutions in basic ICT skills for educational development and the development of Open Education Resources (OER). This initiative trained 120 trainers from over 25 institutions of higher learning in Lusaka, Zambia within four months. The training included an introduction to computers, Internet and Open Source software and more specifically the use of collaborative educational platforms such as Wikis. An introduction was made to MediaWiki platforms especially the WikiEducator platform for collaborative content development.

Apart from content development using collaborative platforms such as WikiEducator, the initiative enhanced the pedagogical skills of trainers. A major emphasis was placed on using pedagogical templates in enhancing learner experiences by giving more educational “authority” to the learner as to what to learn, how to learn, and when to learn.

The content on the ‘Learning4Content Zambia hub’ on the WikiEducator website is a result of this ICT4YD initiative.

Capacities of IT trainers and expert users were also built under the ICT4YD initiative. The initiative focused on Open Source solutions as an alternative to proprietary and expensive solutions. Introductions to Open Source software trainings were conducted. The trainings, based on Linux – Ubuntu distribution included an introduction to the Open Source concepts, Open Source solutions, installation, administration and maintenance of Linux servers as well as basic troubleshooting skills.

Further, through this initiative, CYPRCA promoted the use of Open Source platforms through a one-month long initiative called the “Open Source month³” in July 2008. During this period, students from the University of Zambia and the surrounding community were allowed to freely use computers at the Technology Empowerment Centre (TEC) for their “office” needs and Internet browsing. Twenty computers at the TEC were pre-installed with Ubuntu and Open Office. The promotion attracted over 200 first time users of Open Source platforms. Free copies of the Ubuntu and open office were distributed on CDs for further use. Participants in this programme expressed satisfaction and ease-of-use of the open platforms

3.3 Participation

The ICT initiatives employed provided access to people from different works of life irrespective of where they live or their socio-economic status. Participation was drawn from community schools based in high density and low income areas, public and government schools, private schools, tertiary institutions, colleges and universities all the way to corporate and private organisations. This provided a huge challenge for the facilitators as various skill levels were represented from beginners, intermediate to advanced and expert computer users most of whom were trainers and school department heads.

Further platforms for access and development had to be facilitated for participants who came from areas without complete access to a computer and even worse electricity.

4 Findings and Discussion

4.1 Identified limitations from Needs Assessment

To better position the programme to meet the needs of the intended targets, a needs assessment was conducted by CYPRCA to identify the perceptions of the institutions as to

³ http://www.thecommonwealth.org/news/152819/152883/181686/ict4yd___opensource_breaks_the_shackles.htm

their own capacity, and their perceived needs. A brief survey of these institutions revealed among others the following:-

- i. Most institutions did not have enough computers to cater for all the pupils resulting in a low pupil-computer ratio
- ii. There was a lack of strategy in the use of ICTs
- iii. Lack of an ICT code of conduct in institutions
- iv. There was limited or no training for trainers in ICTs
- v. Lack of curriculum in ICT training course

The survey showed that the tutor's work load (hours per week) in the ICT programme was very high and thus compromising on effectiveness. The institutions with computer labs had huge challenges in maintaining the hardware and related software. The survey further highlighted the fact that access to a computer and the Internet for many trainers was only at their place of work. Teachers were thus forced to share computer usage time with pupils.

4.2 Further Findings and Discussion

The programme identified that, trainers need guidance and support to effectively impart the needed skills to the students. In the digital age, trainers need to be highly skilled computer users and able to deal with different types of media in order to guide students who are more of 'digital natives'. In a two-part series entitled "Digital Immigrants, Digital Natives," Marc Prensky (2001a and 2001b) employs an analogy of native speakers and immigrants to describe the generation gap separating today's students (the "digital natives") from their teachers (the "digital immigrants"). But between the teacher and the student, the access issue continues to be a major challenge. Creation of an ideal learning environment first for the teacher thus remains critical.

The programme identified that, the learning environment plays a critical role in the education process. The learning environment should foster meaningful learning and constructive cognitive learning processes (Jonassen, Peck, & Wilson, 1999). Ideally, the environment activates the learner and requires critical thinking. The result is that the learner is engaged in reflective thinking, which supports knowledge construction (Jonassen, 2000).

In places with limited access to technology, the ideal learning environment takes many forms. One such environment is the work space ('my workspace, my learning environment, my classroom'). Continuous use of the 'work space' consisting of a basic computer and an Internet connection provides informal expertise to many workers/students. This kind of informal learning forms the basis of open learning. Like correspondence and Open Distance Learning (ODL) programmes, the learning environment for many students now is the work space.

The table below shows the summary of the presentations made by institutions about the state of their ICT infrastructure and capacity at the first consultative meeting of the Community and Schools ICT Support Programme.

No	Institution	Level	Type	Computer Lab	Internet	Offer lessons	Trained Staff	Notes
1	Rhodes Park School	Secondary	Private	✓	✓	✓		
2	St Marys Sec School	Secondary	Public	✓	✓	✓		Internet access restricted to teachers
3	Munali Girls High School	Secondary	Public	✓	✓	✓		Lab has support for the disabled
4	Munali Boys High School	Secondary	Public	✓				
5	Kabulonga Girls School	Secondary	Public	✓				Ubuntu and Windows OS in use
6	Regent College	Tertiary	Private					
7	University of Zambia	University	Public	✓	✓	✓	✓	Have a fibre optic backbone
8	Dzithandizeni Trades School	Tertiary	Community					Project at initial stage, community initiative
9	Kalingalinga Youth RC	Tertiary	Community	✓				Under Ministry of Youth, Sport and Child Development, Zambia
10	Evelyn Hone College	Tertiary	Public	✓	✓			
11	National Institute for Public Administration	Tertiary	Public	✓	✓			Have challenges with cost of hardware/software and bandwidth
12	Zambia Centre for Accountancy Studies	Tertiary	Private	✓	✓	✓	✓	
13	Zambia Institute of Management	Tertiary	Private	✓	✓	✓	✓	
14	Kabulonga Boys School	Secondary	Public	✓				
15	Matero Boys School	Secondary	Public	✓				
16	Lusaka Int. Community School	Primary/Secondary	Private	✓				Offer GCSE IT programme
17	Chalo Trust School	Primary/Secondary	Private	✓	✓			
18	Kamwala High School	Secondary	Public	✓	✓	✓		

Table 1: Summary of Presentations by Institutions [Source: Report of the Community and Schools ICT Support Programme, CYP Africa, 2008]

Another way in which learning and acquiring of ICT skills has occurred in areas with limited access is through the job specification as tied to the person specifications. To be able to qualify for a job, prospective candidates have been forced to acquire the skills as required by the job specification specifically related to the use of ICT and thus have acquired skills.

Whilst acquiring an ICT skill is one thing, sustaining and perfecting that skill is another thing. The interactions with trainers from the institutions of higher learning produced various shared content for learning. To foster this process, policy formulation at higher levels of authority responsible for education and curriculum development is required. This can be seen from the reduced to no activity on the Wiki pages the trainers developed during the training. It will not be surprising to find that most of the trainers that were trained have lost those skills. Though skills development is mostly dependant on individual interest, the following would help:-

- i. Implementation of standard ICT course curriculum,
- ii. Engaging of dedicated staff in administer the ICT training programme,
- iii. Regular ICT refresher courses,

- iv. Subscription to technologies focused groups and societies,
- v. Job enlargement coupled with the needed specialised training.

5 Way-forward

The Commonwealth Plan of Action for Youth Empowerment (PAYE) 2007-2015 Action Point 9 which is *Improve access to information and communication technology (ICT)* outlines the following:

- i. Promote the inclusion of ICT in school curricula.
- ii. Incentivise private sector development of ICT infrastructure.
- iii. Train young people in the use of ICTs.
- iv. Establish public tele-centres and other community programmes that provide access to ICTs.
- v. Encourage girls and women to make use of ICT through targeted programmes.

The PAYE 9 Indicators:

- Number of schools using ICTs and offering ICT training as part of the curriculum.
- Number of community and peer education programmes using ICTs and offering
- ICT training.
- Number of government incentives to private sector for youth access to telephones,
- Internet and other ICTs.

The Commonwealth Youth Programme Regional Centre for Africa is engaging in partnership building with other development organisations in the attainment of the above actions thus the development of ICT Initiatives programmes.

The ‘e’ can further be improved by the implementation of minimal standards in technology in areas with limited access to regulate the kind of computer equipment which institutions should receive as donations. This has been seen where institutions have received computers from donors that can be considered simply as ‘e-waste’.

6 Summary

The value of ICTs for all sectors of development cannot be underemphasized. While this has been in policy statements for sometime, the lessons from this programme indicate that “donating” computers alone to targeted beneficiaries alone will not tackle the challenges at hand. How many targeted beneficiaries actually get “access” to these ICT tools, how do beneficiaries circumvent the challenges and barriers to their having access to ICT enablers such as the electricity and the internet, how do development practitioners such as educators harness their skills in the use of Sustainable Information and Communication Technologies (SICTs) to reach more pupils with key content and using sustainable platforms? These and many more questions should be asked and explored

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further to help bring clarity to the main question – “what needs to be done to bring the ‘e’ to ALL, including those in a very limited access environment”?

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