

Old Technology, New Technology or the Right Technology?

While the digital revolution offers real opportunities for education, information and communication technology is a costly investment. There is still much to be said for using a mixture of appropriate technologies, including the less costly "old reliables", radio and television.

The global spread of computers and the Internet is changing the way people communicate and do business. Yet there is considerable disagreement among experts over what the impact of the digital revolution will be on education, particularly in developing countries. Despite the enthusiasm of many proponents, new technology is unlikely to be a "magic bullet" capable of solving problems educationalists have been struggling with for years. On the contrary, it may aggravate existing inequalities. Mark Malloch Brown of the United Nations Development Programme (UNDP) reminds us that "even as science and technology continue to create new wealth in rich countries, the conditions in developing countries are in many instances worsening".



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The medium is the message: a home-made "television" in Ethiopia captures pupils' attention as much as the real thing.

Professor David Johnston of Canada's Information Highway Advisory Council (IHAC) is an enthusiastic proponent of information and communication technology (ICT). IHAC's national connectivity strategy has already linked over 15,000 schools and 3,000 public libraries to the Internet, as part of a public-private partnership. Johnston explains that its goal is to prepare for a world in which "globalization is pervasive, the information highway is reshaping business and markets, there is a shift to knowledge workers in every sector of the economy and innovation is the source of value-added growth".

The promise that ICT holds for education in such a context is undeniable. Maris O'Rourke

of the World Bank identifies three other ways in which ICT can make a difference: it can include the excluded, by developing open and distance learning options; it can decentralize education administrations and increase community involvement; and it can be used to teach about the technology itself, helping people acquire the skills and competencies needed for the future. "A nineteenth-century education is not going to get us a twenty-first century future," she remarks.

Programmes such as IHAC require massive resources beyond the reach of most developing countries. The critical question is whether such programmes are appropriate anyway. A thematic study for the EFA 2000 Assessment by the International Research Foundation for Open Learning assesses the feasibility of applying ICT in the poorer countries of the world. It concludes that, whatever the technology used, the imperative to build, maintain and staff primary schools must remain a financial priority. As for secondary and higher education, ICT has perhaps great potential but costs are high.



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Clearly, new technology presents both threats and opportunities for education. One of the opportunities is the enormous scope for co-operation among developing countries. Malloch Brown believes that the South is perfectly capable of finding its own solutions to the challenges of change. He cites the Republic of Korea's experience in promoting state-of-the-art research and development, the policies that have worked for India in establishing its "Silicon Valley" in Bangalore and the emerging software industry in Costa Rica. All these initiatives, says Malloch Brown, can provide adaptable blueprints for development.

One of the threats is that the "digital divide" between those who have access to computer skills and the Internet, and those who don't, may actually widen, rather than narrow. Indian software specialist Venkatesh Hariharan points out that because only 10 per cent of India's population (of one billion) speak English, some 900 million Indians are effectively excluded from the "digital revolution" for the foreseeable future. This is the case for speakers of minority languages everywhere: the dominance of English on the Internet is in many ways as much a barrier as the high cost of equipment.

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Putting a computer in every classroom, besides being extremely costly, may not necessarily be the best policy for a developing country. The cost of delivering interactive educational radio programmes has been estimated at somewhere between \$3 and \$8 per student per year, while the equivalent cost for computers in schools is between \$18 and \$63 per person per year.

The EFA study lists alternative strategies for providing computer access: "the use of mobile units, the sharing of computer facilities with other agencies and mediated access where a third party seeks information through computer networks on behalf of learners". All were "under-emphasized in early planning", claims the report.

Many initiatives combine new and old technologies in imaginative ways to deliver educational content. Chulie de Silva of Lanka Academic Network (LAcNet), explains how an interactive radio programme offers Sri Lankan villagers the possibility of requesting Internet searches on subjects they are interested in. Telesecundaria in Mexico has been offering television-based secondary education for children in rural areas of the country for the last quarter of a century, and educational television looks set to continue for some time yet.

Some people question the way in which the technology discussion is being framed. Jan Visser, president of the Learning Development Institute, claims that proponents of the new technology often tend to see education as a delivery process. He calls for reassessment of traditional assumptions: the nature of pedagogy, the role of learners and of those who facilitate learning, and the relationship between school and community.

The uncertainties about the impact of ICT on education will take time to be resolved. "Out with the old, in with the new" is a stark choice: it is perhaps more useful to frame the debate not in terms of old or new technologies, but of appropriate technologies applied in a cost-effective way to the task of delivering education for all. ■



Bangladeshi girls practising their computer skills.

