CHAPTER 2
DIFFERENT EDUCATIONAL INEQUALITIES: ICT AN OPTION TO CLOSE THE GAPS

by

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DIFFERENT FORMS OF LEARNING GAPS

Recent years have seen extraordinary and accelerating developments in the pedagogical potential of ICT, to improve traditional school teaching and learning methods at all levels, and to offer greater diversity in the delivery of open and distance-learning programmes. Active participation in this process of continuous change is crucial for developing countries, but carries a double challenge. First, schools and universities must constantly adapt to the new technologies, such as satellite television, computers and information networks; since they can no longer perform effectively without these resources. Furthermore, society generates – and therefore demands for the professions and the workplace – a new technological culture, in which literacy and arithmetic skills are no longer enough.

However, the application of ICT in education may have important domestic and international repercussions in the context of existing inequalities. In less

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developed countries, social inequalities are a fundamental problem, deeply rooted in demographic, economic and cultural factors. In order to provide the possibility of a more dynamic and fair social development, it is imperative for these countries to promote equity in educational opportunities. The equity issue must be addressed when ICT policies are adopted, lest existing inequalities are worsened by the digital divide. As in every large-scale process, there are inherent and important risks as well as great opportunities.

This chapter deals with the different origins and manifestations of learning gaps. The focus is on developing countries, though the gaps are also present in developed countries to some extent. Certain elements and strategies will be identified that are crucial to the design and implementation of ICT policies for improving coverage, quality and relevance of educational services. The Mexican Telesecundaria Programme will be described, to illustrate a successful innovation in bridging the gaps.

Socio-economic selection

Family income, rural or urban environments, the educational level of parents, nutrition and health are but some of the factors that condition access, levels of academic performance, and drop-out rates of children in school. It is these constraints, widely documented in the literature on educational inequality and reform, that are fundamentally responsible for school and social relationships being reproduced. According to UNESCO, literacy rates in "more developed regions" reach 98.7%, as opposed to 70.4% in "less developed ones", with a strong bias against women (UNESCO, 1998, p. 106). School enrolment is unacceptably low in less developed countries, except at the elementary level, which nevertheless exhibits high drop-out and failure rates. Public education systems tend to be rigid, with traditional and inadequate pedagogy, and only tentative use of ICT, so that they cannot respond to the diverse needs of potential learning populations.

The generation gap

The inter-generational gap is particularly severe in developing countries. Deficiencies often occur in the coverage, quality and diversification of the available learning opportunities, with an inadequate growth rate that may also be dysfunctional in relation to current needs. One of the most common shortcomings is in adult learning and workplace training, which lack rigour and are inadequately financed. Many adults lack the basic knowledge necessary for acquiring the

skills and abilities demanded by the labour market, which forms one of the most significant obstacles to economic development. Furthermore, the minimal educational experience of parents has a negative influence on their children's academic performance, so the cycle of deprivation continues. It cannot be assumed that ICT will provide a ready solution to such problems, but in terms of access, costs and results, its efficient use may be the only way to satisfy the growing demand in adult and continuing education.

Regional gaps at the national level

Some of the most disturbing gaps can be seen by comparing the access to ICT and performance of isolated and disperse rural communities with those of urban areas. This problem is also present within the urban environment, as evidenced by differences in the quality of the education available to poor and middle-class neighbourhoods. These gaps are reflected in the number of the schools and their condition, as well as in the existence and level of complementary resources. In addition, teachers in rural areas usually experience difficult socio-economic conditions, and have fewer opportunities for professional development to acquire the needed new skills and abilities. The process of urban concentration and rural dispersion – which accelerates throughout the developing world – makes the problem of remote regions more acute and the use of distance technologies indispensable.

Academic performance inequalities within educational institutions

Cultural, ethnic and individual factors may also play an important role in determining inequalities within institutions and society. For example, inequalities that are gender-related or stem from individual learning styles are generally accentuated within rigid and conventional school systems, which reflect and reproduce the dominant social practices and prejudices. The appropriate use of ICT may have a significant impact here, because students with different learning abilities and backgrounds may follow individualised educational programmes that cater for their specific needs.

Compensatory programmes may be needed to prevent the perpetuation of inequalities for women and individuals who are especially challenged, more so in poorer societies. The African Girls' Education Initiative is a good example, involving 20 countries with specific programmes that allow girls to increase their participation in school and make available to them new information. Educated girls show new behaviours, such as marrying later, having fewer children,

seeking medical attention sooner, and providing better care and nutrition for themselves and their children (UNICEF, 1999, p. 60).

Gaps at the international level

In most cases, the more developed nations have implemented high-quality educational systems with widespread coverage, accompanied by various additional services intended to address their most pressing social and economic needs. Despite their own rigidities and bureaucratic restraints, these systems have created curricular options that address the students' individual interests and meet the requirements of an ever-changing and demanding job market. In contrast, developing countries have been primarily concerned with achieving literacy and basic education for all children. They have not at the same time been able to reduce the growing gaps in quality and coverage of schooling at all levels.

The dynamics of the global economy and new trends in job diversification are set to widen these gaps, with universities in the rich nations at the forefront of scientific and technological research. Nowadays, high technology exports are just as important as manufacturing ones, and in some OECD countries, the creation and diffusion of knowledge generates almost half their gross domestic product (El Banco Mundial, 1999, p. 26). There is a synergy between their educational and economic systems, that less developed countries lack. This reinforces the existing international division of labour, and hinders the capacity of developing countries for a more coherent and equitable social development. These countries generally have a very well-educated elite, a small but growing middle class, and a large labour force that has not completed basic education, with hardly any middle-level technicians and professionals. The table below shows some relevant population and education statistics (UNESCO, 1998, pp. 106-110).

	Less-developed regions*	More-developed regions*
Population	5 000 million	885 million
Education expenditure, US $	248 billion	1 100 billion
Net secondary school enrolment	48.8%	105.8%
Higher education enrolment	8.8%	59.6%
Number of R&D scientists and engineers per million population	El Salvador 19 Nigeria 15	Japan 6 309 United States 3 732

* As defined by UNESCO, 1998.

According to the World Bank (The World Bank, 1999, p. 235) "…in more developed countries the great majority of secondary schools and growing numbers of primary schools are now connected to the Internet. In some countries the majority of the schools became connected within a single year." Thus, Ireland in 1998 had 14% of its primary schools connected, but the proportion reached 95% in 1999. During the same period and at the secondary level, Portugal went from 30% to 100% school connectivity (OECD/CERI, 1999, p. 55). As far as the student-computer ratio is concerned, "some countries now average 2 or more computers per group of 30 children in primary schools; in secondary schools there are typically between 2 and 5 computers per 30 children". Between 1997 and 1998, for example, Ireland went from 37 to 18 students per computer at primary level, and Portugal from 65 to 35 at secondary. The United Sates has one computer to 8 primary students, while Sweden and Norway, who are leaders in this area, have one computer to 6 secondary students (*ibid.,* p. 53).

There are also great differences between the more-developed and the less-developed regions in the number of computers and Internet hosts per 10 000 inhabitants (The World Bank, 1999, p. 267):

	Less-developed regions	More-developed regions
Computers	120	2 690
Internet hosts	3	470

A GENERAL HYPOTHESIS

ICT brings to education the capacity to reach massive audiences with consistent quality of content, and to target groups with specialised needs. The use of the new technologies in developing countries could contribute to solving traditional learning gaps, reducing the educational lag of the adult population, and consolidating a national education system that offers quality services to all sectors of society. However, for this to occur to full potential, it is necessary to identify and comply with a series of conditions and strategies, based on the specific requirements and context of each country.

The impact and repercussions of ICT are two-fold. On the one hand, ICT may help significantly to increase delivery and coverage of educational services

to the different segments of society, by offering more varied and flexible programmes, able to respond to an increasing and diversified demand. On the other, it may have considerable impact on the quality of education, in as much as it transforms the traditional teaching-learning process, to the point where a cognitive gap emerges between teachers and students with access to ICT and those without.

The positive effects on students of ICT in education include (Papert, 1997):

1 Enhanced motivation and creativity when confronted by the new learning environments.
2 A greater disposition to research and problem-solving focused on real social situations.
3 More comprehensive assimilation of knowledge in the interdisciplinary ICT environment.
4 Systematic encouragement of collaborative work between individuals and groups.
5 Ability to generate knowledge.
6 Capacity to cope with rapidly changing, complex and uncertain environments.
7 New skills and abilities fostered through technological literacy.

In general, all these effects raise the students' self-esteem and enable those who might be lagging behind their peers to become more self-assertive.

It is important to underline that ICT brings beneficial side effects in addition to the original objectives, with impact on the overall socio-economic context. These effects are seen in the creation of a new technological culture, with increased productivity and competitiveness in the economy and stimulation of lifelong learning. Moreover, the same technological infrastructure can be used for different educational objectives servicing other audiences. All such groups are then able to organise themselves to receive and use knowledge and information in new and unexpected ways. Such beneficial side effects, almost non-existent without ICT, are of particular importance to developing countries: the social returns are likely to be higher, with more people gaining benefit in more ways.

In sum, ICT can affect the pace at which the learning gap is bridged in developing countries, both domestically and in relation to other nations. The great challenge is to harness the advantages of those technologies, in order to improve the delivery and quality of educational services, as well as to accelerate the rate at which knowledge is distributed and learning chances and outcomes are equalised throughout society.

CONDITIONS AND STRATEGIES

Research and content development

Whether it be new learning environments, open and distance learning, teacher training initiatives, the incorporation of ICT into traditional school systems – these all require a sound policy of research and content development, as well as training of human resources in technical and pedagogical areas. For this, the participation of higher education institutions is critical, as is the analysis of international experiences, with the support and consulting services of multinational organisations. The construction of models that incorporate ICT is a complex task in several fields, particularly when directed to mitigating educational gaps. It involves formal curricular programmes, ranging from basic to higher education, and non-formal learning, from parent education to a variety of workplace training courses and continuous education programmes. There are also initiatives geared towards improving traditional services in general.

An important challenge is the design of effective models to integrate the content and processes of education with the technologies available for their delivery. It requires the participation of expert teachers and ICT specialists, to establish new methods of learning. Such liaison is also indispensable in the application to local needs and conditions of ICT knowledge from domestic or foreign research institutions. For this to function effectively, not only must these groups relate well to the educational bureaucracy, they must also be involved in pilot projects to test the different models.

Development of a flexible, open and cost-effective technological platform

It is essential to have a sound and adequate telecommunication and computer network infrastructure that can support and deliver diverse educational models. This infrastructure must be open and flexible enough to meet the country's needs, with appropriate procedures for its upgrading and maintenance. Account must be taken of the high level of investment required, in spite of the general tendency for prices to fall. It is therefore of the utmost importance to select the technological platform carefully, along with the right mix of economically viable software applications of suitable quality. Furthermore, the concept of technology as a magic key for solving all problems must not be the driving premise.

In many cases, the latest instructional models require state-of-the-art technology, but a more realistic and pragmatic strategy for developing countries may be a favourable combination of technologies, human resources, and

infrastructure. The relative advantages of one technology over another may vary considerably, depending on the target audience and the learning model adopted. It may be appropriate to use simpler technologies such as radio for rural areas, and despite the fact that television as a learning tool has well known limitations, it still represents an economically viable and efficient option. This assertion, however, should not be seen as an argument for delaying the incorporation of on-line educational programmes. In fact, in some countries, educational television has encouraged the implementation of other initiatives in ICT, which today reinforce one another through a continuous process of technological convergence.

Unprecedented opportunities for knowledge dissemination arise in developing societies, through the exponential growth in ICT and the progressive reduction in cost. However, on-line tariffs and start-up costs are still very high, so that special rates may have to be negotiated for the education sector. The production of multimedia software could, with advantage, be de-coupled from the latest generations of increasingly sophisticated hardware specifications, which are well beyond the threshold of complexity and power needed for learning. This is true for both developed and developing countries.

Professional development of teachers

The use of new applications – text, video, CD-ROM, the World Wide Web or specific software – requires appropriate preparation for teachers, if the applications are to be effectively matched to content and learning objectives. It is imperative for sound in-service and pre-service teacher education and training programmes to accompany ICT initiatives for schools. Teachers must become comfortable with the technology and supported in the use of new applications, for instance with manuals and guides. A simple model of international collaboration between teachers from developing countries – *Teachers Talking About Learning* – was created by UNICEF.[10] Using the Internet and television, teachers exchange information, experience and advice on what works and what does not, and on how better to use the new technologies. An immediate benefit of this type of initiative is that teachers become confident users of ICT, and best practices are identified and disseminated.

A common myth is the idea that teachers in poor settings, and especially in rural areas, cannot make the great leap forward of assimilating and then using

10. See www.unicef.org/teachers/action/projects.htm

ICT. The MIT Media Lab Report *Project Lighthouse in Thailand: Guiding Pathways to Powerful Learning* discredits this belief (Cavallo, 1998). There had been strong reservations about the passive nature of Thai students, about the poor quality of instructors, particularly in poor and rural areas, and about capacity to change traditional teaching methods. Teachers were accustomed to lecturing without being questioned, and then testing rote knowledge; although they desired change, they were worried that it would need years of re-training, or new teachers. How could they adapt to technologically rich settings, with little education themselves and no experience in learner-centred classrooms? Many wondered whether they could understand the technology at all, let alone use it for teaching. The evidence, however, showed their fears to be unfounded. Thai teachers and learners adopted technologies fast and reliably enough to use them confidently and effectively.

The great advantage of ICT is not to substitute for teachers, but to enable teachers to enrich their teaching and their access to information. The new technologies also serve as an instrument for their own professional development. Teachers actively encouraged to generate new content and processes in their own language are thereby participating in the creation of global knowledge and have become indispensable for the educational process.

Parent education and compensatory programmes

When there are high levels of educational lag in the adult population, parent education programmes are perhaps one of the most important resources for reducing learning gaps throughout society. In the presence of socio-economic and family disparities, they provide a compensatory factor that lessens the negative influence of the children's environment. Due in part to the character of their audience, parent-education programmes may be easily adapted to distance formats, as is already done in several countries using radio and television.

Educational ICT is intrinsically compensatory in nature, due to the massive reach and homogenous quality that can be achieved. However, programmes directed to socially disadvantaged populations in developing countries need other compensatory measures alongside, such as school breakfasts, pre-school provision, salary incentives for rural teachers, health programmes and community-oriented initiatives. UNICEF has pointed out that cultures have long perfected ways of transmitting their accumulated knowledge and inherited wisdom to children (UNICEF, 1999, p. 22). But in a changing world, parents are not always able to put into practice all the new information that could be useful to them. Support has to be given to the parents, who are the children's first teachers.

Innovative approaches have been adopted in several countries, such as the "public kiosks" established in Turkey and Malaysia (The World Bank, 1999, p. 57). These kiosks, open to the general population, provide telephone, fax and even Internet connections. In addition to the obvious benefits, they allow direct communication between citizens and government agencies. For poor rural communities, Costa Rica and Malaysia are exploring the concept of *LINCOS* (Little Intelligent Communities), where tele-medicine, voice communication, access to the Internet, and many other services are provided (Figueres, 1999). The module is based in a low-cost, refurbished cargo container equipped with computers and communication links to low-orbit satellites. A trained community member takes charge of its operation.

Social participation

Social participation is essential for the successful development of ICT initiatives in education, the active involvement of the private sector and the local communities being critical. The community must be able to participate in and benefit from an innovation process of this nature, and additional resources for financing infrastructure and operation costs may be secured from the private sector. Given the commitment of entrepreneurs, unions, associations, local communities, and federal and state governments, technologies may be appropriately adopted and effectively utilised.

Much effort has to be expended in strategies that enable communities to take advantage of the new technologies, so that local populations become fully acquainted with their potential. For the specific purpose of encouraging and preparing teachers and community members, there are for instance *Community Mobilisers* in Brazil (Gropillo, 1999, pp. 10-11), *Telesecundaria Tutors* in Mexico (see below), and *Dinamizadores* in the Citizens' Participation Network of Colombia (Morales, 1997). These leaders raise community awareness of the potential of ICT, as a means of improving the quality of education and raising the standard of living in general. They are responsible for stimulating active community participation and commitment.

Planning and evaluation

In order to ensure effective and judicious incorporation of ICT, it is necessary to have coherent and comprehensive policies for planning and evaluation. These will include the definition of clear objectives, the identification of priorities and strategies, the ability to envisage future scenarios, the design, implementation

and evaluation of pilot projects. Evaluation criteria and procedures must be determined in accordance with previously established goals and objectives, and field-testing should precede large-scale commitment. Planning must be rigorous but not inflexible, allowing refinement in the light of experience. When dealing specifically with learning gaps and exclusion factors, it is critical to start from a precise awareness of the nature and dimensions of these disadvantages.

Experiences from other countries are important, but their assimilation may require exchanges of information over a considerable time. International organisations such as the OECD's Centre for Educational Research and Innovation (CERI), and the Latin American Institute of Educational Communication (ILCE) can assist in the process of technology knowledge transfer. Countries helped in this way will be better able to assess their needs, to develop strategies and submit plans for financial support to multilateral lending agencies.

MEETING THE CONDITIONS FOR SUCCESS – THE MEXICAN TELESECUNDARIA

To illustrate how a successful distance-learning programme meets some of the criteria discussed above, a brief description of Mexico's television-assisted *Telesecundaria* programme is here presented. The middle-school programme has been in operation for 31 years, but the National Satellite Educational Television Network (EDUSAT) started in 1995, and now constitutes the means whereby Telesecundaria is delivered. EDUSAT has brought additional advantages, including the delivery via satellite of data, which makes it possible for communities and rural schools to join the Internet through *Red Escolar*, the Mexican School Net. Red Escolar offers – in Spanish – information for both teachers and students, in a wide variety of academic subjects; it fosters collaborative projects between schools, and provides in-service teacher training.

Telesecundaria was designed to meet the educational needs of hard-to-reach rural areas in Mexico, mostly communities of under 2 500 inhabitants. At first it was offered in a few states (there are 31 plus the national capital), with a little over 6 000 students. Today, the programme is available at 13 851 locations nation-wide, serves over 1 043 000 students and employs over 46 000 teachers (Secretaría de Educación Pública, 1999). The course comprises three essential elements:

- A 15-minute television programme, of which over 4 600 have been produced and up-graded over the years).

- Specially-prepared textbooks and teachers' guides.
- The teachers (tutors).

It is thus a mass system of formal schooling that combines distance programming with on-site teacher tutoring, and that offers two-way communication between the centre and the communities involved.

Children finishing the sixth grade in rural primary schools average lower academic performance than children from urban elementary schools. However, after the three-year Telesecundaria programme, the rural school students have caught up with their peers in traditional urban schools, suggesting a higher added-value for Telesecundaria learning. Telesecundaria has not only been successful in enhancing the academic performance of children in rural areas, but has encouraged their interest in staying at school through the entire cycle.

Unit operating costs per student are similar in the traditional system and the Telesecundaria schools, though it has to be said that average class size is slightly over 20 students for Telesecundaria and over 40 in regular schools (De Moura Castro *et al.*, 1999). Nevertheless, setting up and operating regular secondary schools in rural communities would cost nearly four times as much as normal. Furthermore, while overall enrolment in Mexican middle schools has grown at 3.3% per year over the last decade, Telesecundaria has registered close to 10% growth and it is expected to reach 12% next year, making in-roads into the semi-urban and urban sectors.

	Student enrolment for the academic year		Increase
	1990/1991	1999/2000	
Telesecundaria	470 100	1 043 400	573 300
Total secundaria	4 190 190	5 264 097	1 073 907

During this decade, Telesecundaria was responsible for over 53% of the increase in student enrolment (Secretaría de Educación Pública, 1999).

A feature of the system is the cooperation between government and community. Usually the community provides a provisional venue while a permanent facility is built. In addition to sending trained tutors, the government makes available all necessary equipment and materials: parabolic dish, decoder, TV, VCR, desks, blackboard, textbooks, guides, notebooks, pencils, etc. The process becomes a remarkably rapid, flexible and efficient way to set up a school,

without incurring high overheads. With a minimum of 15 students who have completed elementary level (K-6), a school can be started anywhere at the behest of parents or local authorities.

In Mexico where basic mandatory education includes the first nine grades, Telesecundaria appears to be the only way to serve a growing, scattered, and diverse potential population of middle school children. It works well because it:

- Follows a well-planned and researched academic model.
- Elicits and depends on community participation.
- Employs appropriate technologies in an effective and simple way.
- Provides extensive and continuous teacher training.
- Is constantly evaluated and up-graded.

In fact, it has proved so successful that other countries have implemented it at a national level. Thus far, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, and Panama have between them over 20 000 students in their own versions of Telesecundaria. Furthermore, Bolivia and Colombia will begin pilot projects early next year and Ecuador has expressed its intentions to join (*ibid.*).

To be sure ,Telesecundaria has room for improvement. It is still in essence a vertical, face-to-face approach to schooling, if somewhat less overbearing. Work is needed to make it more interactive and more focused on the development of critical thinking skills, as well as on the solution of practical problems in the community. An issue yet to be addressed is that proportionally fewer Telesecundaria students have access to high school, compared with urban school children, which implies that inequality in social and economic status is still perpetuated. Even so, a measure of compensation has been achieved by the use of technology (satellite television) and other strategies, to reduce the learning gaps between rural and urban schooling, both in terms of access and quality of outcome.

Eventually, Telesecundaria will become Web-based. Actions are now underway to incorporate the Internet, and specifically Red Escolar, which was piloted in urban elementary and middle schools. This will give access via the computer to television, interactive video, Internet digital libraries and a myriad of on-line educational resources. It means that for the first time the Telesecundarias will be connected to the rest of the country's schools and able to participate in collaborative projects.

The Red Escolar innovation will have powerful effects not only for the Telesecundarias themselves, but also for their communities. EDUSAT and the

Telesecundaria sites constitute a platform from which knowledge and information can be distributed nation-wide for diverse purposes and to different audiences. In the Telesecundarias, community members gather outside regular school hours, to watch the Telesecundaria programmes from among the ten channels transmitted via EDUSAT. Thus farmers can take courses on crop raising, water management, or plague control; they can receive market information. Mothers are able to become better informed about general family health care and child rearing practices. Parents learn how to help their children study and in the process learn themselves. Youngsters receive seminars on issues such as AIDS and drug-addiction prevention. There is regular information on the services offered by the different federal and state agencies.

In the near future, Red Escolar will be widespread in Mexico's community centres, rural clinics, public libraries, elementary schools, and other local access centres. It will connect the urban and rural sectors and foster a culture of lifelong learning. Mexico is about to launch a Distance Secondary School for Adults,[11] for the development of basic competencies – reading, writing, arithmetic, the exercise of citizenship, the technological and scientific processes needed for practical-problem solving. Courses will be delivered via EDUSAT, and a Web page is in the making for those who have Internet access. Whilst this is a new programme, it has incorporated a substantial part of the Telesecundaria material. The intention of this learner-centred adult programme is to reach every site where there is a need for adult education at this level, including the workplace, schools, homes, community centres, hospitals and even prisons.

CONCLUSION

By itself education cannot solve the secular problems of social inequalities, but without equal access and quality learning for all, existing gaps will surely deepen. Educational reform has acquired a fresh impetus from the possibilities that ICT and the knowledge society bring to the cause of learning, equality and social transformation. New technologies constitute an extremely powerful tool to widen access and match the growing social demand for more diverse and pertinent education throughout life. The use of ICT is not an end in itself, however, nor is the objective simply to apply state-of-the-art technologies.

11. Secundaria a Distancia para Adultos.

Research is needed, including the evaluation of pilot projects, into how best to use ICT to meet curricular objectives, with the active participation of the academic community and society at large.

Developing countries must have a strategy for innovation. It is unlikely that they will be able to implement satellite and Internet educational systems at the same time or at the same rate. Where should they begin, and should they wait until costs come down appreciably? How will the high start-up costs be financed? They will need to establish teams of leaders with the required expertise. Teachers generally will require a thorough involvement and understanding, in order to apply the new technology and to create curriculum materials in their own language. Sometimes it will be necessary to implement sophisticated ICT measures even where there are no existing traditional educational programmes on which to build.

The developing world should move forward with alacrity to incorporate ICT in the learning process at all levels. Traditional applications such as radio and television lend themselves to diverse applications that are of great relevance, especially for rural populations, and will constitute an appropriate platform for achieving interactivity at a later stage, when the costs of two-way communication systems will become, in all probability, affordable enough. Even so, the use of computers and the Internet should not be delayed, so that within ten years all countries should be at approximately the same level of computer and Internet use.

The massive and multidirectional flux of information brought about by ICT has profound consequences on cultural and political settings, whereby the values of a pluralistic democratic society are reinforced, and the relationship between government and civil society becomes more transparent. Internationally, not only have the principles of tolerance and understanding been buttressed, but the possibilities for cooperation and exchange have multiplied. Against this scenario, regional inequalities in ICT come into sharp relief, and reinforce the case for assertive action towards closing the technology and learning gaps. This can be done in part through international collaborative projects, such as the OECD/CERI's *ICT and the Quality of Learning*, that disseminate information on successful practice and experience. Other international organisations will be able to encourage educational content production, in several formats and languages; they will be able to support the financing of relevant national schemes and foster the necessary technology transfer.

Different technologies are nowadays converging, so that the information networks – satellite, cable, fibre optics, telephone – will be used in complementary

ways to deliver content in diverse formats to distinct educational audiences. The important thing is for the knowledge distribution between the poor and the rich to be more even. Investments then will flow more readily to the less developed regions of the world, where employment opportunities will increase at a faster pace. Educational opportunities made available through ICT might thus be a powerful means of overcoming social and world inequalities.