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How Technology Can Support Education in Africa

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From May 27-29, the eLearning Africa 2009 Conference will be held in Dakar, Senegal. Some 350 people from sixty countries will speak, and attendance will exceed the 1,500 people who showed up last year. The sheer size of the conference signals growing interest in Africa in the use of information and communications technology (ICT) in education.

Article 26 of the Universal Declaration of Human Rights affirms that everyone has a right to education. Since 1990, there has been a global effort to provide Education for All, a movement led by the United Nations Educational, Scientific and Cultural Organization (UNESCO). This effort is reinforced within the Millennium Development Goals. Yet, according to the most recent *Education for All Monitoring Report*, only 40% of children in sub-Saharan Africa are in primary school by age seven, and only 2% are enrolled in post-secondary education at age 20. The lack of education in sub-Saharan Africa has devastating social and economic impacts.

BACKGROUND

Africa has a weak information and communications infrastructure. A recent report from the Partnership on Measuring ICT for Development stated that the continent has only six fixed telephone lines and thirty-five mobile phones per 100 people, and only two computers and two Internet connections per 100 people. However, radio is affordable and there are thirty-seven to 380 radios per 1000 people in African nations. There are some 1,300 radio stations in Africa, including nearly 400 community radio stations. While coverage is greater in the urban areas, radio reaches out into rural areas. Underlying this weakness in the ICT infrastructure is a weak electrical power infrastructure.

However, according to Connect Africa, a partnership to increase resources for ICT in Africa:

Investment in ICT infrastructure in Africa has improved dramatically in recent years, representing a total of USD 8 billion in 2005, up from USD 3.5 billion in 2000. These figures reflect an increasingly vibrant private sector investment environment, which has been stimulated by the opening of most African telecommunication markets to competition, coupled with the establishment of independent regulators in almost 90 per cent of countries in the region.

This increasingly dynamic environment has resulted in lower prices for consumers and significantly widened access to telecommunications, particularly for mobile services in urban areas. The African mobile market has been the fastest-growing market of all regions, growing at twice the rate of the global market, with a leap from 16 million to 136 million subscribers between 2000 and 2005.

Even the weak ICT infrastructure offers a variety of alternatives to utilize ICT to improve education. Of course, African nations vary greatly in both educational needs and ICT opportunities. And unfortunately, the greater the educational need the less adequate the ICT infrastructure is likely to be. In relatively affluent South Africa, a project is under way to provide every teacher with a laptop computer and Internet connection, while poorer Malawi may find it more important to try to supplement poorly trained teachers in large classrooms with “interactive radio,” in which children undertake activities monitored by teachers as instructed by the radio program.

ANALYSIS

To accommodate the continent’s varying educational needs, a wide range of ICT applications could be used.

Administrative applications: An important application of ICT is in educational planning and management. Personal computers and the normal software suites have been used in ministry and principals’ offices for years. The increasing penetration of telephone services introduces new approaches to improve the logistics of the educational system, and indeed in Africa financial transfers can be made using cell phones. Call center applications such as those offered by Voxiva also offer promise, allowing asynchronous communication for harried teachers and officials.

Classroom applications: These will range from the use of radio in the primary school classroom, as mentioned above, to the programs of the African Virtual University (AVU). The latter recognizes that while African nations need some highly trained experts in many fields, they find it difficult to afford the heavy fixed costs to train the small numbers of such experts that they can utilize in their universities. The AVU allows them to use video conferencing to provide the same course in several universities with a single professor, even drawing on faculty in European universities for those lectures.

Teacher training: The rapid expansion of enrollments in African primary and secondary schools has resulted both in teacher shortages and in problems of teacher quality. Continuing training for teachers has therefore become a major theme. The advantage of ICT is that it enables distance education services for teacher training without requiring the teachers to travel from their schools to central training locations.

Literacy: A huge number of Africans never learned to read, and there are also those who learned to read in school but, for lack of opportunity to use their reading skills, have since forgotten how. Distance education approaches apply in both circumstances, including interesting experiments which are pioneering the use of SMS systems to provide reading materials to new readers and the use of captioning of popular television programs to encourage reading during their broadcasts.

Non-formal education: Often, the best education provides information and guidance at the place and time in which it can be put to immediate use. Examples include tape recorded messages to be used in the doctor’s waiting room to SMS systems to provide information from agricultural extension workers to farmers.

There is every reason to believe that the Information Revolution will continue to be diffused into every part of Africa, and that the current applications to education are

pioneers in a technological frontier that has hardly begun its penetration. Applications range from the simple and affordable to the complex and costly.

Still, the technology is not a panacea. Without content – information, software and courseware that meet African needs – the technology will be of little use. Moreover, significant investment in human and organizational capital is necessary to prepare teachers, communicators, and administrators to innovate technologically and to utilize the technology well. Hopefully, the eLearning Africa 2009 Conference will generate constructive responses to these challenges so that the right to education may one day become a reality for all Africans.