

Visions of the Information Society

ICTs for education and building human capital¹



EXECUTIVE SUMMARY

Education is one of the main keys to economic development and improvements in human welfare. As global economic competition grows sharper, education becomes an important source of competitive advantage, closely linked to economic growth. It also has a powerful impact on human development.

There are, however, many constraints on delivering education to the right people at the right time. Budgets are always tight; the best teachers rarely want to work in remote rural areas. In addition, at the level of higher education and training, the problem is often also one of time. Students who are already in employment find it hard to take part in a university course offered at conventional times of day.

All these factors have encouraged an interest in the use of information and communications technology (ICT) to deliver education and training. Experience so far has been broadest in developed countries. Easily the largest investments in ICT have been in the United States. Among developing countries, China stands out particularly for the efforts it is making to use ICT to expand education.

However, some of the earlier enthusiasm for educational ICT has waned. Experience has shown that effective use is harder than was initially expected. This is particularly true for ICT applied as a teaching tool in school classrooms for subjects other than basic computer literacy. Even companies in the United States still spend only a small share of their training budgets on learning technologies (4.6% in 2001), suggesting caution about the early promises of savings and greater productivity that were made for ICT as a tool for boosting human capital.

Undoubtedly, ICT is potentially a useful tool both for managing educational institutions and for gaining access to teaching materials. Use of ICT to manage educational institutions should be particularly encouraged. For developing countries, teaching computer skills to youngsters may benefit inward investment. But evaluating the effectiveness of ICT in the classroom is just as hard as evaluating other

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interventions in education. It has become more important to measure results, however, as educational policymakers have become more insistent on measuring costs against benefits. One recent study, which had the rare advantage of comparing two similar groups of schools, with and without computers in classrooms, found no evidence that the use of ICT produced better educational results and some indication that it might even damage them.

In universities, there is more indication that ICT has a valuable contribution, especially in providing education to people who could not otherwise have access to it. Well designed ICT can allow educators to reach new groups of potential students, particularly mature students, lifelong learners, students with physical disabilities, students in employment and students who are far from education centres. However, universities that hoped to make money from selling courses delivered online have on the whole been disappointed.

In developing countries, electronically delivered courses may make the difference between some education and none at all for people in remote rural areas. For aid donors, it is thus especially worthwhile to invest in opportunities for remote learning. ICT is most likely to be cost-effective when used to reach very large numbers of students (a common challenge in developing countries); when used for research; and when used by administrators. In most other situations, it is unlikely to save money. It involves both heavy initial costs to prepare teaching materials, and recurrent costs to replace hardware and software. Many education policymakers seriously underestimate the total costs of operating ICT-based learning.

Getting the best from ICT depends on several variables, including the appropriate design of software and hardware; the training and attitude of instructors; and the realisation that different students have different requirements. It also requires a willingness to experiment: effective use of ICT in education and training is likely to require quite different pedagogical techniques from traditional classroom teaching. These will probably take a long time to devise and disseminate. Moreover, the new emphasis on cost-effectiveness may discourage innovation.

Finally, technology is never a substitute for good teaching. Without skilled instructors, no electronic delivery can achieve good results. But neither, of course, can traditional classroom teaching.



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