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Teachers And New Information Technologies

THERE is no doubt that the information society is taking shape. Schools, whose role is to prepare children for later life, have no choice but to introduce the new information and communication technologies in the classroom. Otherwise, they will be relegated to a marginal status in relation to the other sectors of society or they may bring about the marginality of students whose only opportunity to access these new technologies is through their school. For teachers, the technologies constitute both a source of possibilities and a challenge, which is not always easy for them to meet. They carry a prime responsibility, however, for ensuring that new forms of exclusion do not appear.

The new information technologies constitute a double challenge, both as objectives and as a means of learning. They themselves offer a large field of study, while at the same time providing tools to facilitate the understanding of other subjects. And they can and should be used in all subjects, including reading, writing, art, arithmetic and science. However, their effective use in the classroom depends essentially on the teachers' initiative and commitment, with much research necessary into the best ways to exploit the technology for the genuine advancement of learning.

The role of the teacher is changing

While the new technologies in many respects present a challenge for education, the teacher is facing another sort of challenge: from a dispenser of knowledge, he has become a guide. His skills at applying the new technologies in the classroom are becoming an essential item in his professional profile. His task will consist in giving his students the means of mastering information tools. At the same time, the teacher should make pupils aware of the technology as a tool to assist in learning, not an end in itself or a substitution for social contact, nor a simple replacement of traditional values and ways of learning. The use of technologies in the classroom stimulates students and encourages self-learning—provided they are under the guidance of a trained and motivated teacher.

Far from diminishing the role of the teacher, the new technologies are changing it and lending it more emphasis. In the light of this development, the Ministers of Education meeting at the 45th International Conference on Education last October recommended that "decisions about the application of new information technologies and their use in education should be taken with the objective of improving the quality of education for all and of enabling teachers to carry out their ... of guide and advocate of learning among pupils."

The conference also expressed the wish that teachers should take more part in preparing educational software. This market is constantly expanding, but the supply of suitable programmes for primary and secondary schools is still limited.

For the new technologies to be successfully integrated in the classroom, the proper training of all teachers is crucial. This is because the teachers who have not attended training become disconcerted and even baffled by the latest advances in this area. Systematic training of all teachers is the only way to effectively integrate the new technologies across the curriculum. Yet not only is such training expensive, but it must also be regularly kept up to date.

Incorporating the new technologies into regular classroom activities requires additional time on the part of teachers, plus a willingness to try new approaches and methods. Changes in attitude and teaching practice should not be expected overnight. As one researcher has observed the most innovative use of the technologies will be made by those teachers who are already disposed to innovate—with far more rudimentary materials. In short, the technologies will not make good teachers.

Exclusion from the "global village"

Applying the new information and communication technologies is so important because the school must not be placed in a marginal position in relation to other sectors of society.

This is the greatest challenge. While it is true that the new technologies reduce the world to a "global village," it should not be forgotten that a significant fringe of the population is excluded from this development. The new technologies are widening the existing gap not only between rich and poor societies, between industrialized and developing countries, but also within countries between those who have access to this technology and those who do not.

In the first place, there is the question of cost. Apart from the initial investment and maintenance costs, the rapidly evolving equipment implies constant updating. In western countries, a considerable proportion of computing facilities were built up in the 1980s, which means they have become obsolete from the point of view of applying the most recent technologies, such as CD-ROMs and computing networks. Recent figures show that in the United States, one of the most advanced countries in this respect, no less than 80% of all computers in schools are obsolete.

In the developing countries, and especially in the least advanced countries, the debate on new technologies may appear futile at a stage when schools and students are short of books, paper and pencils. In these countries, very few schools are equipped with television or radio sets. In this case, other ways have to be found of introducing the new technologies into educational communities.

One of the recommendations presented by South Africa to the Information Society and Development Conference (Midrand, South Africa, May 1996) was to introduce the technologies to disadvantaged populations through the establishment of "multipurpose community centres" equipped with the necessary technology for "networking, information provision, communication, administration and training" and "offering a range of community support facilities and government services." It is proposed to use existing public buildings such as schools and churches and provide alternative sources of electricity to centres set up in areas with no electricity supply.

Yet there are already a great many developing countries which are harnessing information technology in the service of education in an effort to break out of poverty and isolation. It is precisely because they offer students living in poor countries or remote regions the possibility of broadening their vision of the world that these techniques should be given a high priority in the allocation of educational funds.

To achieve this, there must of course be a political will to increase the funds available and to use them as a matter of priority to assist underprivileged sectors of society. Then the least advanced countries must be encouraged and helped to acquire and make effective use of the new technologies in their educational systems. According to the 45th International Conference on Education, the combined efforts of governments, teachers and businesses must be intensified to ensure that the new technologies become available to all educational systems.

The problem of obsolescence can be tackled by developing computer hardware rental schemes for schools, thus avoiding costly and often wasteful investment. In Canada (Nova Scotia), a collaborative effort between the public, private and volunteer sectors has led to the development of a technology recycling project which has not only put 1700 computers in the province's classrooms, but has seen the updating of these computers to contemporary standards through use of the Geoworks software donated by a company in the USA.

Distance education

One of the most attractive applications of the new information technologies is distance education, the main advantage of which is that it reaches a considerable number of individuals for an apparently smaller cost. This could be particularly useful for isolated school-age populations in countries such as Australia.

Potentially, the technologies offer exciting possibilities for improving not only teacher training opportunities, but professional interaction and development in general. Teacher electronic networks are rapidly spreading in the United States and other industrialized countries. Some professional courses for teachers are now entirely available through the Internet. However, research into the effectiveness of these new methodologies is needed. It should be remembered that much successful distance education still predominantly uses the traditional media of print.

An international conference on the use of remote education technology in the nine most populated developing countries was organized in New Delhi in January 1996. UNESCO has also just set up a pilot database on the use of electronic media in distance teaching. The IBE, meanwhile, is recording in its INNODATA databank innovative approaches to the use of the new technologies in primary and secondary education from countries around the world. Methodological support was also provided under the "Learning without frontiers" scheme to several UNESCO member states, including Egypt and South Africa, as well as to pilot projects under the same scheme in Costa Rica, India and Mauritius.

Technologies in the service of international co-operation

The role of schooling is to prepare children for later life. Society has the right to expect that it should help young people adopt to the realities of working life, where sophisticated technological environments will predominate.

But the use of new information and communication technologies is not just an end in itself. They should also be a means of strengthening communication between peoples and between individuals. In this sense technologies can stimulate international co-operation, thus giving a more meaningful sense to the term "global village." Teachers have an important role to play here also, in developing in their students both critical and ethical awareness as they are confronted by the flood of information, viewpoints and propaganda which is disseminated on the Internet.

Most information specialists at any rate seem to agree on one point, namely that we are still only at the beginning of an educational revolution, which should eventually transform the very notions of teaching and learning.

(UNESCO