EDUCATION FOR THE TWENTY-FIRST CENTURY

Issues

and

prospects

Contributions to the work
of the International Commission
on Education for
the Twenty-first Century,
chaired by **Jacques Delors**

Education for the twenty-first century: issues and prospects

Also in this series:

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Preface

By creating the International Commission on Education for the Twenty-first Century in 1993, the Director-General of UNESCO gave a strong impetus to debate on the relationship between education and society, thus reaffirming the commitment of the Organization to strengthening international intellectual co-operation on all aspects touching on the conception and practice of education. The report of the Commission, *Learning: The Treasure Within,*[1] was published in 1996. Mandated to look at 'What kind of education is needed for what kind of society of tomorrow', the members of the Commission were keenly aware of the need to take into account the diversity of situations while focusing on the commonality of aspirations which emerged when one considers the future of education. The report's central theme, revealed by its title, is the continuing quest for a practice of education that reveals the value of learning throughout life to each individual, and that permits the emergence of each and every talent, individual and collective.

Learning: The Treasure Within was published at a time in history when the world seems to be torn between the short-term and the long-term aims of human development, between the material and the spiritual. This report's message, if one had to encapsulate it, is that by aiming at long-term goals one is also making the best effort for

1. J. Delors et al., *Learning: The Treasure Within. Report to UNESCO of the International Commission on Education for the Twenty-first Century.* Paris, UNESCO Publishing, 1996.

short-term prospects. The concept of learning throughout life enables us to view education in all its dimensions, both as a tool for individual and social advancement and as an end in itself. Thus, the report provides a vision of education where the cognitive and applied features of education are bound together with the behavioural and societal goals embodied in learning. This conception is also the unifying feature of the papers in this volume.

If it is to be successful, education must, of course, meet some quite specific needs, teaching skills, preparing individuals for their economic roles. But an education at any level that focuses directly on narrow utilitarian aims will be sadly incomplete and ultimately will fail to fulfil adequately even those aims it has itself set. This message came through clearly in all our consultations, and was embodied in our proposal that education be constructed on four pillars: learning to know, learning to do, learning to be and learning to live together. Giving equal attention to each of these four pillars will ultimately enrich all the facets of education, including those that are more narrowly professional. Thus, as the report of the Commission puts it, education is a necessary Utopia: education must aim for Utopia in order to get even the most prosaic tasks right.

Learning: The Treasure Within has, I believe, made its contribution to an on-going debate about the future of education in many countries and for a variety of constituencies. It is already available in more than twenty languages, and a dozen other editions are in preparation. By bringing out as a follow-up this volume of papers and hearings, we wished to pay tribute to all those who contributed to our reflection and to the vision and recommendations presented by us in the report. We have selected for this volume only a small portion of the many submissions we received, both commissioned and spontaneous. We have also included a selection of texts from the hearings we held in our meetings in various regions of the world, although regrettably the hearings from Africa in particular were lost through a technical mishap. Commissioned as part of the process of our work, the papers, which complement existing literature, are intended to respond to questions that arose in the course of our sessions, and to illuminate specific issues that cross disciplines. They are a sampling, a series of insights into issues and problems as seen by outstanding contemporary education specialists. The texts that we have reproduced from the hearings are similarly representative of a work in progress, a series of spotlights shining from different angles on a central theme, that of education viewed in its broad relationship to society. What, of course,

is not here is the discussion that took place among the Commissioners as a result of this work: that finds its expression in our report.

Many of the issues debated here are both contemporary and enduring. None of the papers is intended to be more than a thought-provoking overview. As such, and brought together, we hope they will serve for practitioners of education, decision-makers, teachers and other actors in the field as a tool for unearthing another of the treasures concealed within education

Education is, in many important ways, the pulse of society. It reflects both today's tensions and tomorrow's aspirations. Thus, the interest of these texts is in their diversity, in their search to understand the continuing relationship between thought and action, and, finally, in their committed optimism.

As regards education, it is perhaps in the political sphere that the link between thought and action is the weakest. Education occupies a prominent place in discourse, but energetic action to meet urgent needs, to consolidate systems, to increase equality of opportunity and quality, to reinforce international co-operation, leave much to be desired. It is here that UNESCO has a vital role to play. Its action and its publications can continue to make an immeasurable contribution to maintaining awareness, to bringing together the key players and to furthering the ethical goals embodied in its founding texts.

Jacques Delors

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Danièle Blondel

The physiognomy of the twenty-first century has already been moulded to a great extent by developments that started during the last few decades and seem irreversible, at least in the medium term. These developments are not necessarily harmful but most frequently represent difficulties for national and international communities in so far as they do not have any self-regulatory mechanism and seem to be outside the scope of any institutional and political regulation. They are looked upon as unavoidable and lend legitimacy to very pessimistic expectations about the dangers that the world is facing. National and international leaders are therefore now faced with major challenges arising from the need to give a sense that is positive for humanity to these broad trends.

Constraints created by contemporary world history

The development of the world economy and society is at present being strongly influenced by three phenomena that seem to be accelerating and that are beyond the control of any system: demography, the worldwide interdependence of official and private actions, and scientific and technological progress.

1. At its first meeting, the Commission was anxious to put its work in a general context. This introductory chapter attempts to group the ideas expressed about the difficulties, dangers and challenges of the twenty-first century.

Demographic pressure

The progress of medical science has fortunately made it possible to reduce infant mortality throughout the world. In so doing, it has also caused an explosion in the rates of population growth in the poorest countries despite, or no doubt because of, recurrent poverty. Population growth rates in the developing countries are now over 2 per cent per year, which means an increase of 1 billion people in the world population between 1988 and the year 2000. The demographic boom seems to be all the greater when the level of income is low and between 1980 and 1990 many African countries had growth rates of 3 to 4 per cent per year (4.2 per cent in Kenya and Côte d'Ivoire, 3.5 per cent in Somalia).

This acceleration in world demographic growth due to the developing countries has resulted in an increase in the proportion of young people in the population of those countries; and the poorer the country the more spectacular the increase. Whereas the population under the age of 15 fell by 0.6 per cent in the developed countries between 1970 and 1990, it rose by 31 per cent in the developing countries, with Africa south of the Sahara holding the rejuvenation record with +89 per cent, while the young population has practically stabilized (+1 per cent) in eastern Asia and Oceania, the newly industrializing region of the world.

Demographic forecasts for the beginning of the twenty-first century, despite assuming a fall in fertility in certain regions, predict a continuation of the trend towards an increase in the population under the age of 15. It is expected to rise by 26 per cent between 1990 and 2025 worldwide, but by 105 per cent in Africa south of the Sahara.

These trends already presage imbalances on two fronts in the population dynamics of the twenty-first century:

→ First, at the intergenerational level, it is clear that, for the poor nations, the burden of providing for these young people's food, education and health is becoming increasingly impossible to bear. Gross national product (GNP) per capita has fallen in many countries and the dependency ratio (the population aged 0 to 14 and over 65 in relation to the population aged 15 to 65) has risen in such a way that there is no hope that local savings can be increased in order to make the necessary investments. In addition, the immediacy of the needs has led to disregard for the preservation of natural resources and in some instances has even led to tragic ravaging of the land (as in the Sahel) so that the equilibria needed for subsistence have been shattered. These societies are also tending

to lose their traditional reference points, based on a certain type of family regulation and habitat, particularly as a result of migrations to suburban areas.

→ Second, at the international level, the pressure of young people from poor countries knocking on the doors of the ageing developed countries where few jobs are being created is becoming fiercer and fiercer, giving rise to outbursts of xenophobia.

Worldwide interdependence of official and/or private actions

Imposed by the opening up of economic and financial frontiers as a result of the liberalism of the past few decades and reinforced by the collapse of the Soviet bloc, the interdependence of economic, political and cultural activities is evident on several fronts:

→ short-term and sometimes even very short-term interdependence imposed by the international money markets and by the foreign exchanges that spread any fluctuation immediately and dictate a de facto solidarity to monetary policies;

→ economic interdependence, as a result of which the industrial crises of the most developed countries affect the whole world through the commodity markets and also by the decentralization of activities;

→ interdependence of corporate strategies, consisting of fierce competition on the international markets and also of institutionalized co-operation in technological or commercial networks at the same time;

→ interdependence of scientific and technological activities, which, after long having been of service to universal progress, are becoming more and more affected by commercial competition over new products and new technologies;

→ interdependence of ecological options (the consequences of human activities on the environment extend far beyond national frontiers and it can even be demonstrated that the distribution of the adverse effects of industrialization is very inequitable since it is often the least developed countries that are most affected);

→ interdependence of cultural and political developments, reinforced by the new means of communication that standardize information worldwide, adding layer upon layer at a faster and faster pace without allowing time for the information to be assimilated by the various cultures.

There are two sides to each of these various facets of interdependence: unbridled competition and widespread rivalry on the one hand, and

co-operation and mutual understanding on the other. They bring people together in confrontation and at the same time in solidarity, but in the absence of codes firmly based on custom which would establish a social contract on a world scale, it seems that the twentieth century is coming to an end in the throes of intensified competition and savage selection much more than in the harmony of a co-operative society that shows regard for diversity.

Scientific and technological progress

After at least two centuries of universal faith in scientific progress there is, at the end of the twentieth century, a conflict between the freedoms won by humanity through its growing mastery of nature and the evils that this progress has gradually engendered, which humanity and the societies of the future will, it seems, be unable to avoid. These problems can be clearly seen in the form of social costs.

→ The most readily perceived social cost has been, since the 1960s, that of the increasingly rapid destruction of the natural environment. At the present rate of productivity, which is governed by modern technologies, what are called non-renewable resources, whether energy resources or arable land, are in danger of being rapidly exhausted. In addition, physics-, chemistry- and biology-based industries frequently produce pollutants that also destroy or disturb nature. These things, dealt with by economists under the heading 'external economies and diseconomies', are evidence of a clear discordance between productivity and well-being and, more generally, between technical progress and social progress.

→ The most paradoxical social cost of this technological evolution has come to light insidiously in the most modern nations during the last few years. This is the unemployment, or rather the 'unemployability', of a growing proportion of the active population of the developed countries. Over-systematically replacing people by innovative technical equipment which unendingly pushes up productivity inevitably reduces the number of jobs. The initial effect was in productive work, with the replacement of unskilled workers by robots, and typists by word-processors, but now some design and calculation work is affected (replacement of office staff by computers and technical specialists by computer-assisted design systems). There is a danger that the general introduction of artificial intelligence will cause this trend to spread throughout the chain of skills.

In the very long term, this will be a liberation. People should no

longer have to earn their bread by the sweat of their brow. In the industrial societies based on the work ethos, however, what is now happening is a revolution. Economies and societies have to find another way to organize the human life-span and provide another meaning for individual effort. They also have to give value to forms of participation in the community other than the provision of labour. This new pattern has not yet been found and so nations are vying for the available work, which is tending to become a rare commodity.

These three major changes are now combining and becoming simultaneous, foreshadowing great dangers for the beginning of the twenty-first century.

Dangers clouding the approach of the twenty-first century

Accelerated drift of the poor countries

In the general state of crisis in the closing years of the twentieth century, the North–South divide between developed and developing countries has become both sharper and more complex. Some countries have emerged from underdevelopment and joined the club of the most go-ahead countries in the world market (the 'tigers' of the Pacific), while others are falling back, victims of the world situation and of endogenous processes in which population growth is combined with the effect of the short-term structural adjustment policies imposed by international organizations, which leave no hope for development in the long term. Sub-Saharan African, where the gross domestic product (GDP) is stationary while the population is growing at an increasing rate, thus devoted a smaller proportion of its GDP to education in 1988 than was the case in 1980. While population control is partially dependent on education, as the example of the countries in the Pacific region seems to show, it is clear that in Africa a vicious circle of impoverishment has appeared which none of the nations concerned seems able to break.

Marginalization of people with no hope of progress

The problem is the same, whether in certain countries of the South or the East which are unable to compete internationally in the technological field and are in danger of forming pockets of poverty, despair and violence which it will be impossible to deal with by aid and humanitarian action, or in the social groups shut out of the socialization process that work represented in the industrialized so-cieties. It is the problem of the increasingly sharply defined dualism

found in societies and in the international community. The pattern of competition and performance which now predominates in almost all fields of human activity, combined with the global spread of the economic survival of the fittest, is automatically producing a divide between winners and losers.

Break-up of nation-states

Disordered competition between individuals, groups and national economic systems is undermining social cohesion and is threatening the balances historically arrived at on the basis of common values. The order imposed for decades by communist ideology in Eastern Europe and central Asia has already been replaced among the different peoples of the former USSR by an attitude of 'every man for himself' which may rapidly degenerate into civil wars, and economic and social regression. On other continents, particularly Africa, the danger is just as great that state frontiers may explode and give way to a patchwork of communities demanding their independence on the basis of ethnic and religious criteria which are often a cloak for economic rivalries.

In addition, cumulative poverty and the feeling of being a prey to intensified selfishness of the speculative and sometimes corrupt industrialized countries are fuelling despair and violence among the very poor, calling into question the very idea of democracy and providing clients for the various 'churches' which foment obscurantism and intolerance.

The paradoxical danger which the conflict in former Yugoslavia perhaps foreshadows is that the world of the twenty-first century, more and more interdependent and therefore united in fact, and more and more informed if not educated, will be as anarchic, regressive and warlike as the disastrous fourteenth century in Europe, which also followed a period of spectacular scientific, technological and intellectual progress.

Danger of the earth's destruction

This danger may take a variety of forms, making it all the more possible.

It may start with the proliferation of the destructive uses of new technologies, such as nuclear weapons. This increases the probability of the irresponsible use of these weapons themselves and markedly increases the danger of the all-out nuclear war that the great powers have been able to avoid for almost half a century.

It may also come from the use of new technologies by countries, people or institutions that do not have full control over their own upkeep and security. The example of Chernobyl and the assessments of the nuclear installations of the former USSR that have since been made prove that the danger exists, prove the irresponsibility of the decision-makers who created this situation but, more seriously still, prove that this type of decision is irreversible. It seems, in fact, impossible for the world's scientists, even at great expense, to obliterate the consequences of these mistakes. Science and technology for the repair of nature have not advanced at the same rate as science and technology for the production of economic commodities. It is to be feared that the same danger, resulting from the same difference, may exist for a number of applications of biotechnologies, and it is all the more dangerous as it often hides behind the mask of the 'improvement' of animal and plant species, and even of the human species.

Lastly, in a more diffuse way, the circumstances of our life on earth are being imperilled by the waste products and destruction caused by the way we produce and consume. The growing scarcity of drinking water, the greenhouse effect, the emission of poisonous gases and the transformation of the oceans into giant dustbins are all disquieting signs of a general lack of responsibility by present generations towards the survival of the people of the twenty-first century of whom, in fact, there will be many more needing food to eat and air to breathe.

Thus, everything that we tend at first sight to consider as beneficial for humanity, such as the victory of life over death, knowledge of each other, scientific progress and expanding productivity, may combine into a sinister scenario of material and moral regression, chaotic disintegration and even the death of our planetary village if humanity and human institutions do not manage to gain control of these complex changes. The challenges of the twenty-first century can thus be clearly seen today.

Challenges of the twenty-first century
Harnessing science and technology to serve humanity
and development and building a way of life for the time set free

Viewing the world from a purely quantitative standpoint, we can see that two forms of growth are coming together to condemn a part of humanity to starvation or to extreme poverty. These are, first, population growth in the poorer countries and, second, the growth of productivity, contributing to unemployment in the industrialized

countries. In both cases, science and technology appear to have worsened, not improved, the situation. By increasing the population in some places and taking away jobs in others, they are forcing individuals and nations to fight for a place in the sun and to compete in social dumping and trade wars. The scandal is starkly highlighted by the observation that in an interdependent world where communication has never been so easy, dire food shortages in the South exist at the same time as huge agricultural surpluses are choking the markets of the North.

The challenge thus facing tomorrow's scientists, governments and peoples can be summed up as follows: after using their intelligence and energy to take advantage of the resources of their environment and to control nature, human beings must now acquire the wisdom that will enable them to use this power in a beneficial and equitable way.

For the world as a whole, and more specifically for the developing countries, this means waging war on disease (especially AIDS, whose spread in Africa, for example, is a dramatic reminder of how population growth was regulated in medieval Europe) and imparting to demography a conscious momentum that is compatible with human fulfilment, while simultaneously providing the appropriate infrastructure and technical capital needed for properly adapted development.

For the industrialized countries, this no doubt will require a redefinition of wealth. Instead of being seen as a mere accumulation of material wealth based on human labour, wealth should be seen as more and more free time available for everyone as productivity increases, enabling people to develop and to build relationships with others in an entirely self-determined way. In the words of an anonymous disciple of Ricardo, whom Marx was fond of quoting, 'wealth is freedom; free time, and nothing more'.[2]

Adopting a global approach while showing regard for diversity

United without having intended to be, and often even without realizing it, with regard to the great dangers threatening the world, the different peoples would probably be wise first to consciously form a united front, in the short term in order to counteract together these dangers that none of them can overcome individually, and also, in a less defensive and more secular manner, in order to build together the

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2. André Gorz, Bâtir la civilisation du temps libéré, *Le Monde diplomatique* (Paris), March 1993.

kind of world which scientific progress makes possible. The danger, of course, is that this world approach may take the form of imperialist domination by the most powerful nation or nations. The bipolar world order introduced after the Second World War must be replaced by a far more subtle order, made up of a multitude of instances of co-operation and a dynamic of conflict/convergence that shows regard for the wealth found in all the separate groups.

This raises the question of whether there exist universal values capable of creating such a convergence, without appearing like ideologies brought in from outside.

Building the political context for national and international control of complex world developments

The uncertainties and complexities of the modern world no longer allow us to harbour any illusions about the virtues of a rigid system of planning governing the actions of all the people and institutions concerned. On the other hand, the regulation by market forces that has spread all over the world and to all material and non-physical goods, and has been widely practised over the past twenty years, has also revealed its limitations and dangers. Parliamentary political systems at the national level, and multistate organizations at the international level, often reveal themselves to be lacking in ideas and regulatory instruments enabling them to deal with imbalances, conflicts and even war, which although often extremely localized, pose a threat to the entire world order. One of the most important challenges facing us is thus that of reconciling the basic tenets of international law, such as the freedom of sovereign states, with the need for 'global governance'.

Learning for the twenty-first century: issues

George S. Papadopoulos

Introduction: scope and purpose

In any international discussion about the future of education, a first requirement is to reach consensus on the *general* principles, objectives and desiderata that should guide future educational policy thinking and practice, and that each generation must reformulate or restate. The starting point must be recognition of the universality of human needs and aspirations to which education everywhere should be directed, accompanied by equal recognition of the main contextual factors and forces that influence these directions and their applicability, according to the particular characteristics of different regional and national situations.

This chapter seeks to make a contribution to such a discussion. Against the background of broader social, economic and cultural trends and needs, it endeavours to identify the main objectives and problems that will confront future educational policies, outline strategic approaches to the redefinition of such policies, and suggest specific areas and issues in educational policy thinking and in the organization and practice of education that can contribute to the realization of these policies.

This chapter draws heavily on the experience of the advanced industrialized countries.[1] It is fully recognized that this experience may not be seen as immediately relevant to other, less-developed

1. A detailed historical account of this experience is portrayed in *Education 1960–1990: The OECD Perspective,* Paris, OECD, 1994.

regions of the world. None the less, the concern here is with the long term and there is no doubt that the distance already covered by one group of countries can provide lessons, both positive and negative, from which others can benefit. Moreover, it can be argued that the differences are more a question of the setting of priorities and of application rather than of the nature of the *problématique* as such. This is one of the reasons why I have concentrated on the policy rather than the operational dimensions of the problems discussed.

The politicization of education

All over the world, there is a resurgence of interest in education. Depending on its representatives, education is variously seen as the gateway to future economic prosperity, the chosen instrument for combating unemployment, the driving force behind scientific and technological advance, the essential prerequisite for the cultural vitality of increasingly leisure-intensive societies, the spearhead of social progress and equality, the safeguard of democratic values, or the passport to individual success.

This is fully in line with the multiplicity of objectives – cultural, social and economic, with individual development as their common denominator – traditionally served by education. What is new is the persistent chorus of demand, from many sections of society, for educational reform. In most countries, by far the most urgent pressure for change currently emanates from people seeking to enhance the contribution of education to employment and the economy. Again, there is nothing new in these arguments. But they are given new, and often dominant, weight by the economic imperative, and the force and urgency with which educational reform is politically advocated to respond to this imperative. Education has thus come to the fore of the economic and political debate in many countries, though often viewed more as an instrument of other policies rather than as a policy sector in its own right. It is a sign of the times that charismatic defenders of education per se are in short supply.

This politicization of education is amplified in many countries by reduction in government funding and by pressure for accountability in the use of the resources made available to education. Demands for accountability concerning the effective use of resources are not limited to governments; they also emanate from parents about the quality of their children's education, from employers about the quality of the work-force and from other pressure groups with their own agendas. This, in turn, has led to a weakening of the social consensus on

educational objectives as different groups in society strive to see their viewpoint prevail – eventually through the political process – in what concerns not only the allocation of resources to different sectors of education but also the structure of education systems, the organization of schools and even the content of curricula and teaching methods, matters over which educationists traditionally had the monopoly.

We are thus witnessing a twin-faceted politicization movement in education. On the one hand, economic stringency has led to a sharpening of the conflict about priorities in educational objectives, in contrast to earlier, more affluent times when all the objectives of education could be pursued more or less simultaneously. On the other hand, and partly as a consequence of the above, politics has penetrated the very core of the educational process, giving rise to a different kind of conflict between educationists, particularly teachers, who regard themselves as the professional guardians of education standards and a new breed of education politicians eager to impose their own views and values in terms of what education is about. Both types of conflict are best illustrated by the reaction against the egalitarian policies and liberal pedagogies of the 1960s and 1970s which set in with the rise of radical neo-conservatism on both sides of the Atlantic during the 1980s, and by the turmoil which has been created as a result of the application to education of the tenets of a free-market philosophy based on choice and competition.

In all this, education is in many respects merely paying the price of its own success in coming to establish itself, through massive post-war expansion, as an integral part of the fabric of society. This was not simply a question of the vast increase in school and university populations, itself a unique historical phenomenon whose social and political consequences have yet to be fully appreciated. Primary and lower-secondary education, covering compulsory schooling, are now universal in countries belonging to the Organisation for Economic Co-operation and Development (OECD). Beyond that stage, at upper secondary level, between 80 and 95 per cent of 16- to 19-year-olds are enrolled in some form of education and training. Depending on the country, post-secondary participation has reached between 30 and 50 per cent of the 19–24 age group, covering both university and, increasingly, non-university tertiary education.

Educational provision has also broadened, bringing in new groups beyond the traditional school populations and encompassing the rapidly growing range of learning activities, including the explosion of vocational training for both adults and youngsters, that take place

outside formal education institutions and under auspices other than those of the traditional government departments or ministries of education. This, in turn, has resulted in a broadening of the policy- and decision-making structures of education, bringing in new interest groups beyond the traditional education establishment. This increased degree of pluralism in educational decision-making, with ministries of education now controlling only part of the widespread educational activity that goes on in modern societies, highlights the problem of ensuring coherence in the provision of education. It raises new and difficult questions of co-ordination, particularly between youth and adult education, between formal and non-formal education, between the activities of ministries of education and those of other government departments and agencies, and between the public and private sectors more generally, recognizing in particular the increased role that enterprises play in the provision of training.

A new context for education

The upshot of the changes outlined above is that the development of education, in its widest connotations, is no longer propelled, as in the past, by its own endogenous dynamics, but has become more sensitive to external pressures. This trend will be further amplified over the next decades, under the impact of a number of major developments which are changing the cultural, social, economic and political landscape of different regions and countries in the world, and to which education will be increasingly called upon to contribute or respond. The most significant factors behind these developments, as they collectively impinge on education, are already clearly identifiable and may be briefly stated. Together they provide a new context for education which those responsible for charting its future development cannot afford to ignore.

There is, first, the ineluctability of the *growth of knowledge and information*, which are the very stuff of education and learning, and on which rests the cultural and scientific advancement of societies. Increasingly, they permeate all aspects of social and economic life, and are becoming essential to the economic vitality and competitiveness of individual countries; they are seen as such particularly by the advanced industrialized countries. The information glut in modern, media-dominated societies poses new problems for the school, no longer either the main generator or the main transmitter of information. Schools will have to learn how to exploit the pedagogical value of the information around them and how to develop in pupils the capacity

to discriminate between the mass of information sources to which they are exposed every day.

Inevitably, the growth of knowledge leads to ever-rising levels of specialization as a necessary condition for scientific progress and this is the basis on which the 'knowledge-production industry' is organized within higher-education systems. But for education more generally, a twofold problem is thereby raised: how to ensure that advances in knowledge are continuously incorporated into school curricula and how knowledge syntheses can be produced that bring together the findings from various disciplinary specialities into forms which are pedagogically viable for pupils and easily communicable to the wider public. Existing faculty structures, and career and reward systems in higher education, do not provide adequate incentives in that they do not recognize or support the academic respectability of synthesizers of knowledge. This is all the more serious because of the interdisciplinary nature of many of the problems for which society seeks understanding and solutions. Interdisciplinarity, to which the academic community pays lip service, remains far from the norm within university course structures.

Second, *technological change* will continue at an accelerated rate. The rate of change is unequal in different regions of the world, but everywhere it increasingly affects all aspects of life. In particular, it propels economic restructuring, often with painful social consequences which are compounded by concomitant changes in labour markets, jobs and skill requirements, especially under the impact of the ubiquitous information technologies and of the preponderant role which the service sector is beginning to occupy in the economy. In all this, education plays a leading role: it provides and updates the skills and competence of individual workers, essential for a flexible labour force capable of responding to the continuous change resulting from technological progress. Increasingly this role will have to be exercised in conjunction with the work-place and new links will have to be forged between formal schooling and enterprise-based training and learning, essential to combat the new forms of 'functional illiteracy' which are generated by technological change.

Over the foreseeable future, the 'human resources' role of education will continue to be exercised within the constraints of persistent high levels of unemployment, of which the heaviest burden falls on young people. In the European Union alone it is estimated that, if present trends continue, by the year 2000 there will be 30 million unemployed. Of these, 20 million will be young people, i.e. double the rate of

that of total unemployment and increasingly affecting the whole of the 18–24 age group, including higher-education graduates. This growing marginalization of young people has enormous social and economic consequences, and poses serious threats to the cohesion and stability of democratic societies.

The consequences for education are equally significant. The prospect of unemployment will affect young people's attitude to the value of further study and will influence the choice of studies of those who are in education towards more vocationally oriented courses. Governments will increasingly use education and training as a principal instrument of labour-market policy and to provide young people with alternatives to unemployment, in essence defining young people outside the labour market and, incidentally, alleviating unemployment statistics. No doubt there is much that education can do in terms of better preparing young people for employment and retraining the labour force, but the temptation must be resisted to consider it as the panacea to unemployment. Education can certainly improve the chances of individuals in the hard competition for available jobs but it cannot create jobs, other than marginally, nor can it be expected to reorient its objectives to train people for a life of *un*employment.

Third, *demographic changes* are leading everywhere to a redistribution of age groups. In the less-advanced regions of the world, with continuing high birth rates, school-age populations will continue to grow and will call for priority in the provision of basic education. For the more advanced countries, lower birth rates, the tendency until recently, will result in diminishing youth cohorts, a phenomenon that, eventually, in the early decades of the twenty-first century, will be reflected in a fall in the numbers of the 'working-age group'. At the same time, the number of people in retirement will increase, both relatively and absolutely, thus altering the balance between the active and non-active parts of the population. Apart from the consequences that this will have on the financing of old-age pension schemes and health-care programmes, particular types of labour and skill shortages will appear in fairly dramatic terms, paradoxical as this may seem in view of the large numbers of unemployed youth mentioned above. These shortages can only be met through intensive retraining of the existing labour force and/or through the recruitment of migrant workers from countries with surplus youth populations. But such migrant workers cannot be of the unskilled manual kind that was the case in earlier decades. The need will be for young people equipped with the skills which will enable them to cope with the job requirements of

technology-based advanced economies. This will place a premium on reciprocal arrangements between sending and receiving countries to ensure adequate levels of education and training for the young people in question.

The vagaries of demographic change are, of course, well known, as are the difficulties they raise for the planning of provision in the light of fluctuating numbers at different levels of the education system. This has been a main headache for educational planners in the post-war period and will continue to be so in the future. A good illustration of these difficulties is provided by the growing evidence in many OECD countries that birth rates, after years of decline, are rising again. This will necessitate a new redeployment of resources back to compulsory schooling, with all that this implies for the renewal of the building stock and teaching force, both severely cut during the period of decline. Already, teacher shortages, in some cases quite severe, are evident in a number of countries, all the more serious because of the overall ageing of teaching staff and the drastic reductions which had been made in the availability of places in teacher-training institutions.

Fourth, *countries are becoming increasingly interdependent.* Such interdependence – spurred by market deregulation, the spread of new information technologies and the globalization of financial markets – is economic and cultural as well as political, exemplarily manifested in the move towards European integration. Recent events in Europe and elsewhere, marking the end of ideological conflict with the demise of communism, have further underlined the growing momentum of this interdependence in its manifold facets. They have shown how much the safety and prosperity of any one region, and indeed the preservation of peace in the world, depend on similar circumstances prevailing in other regions. They are bringing humanity closer together and this has diverse consequences not only for the mobility of goods and people between countries but also, and in the long term more significantly, for greater international understanding and exchange, an opening-up of frontiers and of minds. Major new challenges are thus posed for education as a mainspring for intercultural understanding and progress. And this applies as much to inter- as to intra-country situations, seeing the growing multicultural composition of the society of many countries across the world.

Fifth, *new social and community concerns* are emerging and education will be expected to play an active role in meeting them. Concern for the environment is probably that which is most universally felt, and

one in which education is already actively involved in sensitizing children and young people to environmental problems and to approaches towards their solution. Health and drugs provide similar examples. But there are also growing concerns for the reinforcement of civic and democratic values that are shared within the group and are compatible with international norms, assuredly the essential pre-requisite for the pursuit of equity and the preservation of harmony and peace in the world. In market-driven competitive and consumerist societies, education can play a crucial role in sustaining social cohesion, all the more so in view of changes in family patterns and community relationships. There are also growing concerns about how to cope with the information glut in modern societies and the pervasiveness of the media, as already mentioned. While education must be responsive to all of these concerns, there is a real danger that too much may be demanded of it. Education can contribute but it would be unrealistic and counterproductive to overload it with tasks which are beyond its remit.

Finally, account has to be taken of *changes in attitudes to the role of public policy* and of the way in which public services are administered and financed. This is not unrelated to issues arising from the growing politicization of education discussed earlier; but it also encompasses trends and problems which are common to all systems, whatever their political particularities. A clear example is the strong trend towards decentralization and greater devolution of responsibility to local and institutional levels. It is at these levels that problems can best be identified and solutions applied. A further example relates to the demands on the quality of public services, the effectiveness of their delivery and greater accountability for their outcomes. New questions are in turn raised about levels and methods of the financing of public services and a rethinking of the roles and contributions of the state, regional and local authorities, employer and employee organizations and individuals. To the extent that education in the vast majority of countries remains a public service, largely publicly financed, its future development cannot escape the effect of these trends and constraints.

The cumulative impact that the trends and changes outlined above will have on education will be considerable. But before dealing with their implications, a word of warning would be in order in concluding this contextual analysis. Everyone recognizes that the effects of education, in the variety of purposes it serves, are cumulative and long term rather than immediate. Education cannot, therefore, be planned, organized or directed merely in response to the transient

demands of economic cycles or fashionable social philosophies. In the turbulent world of today, with fragile family and other social institutions, this consideration is all the more important; education becomes the main vehicle for maintaining and transmitting the basic values on which the cohesion of future societies depends. A certain abstraction from the immediate environment is thus essential for education if it is to fulfil this role.

This does not mean that education can be immune to the impact of conjuncturally driven decisions; it is important that education systems should be equipped with greater flexibility and capacity to respond to new needs which, admittedly, have not been their principal characteristics so far. But because change in education has a long lead time, it is vital that the short-term effects of any policy decision be carefully weighed against its longer-term consequences, both intentional and unintentional, so as to avoid any distortion to the fundamental purposes which education serves in society. This brings into play a new role for educational planning and its relationship to decision-making, binding the two together as inseparable aspects of educational policy-making. It is a fact that in the recent history of changing policies in education, mainly politically or economically driven, this underpinning role of educational planning has tended to be ignored.

With this warning in mind, we can now proceed to identify some of the main parameters which can help define the directions which educational policies could take if they are to meet the challenges of the twenty-first century.

An educational policy agenda for the twenty-first century

Traditionally, educational policies are perceived in terms of discrete levels, branches or sectors around which education systems are organized: pre-primary, compulsory, secondary, technical and vocational, adult and higher education, teacher training, etc. This administrative breakdown of educational provision will, no doubt, remain useful and necessary for planning and operational purposes and as a means by which education systems perform their 'sorting out' function. But it does carry the risk of encouraging an over-compartmentalized, sectorial approach to educational policy planning at the expense of an overall vision of educational purposes and objectives within which the contribution of each level or sector can then be defined and priorities established, according to national circumstances. Such a broader vision becomes all the more necessary in view of the

widespread scope of learning activity in society and the links which now exist between education and other sectors of policy. This broader approach, based on central policy themes and objectives to guide future educational policies, has been adopted for the purposes of the present discussion. Implications for specific levels and sectors of education, seen in the continuum of the educational process, are briefly indicated but will need to be spelled out in detail at a later stage.

Five such themes have been identified: (a) expanding learning opportunities: the need for new strategies; (b) ensuring educational quality and relevance; (c) the quest for equality; (d) new international perspectives and dimensions; and (e) meeting the costs. Each of these themes is discussed below, with a concluding comment on the need to strive towards a *new humanism* in education.

Expanding learning opportunities: the need for new strategies

It is clear from the above discussion that countries all over the world are inevitably moving, though at different rates according to their stage of development, towards becoming 'learning societies'. As knowledge and information increasingly permeate every aspect of human activity, learning becomes pivotal to future progress. This is true of the economy, with its fundamental reliance on the human factor in terms of knowledge and skills but also of flexibility and entrepreneurship, as it is true of the functioning of democratic societies, calling for well-informed and discerning citizens. It is also true of the pursuit of leisure and cultural activities for which more time is now available, especially for the growing number of older citizens, and for ensuring the very quality of life and the environment. Learning thus becomes an essential feature over the whole life-span of the individual, in terms of better adaptation to work but also as an activity in its own right. The conclusion is unavoidable that, more than ever, new concepts for implementing policies for lifelong learning will need to be developed.

Enunciating the need for such policies is easy; it has been done before. Implementing them is a different matter, and one which has so far not been taken seriously anywhere. The starting point must be recognition that the changes in the direction of strategies for lifelong learning, in which quantitative expansion will have to go hand in hand with qualitative improvements at all levels, cannot be achieved by merely replicating existing programmes and structures, providing

more of the same. The setting of quantitative targets, according to national priorities and resource availability, will of course continue to be essential. But such targets will need to be seen in the light of a reconsideration of programmes and objectives throughout the educational spectrum, from pre-primary to higher and adult education and training as well as education for retired people and the raising of overall literacy levels in the population, including the eradication of illiteracy in its traditional sense and in its new forms generated by scientific and technological change. This will also involve a re-examination of the relative roles of formal and non-formal provision, including the use of the workplace as a learning environment.

The role of *initial education and training* is crucial for a good start to lifelong learning. All agree that such education should be of a general character, covering both cognitive and affective aspects of child development. It should secure in all youngsters the foundation of solid knowledge and skills, combined with the appetite and ability to learn afresh – learning to learn – without which no further educational progress can take place. This is as much a question of teaching programmes tailored to the needs of all pupils, including those who learn better by 'doing', as it is of the ethos of schooling itself in developing among pupils qualities of application, high expectations and co-operative learning. Effective schooling should build on the influential pre-school years and operate a close partnership with parents and the local community. It should give all pupils a better sense of the world around them, including the world of work, while recognizing that it is not the responsibility of this stage of education to prepare people for specific jobs.

Equally important changes would be required in order to meet the multiple learning needs of all young people *beyond compulsory schooling*. A wide and flexible system of education and training opportunities should be available, involving both the public and private sectors, often combining the two, to facilitate access by young people to further education and/or work and help them to avoid the un-employment trap. The quality of vocational education and training will need to be improved so as to enhance the base of relevant knowledge and skills, recognizing that the period of basic educational preparation is constantly being extended and the acquisition of job-specific skills postponed to later stages. This also applies to higher education, where a first degree, particularly in the social sciences and the humanities, is no longer an adequate passport to employment and has to be supplemented with further, more vocationally oriented qualifications.

Adult and higher education are themselves strategically placed to contribute to lifelong learning through the provision of teaching and research, initial and recurrent education and programmes oriented to wider employment and community needs.

Strategies for lifelong learning, finally, cannot be effective unless they represent a concerted effort within the formal education system itself and are linked to all the other settings where education and training, and skill formation more generally, take place, particularly within enterprises. The focus of these strategies will increasingly be the adult work-force, whose skills need to be constantly renewed under the impact of technological change. Special attention will have to be given to the growing number of women who wish to return to work and to the retraining of displaced workers. More will need to be done to encourage the development of school/enterprise links and part-nerships as well as to improve the volume of enterprise-based training, the quality of its tutors and the relevance of training courses and curricula.

There must be no illusion that moving in the directions outlined above will be an easy task. But this is an area where progress can be incremental, provided that an overall framework exists which recognizes the educational continuum as it applies to the different learning styles of individuals. It must also be remembered that the experience so far has been that those who participate in further education are those who already have a sound educational background; hence the primordial importance of a solid initial education for all. It must also be stressed that, when it comes to adults, traditional school instruction, of which some at least will have unpleasant memories, is not the most ap-propriate incentive to attract them back to education. A pedagogy for adults still remains to be developed.

Ensuring educational quality and relevance

Concern about the quality of schooling dominated the educational debate in the 1980s. It sprang from a widely felt view that the democratization of education, particularly in countries which adopted the 'comprehensive school' model, had led to a fall in standards and that the interests of high achievers were sacrificed to those of the slow learners. It was fanned by conservative and economic thinking, and was given political prominence by invidious comparisons between the high performance of Japanese students – and hence, it was argued, of the Japanese economy – and the poorer scholastic results of their counterparts in Western Europe and North America.

This concern will remain a central issue into the twenty-first century. Increasingly, however, it will be broadened in two directions. First, it will extend to include, in addition to schooling, other education sectors and levels, particularly vocational education and adult education, as discussed earlier. Second, qualitative criteria will be defined more broadly than mere school achievement or learning outcomes. They will come to include consideration of the extent to which the education and training provided by schools and higher-education institutions are relevant to the needs of young people in preparing them to manage their personal lives and to function effectively in modern technology-and-information-permeated societies, not only as workers but also as parents, consumers, citizens and in their other roles. Such an extension of the scope of qualitative criteria will make the search for objective standards of measuring quality even more chimeric than it has been so far.

In the search for quality, in its extended frame of reference and at all levels of education, attention will inevitably continue to focus on the three key and interrelated sectors that constitute the backbone of the educational process: the curriculum, the quality of teaching, and the effectiveness of pedagogy and methods of work.

Curriculum

The need for curriculum reform arises both from the increasingly rapid growth of knowledge and the broadening range of the responsibilities and clienteles of education. The central questions are how to ensure comprehensiveness and relevance while avoiding overloading the curriculum; how to make the curriculum responsive to new social concerns, such as the environment, health, etc., without vitiating its long-term purpose in the transmission of culture and values; how to provide for a diversity of offerings to meet the interests of diverse clienteles while ensuring coherence and focus; and how, in particular, to redefine the core curriculum in a situation in which technology is becoming part of the general culture, with all the implications that this has for the redefinition and acquisition of the basic competencies needed for the transition to adult life. Computer literacy, for example, has become part of the new basics in education.

These questions apply differently at different levels of education and, in order to avoid incoherence and overload, one general requirement would be that the special tasks and missions of each level be better clarified. This would, in particular, help in deciding what to include in the foundation of initial education and what best should

be postponed to subsequent levels. At all levels, the general objective should be to organize curricula so as to enhance the learning process, avoid inequalities of prestige between the different tasks and programmes, attenuate the traditional dichotomy between what is 'general' and what is 'vocational', and discourage biased choices such as those reflected in patterns of male and female participation in the sciences and the humanities.

As far as *school* curricula are concerned, the trend has been towards a more centrally defined core – a national curriculum – setting the minimum learning objectives by which student and school performance are assessed. This goes hand in hand with a wider variety of options in other subject areas, particularly in upper-secondary education, in the light of local needs and situations. These trends apply to countries with centrally organized and controlled systems of education as well as to those with decentralized systems.

Special problems arise in *higher education* as a result of the recent trend towards the increased, and some think excessive, vocational orientation of courses, at the expense of the social sciences, the arts and the humanities. The balance will eventually need to be redressed, seeing that, in particular, the rapid growth of a service-oriented economy means that the kind of personal attributes developed by these so-called soft disciplines, in terms of perceptive aptitudes and communication skills, will be in even greater demand than in the past. In addition, a permanent undermining of these disciplines would have serious consequences for the traditional role of higher-education institutions, particularly universities, as centres for independent critique and cultural advancement in society.

Quality of teaching

It is universally accepted that well-trained and motivated teachers are the most vital component of high-quality education, whether in schools or in all the other settings where organized learning takes place. There is thus an imperative and continuing need to improve the quality and attractiveness of teaching as a profession. Improvements in rewards, career opportunities, initial and in-service preparation, status and prestige are generally accepted as essential to attracting high-quality recruits and retaining talented practitioners in teaching posts and leadership positions. Measures in these directions are given added urgency in countries which foresee teacher shortages over the next few decades, shortages that are likely to be exacerbated by the ageing of staff and competition from other sectors, as already noted.

Experience has shown, however, that the gap between what is desirable and what can realistically be done to bridge the gap remains as wide as ever. Teaching is a massive profession. The resources required to improve the status of teachers to levels of other comparable professions – a status which in many countries has worsened rather than improved in the recent past – would be enormous and would call for a drain on the public budget which no country has so far shown the political commitment to risk. However, the profession's corporatist behaviour inhibits differentiated treatment among its members, as shown by the opposition to 'merit-pay' schemes which some countries are encouraging. It must, therefore, be accepted that progress in improving teacher status can only be gradual and incremental. But at the same time much can also be done to improve teachers' conditions of work, in a situation in which they are constantly being called upon to perform a variety of tasks not directly linked to teaching. Recourse to para-professionals for such tasks would be helpful, as would a more widespread use of information technology in support of teaching duties. The overall objective must be to give teachers practical reassurance of the value which society attaches to their work, reflected in tangible measures of help and support in their daily tasks as well as in improvements to their status. It is only in this way that high levels of commitment and professional performance can be expected from teachers in return.

Pedagogy and methods of work

The way in which children are taught and the ethos of their learning environment are as important to the educational process as is the content of teaching itself. The two cannot be separated but it is a fact that relatively little attention has been paid to the former. Pedagogies have followed cycles of fashion, from permissive child-centred approaches to more rigorously defined content and cognitively directed ones, which now seem to be in favour. The learning sciences are still in their infancy as a discipline and levels of investment in research and development (R&D) in education remain far lower than in any other sector of comparable size. Alongside traditional academic research, much more needs to be done to improve the level of R&D, grounded in practice, involving staff and institutions in a constant process of diagnosis, comparison and analysis, and to support experimentation and innovation.

In its methods of work, the school has by and large remained isolated from the realities of the world around it, and this at a time

when it is losing its monopoly as the agent for the transmission of information and the inculcation of attitudes to co-operative working and social living. Greater openness to the outside world is thus needed, including drawing on lessons from the work-place in approaches to teaching and to working methods more generally. Particularly, more holistic approaches to the pedagogy of learning will need to be developed, in which experiential learning – learning by doing – is given its due place alongside cognitive learning processes.

But perhaps the greatest need is for some fundamental rethinking of the traditional structures and organization of classroom teaching, so as to give both teachers and pupils more diversified and exciting learning situations. It is unthinkable that in the twenty-first century, with all the sophisticated means at our disposal, new pedagogical structures cannot be devised to release teaching from its centuries-old classroom organization: one teacher taking a 40–45 minute lesson in one subject with a class of thirty to thirty-five pupils of the same age. Such reorganization of teaching would make it possible for individual pupils to receive more personal attention and enable them to move educationally at a pace which is not determined primarily by happening to belong to the same chronologically defined group. This is a process which will primarily involve the teachers themselves, who would be only too anxious to liberate themselves from the loneliness they often feel in front of the traditional classroom; to get out of their working ghetto about which they so often complain. There are already signs within the profession that teachers are willing to move in this direction.

It is particularly in this context that the *new information technologies*, with the self-learning opportunities they provide, could be especially useful. But the potential of these technologies cannot be fully exploited without the availability of pedagogically sound software to match the rapid advances in hardware. So often in the past, educational software was in the hands of the same commercial interests that produced and sold the hardware, and was not necessarily relevant to the needs of pupils and teachers. It is reassuring to note that many countries have now instituted coherent policies for the development and application of the new technologies, of which the production and selection of educational software is a major component. It is also a healthy sign that teachers themselves are involved in this process, in co-operation with university research centres and pedagogical institutes. Instruction in the pedagogical use of the new information technologies should henceforth be seen as an integral part of teacher-training policies.

A final comment should be made on the problems raised under the three sectors outlined above. It is clear that action in the directions indicated will have to be concerted across all three sectors, given their interrelationship which has been demonstrated. Such concerted action will call for improved capacity in the management of school change, particularly in the context of growing decentralization of decision-making and increased school autonomy. This, in turn, will have implications for new leadership roles within schools, including new kinds of training for school leaders and a redefinition of their re-lationships to other staff, as well as to parents and the local community. It will also involve the working out of new links and responsibilities between school leaders and regional or central education decision-makers, particularly in ensuring the availability of adequate support systems to facilitate school change.

These are all questions which are vital to endowing education systems, whether centralized or highly decentralized, with the capacity to maintain their vitality and adapt to changing circumstances. Experience has shown that the centralization/decentralization issue is no longer the operative factor in developing such capacity. All systems are in fact becoming both more centralized and more decentralized at the same time. Centrifugal forces are generated by the twofold need of ensuring national standards and the accompanying es-tablishment of national evaluation systems, on the one hand, and of controlling public expenditure, on the other. At the same time, it is now recognized that change cannot be imposed from above through mere legislative acts or other prescriptive fiats; it must be grounded in grass-roots initiatives rather than derive from top-down models: hence the move towards greater decentralization and devolution of decision-making to local and institutional levels. In addition to releasing local initiative and school creativity, such devolution has the advantage of enabling educational institutions to draw on extra resources, both financial and human, available in the communities around them, including business and industry. In this, of course, a careful balance has to be maintained so as to avoid the danger that schools and colleges, in their search for additional support, find themselves hijacked by the local economy.

The quest for equality

In the circumstances which prevailed in the 1980s and early 1990s, the main driving force for educational change was the economic imperative, in tandem with improvements in quality. The objective

of equal educational opportunities, the hallmark of the previous two decades, received less attention. It is clear, however, that in the decades ahead the quest for a more equal spread of educational opportunities will reassert itself as a major component of policies. This arises from economic as well as from social and broader political considerations. The social and economic costs of those who are left behind educationally because of their socio-economic background and other circumstances are obvious. At a time of diminished youth cohorts and labour shortages, countries can ill afford to deprive themselves of their full human potential; hence the need to improve the educational situation of the disadvantaged as a means of combating marginalization and exclusion.

Education has always been particularly concerned to remedy disadvantage, often through measures of 'positive discrimination'. Indeed, it has traditionally been seen, both by individuals and society at large, as the royal road to social mobility and the reduction of social inequalities. This role is often exaggerated and education alone is not enough, as the experience of the massive post-war expansion in education has shown: in spite of the democratization of education, glaring inequalities remain. It is true that gender inequalities, in terms of participation in education, have been eliminated, female participation now being equal to male participation. But women remain underrepresented in the prestigious disciplines of science and technology and in research. They are also disadvantaged in their access to higher-level posts in the labour market. Similar progress has been made in the reduction of regional and geographical disparities in education. But no similar advance has been made in improving the educational chances of the socially and economically disadvantaged in comparison with their more affluent contemporaries. The educational success curves between social groups have moved upwards, but the gap between them remains unaltered. Educational failure is still largely a function of social origin.

In times of economic hardship, educational failure is translated more dramatically into unemployment, and often unemployability. The *fight against school failure* thus remains an agreed priority for all education systems. It is suggested here that this will be very high on the educational priority agenda for the twenty-first century and the essential prerequisite for the success of all programmes directed at improving the condition of under-privileged groups in society.

There should be no illusion that there are quick or easy solutions. School failure has proved an intractable problem which has plagued

all education systems, whether large or small, selective or comprehensive. Failure affects up to 20 per cent of an age group and the problem cannot be solved without a new political commitment and the infusion of additional resources. In addition to ensuring access, which remains the basic requirement, new resources will be particularly needed in order to install new pedagogies and means of educational differentiation to cater for the special needs of disadvantaged children in ways which do not merely reproduce or reinforce social differentiation, as has so often been the case in the past.

Recognition of the inadequacies of compulsory schooling in meeting the needs of those with learning difficulties or the less academically gifted is now widespread across all sectors of society, and governments have already accepted the policy objective of working towards achieving high-quality education and training for *all* as the panacea. The problem, of course, is how to give substance to this objective, so that it does not remain merely a pious hope or another of the slogans with which the history of education is replete. An initial requirement is to improve the motivations of all pupils, without which their propensity to learn, at school and subsequently, cannot be developed. For many pupils, this is at present hindered by the preponderance of academic learning reflected in school curricula and by systems of evaluation designed to show up failure, academically defined, rather than to assess and encourage the potential for success of individual pupils. The current emphasis on quality in education – quality being measured in terms of mastery of subject matter – tends to aggravate the disadvantage of the less academically inclined pupils. This, in turn, is reflected in the attitudes of teachers who have little time for those who do not perform academically and therefore do not contribute to the successful image of the school, thus creating a vicious circle of low expectations reinforcing demotivation, under-achievement and failure.

Raising the status of vocational and technical education would also help to motivate more young people to stay on in education beyond compulsory schooling, especially if it was accompanied by changes in the conditions permitting access to higher education by secondary-school graduates from these streams. An example of this is provided by France, in its medium-term policy objective of extending secondary-school graduation to 80 per cent of the age group through the institution of the *baccalauréat professionnel*. A different approach is to be found in the Germanic dual system, in keeping young people up to the age of 18 in education (through part-time schooling) and

in training (through the apprenticeship system). Other countries apply a mixture of the main features of these two systems. But, in all cases, it is recognized that vocational education and training should not be developed in isolation from the rest of the system. This calls for a 'whole school' approach, all the more necessary because of the increasing knowledge and the generic skills demanded by different jobs, as a result of which general and vocational education are coming closer together.

Recognition of this convergence, and its translation into curriculum and instructional designs, will no doubt be of special help to the academically weaker groups among the school population. But it will not solve the educational problems of those at the bottom of the scale, the 'educational under-class', for whom special measures will still be necessary. It is important that such measures should be conceived and implemented in the context of *preventive* rather than merely remedial policies, which implies that 'at risk' populations have to be identified early; hence the need to enhance the role of pre-school education in conjunction with broader measures for early childhood. It is also important that such special measures be organized within an integrated system, the objective being to enable the target group concerned to be brought into the mainstream of provision. In many countries, this has in fact already been achieved for children with disabilities, who are no longer in special classes. This example augurs well for the potential success of similar policies for the disadvantaged, provided the political will exists and the corresponding resources are forthcoming.

The fight against school failure has to go hand in hand with a broader set of measures targeting the provision of education and training to different under-served groups of students and trainees. Those with disabilities should have full access to learning opportunities that stretch their talents and broaden social participation. Learning environments that promote both pluralism and equality of opportunity will need to be developed for cultural and ethnic minority groups. Under-served adults deserve special attention, particularly those threatened by unemployment and those who are already jobless. A universal problem, as mentioned above, is that those with low initial educational attainment levels tend to show little interest in returning to organized learning; participation by adults continues to be dominated by the already educated. Measures should be taken to encourage all adults actively to learn throughout their lives. In all this, concerted action will be needed involving education, social and labour market

policies, most promisingly undertaken as integrated strategies at local levels.

Nothing of what has been said above in the search for greater equality of educational opportunity will alter the fundamental function of education systems as sorting mechanisms through their selection and certification processes; nor will it stop them from being used by employers for screening purposes. Meritocracy is an essential feature of modern, highly organized societies, and the education system remains both the main social institution for the preparation of those who will occupy leadership positions and the fairest channel for their selection, as against former systems based on birth or wealth. It will, therefore, always be confronted with the excellence/equity dilemma, a dilemma which cannot be satisfactorily resolved so long as broader social inequalities exist. What education *can* do is to attenuate the effects of these inequalities by ensuring that, as regards its own remit, each individual is given a fair chance to prove and develop their own merits. It is in this sense that the measures suggested above find their real meaning; and whatever global statistics may show, there is ample personal experience across all societies which proves that education does make a difference at the level of the individual.

New international perspectives and dimensions

Education policies are pre-eminently national policies. The notion of an 'international educational policy', in the sense used in economics and trade, and even in science, does not yet exist. Yet fast-moving events across the globe are changing the international scene to an extent that the implications for national educational policies can no longer be ignored.

Increasing interdependence, or globalization, which, as already explained, has become a feature of the modern world, raises diverse problems for education and training policies. The rapidly developing market in international skills places a special premium on the acquisition of foreign languages. Mobility of students and personnel between countries raises questions of cross-national comparability and transferability of qualifications, as well as broader issues of recruitment and access policies in higher education. In particular, the influx of students from developing into developed countries raises similar questions, at both policy and institutional levels. Knowledge of other countries' cultures becomes essential to economic competitiveness. It is also the best guarantee for greater international understanding and

a necessary component of national policies to deal with the complex problems of increasingly multicultural societies. In yet another sense, growing internationalization and the impact of information systems and of the media across national boundaries raise concerns about how national cultural identities, especially in the case of smaller countries, can be preserved.

These are problems with which educational policies have only just begun to grapple. The twenty-first century will see them coming to the forefront of the educational agenda.

Meeting the costs

The problems described above amount to a formidable agenda for educational policies in the twenty-first century. They bring into even sharper focus the perennial question of resource requirements and how these are to be found. Meeting the costs of learning-thirsty societies will, in fact, be *the* question for the future. Given continuing constraints on public budgets and sluggish economic growth, there are no easy solutions.

There will obviously be the need and the possibility to redeploy resources within the education sector itself, depending on national priorities and the weight of numbers, as well as strong pressure to improve the management of existing resources. Experience has shown that the net financial gains from these two sources are only marginal. Redeployment possibilities remain limited, given the entrenched sectorial interests and the rigid management structures of education systems. The cost-effectiveness of education programmes can also be improved through better management and the use of alternative, less labour-intensive systems of instruction, including the use of technology. But this has as yet to be empirically demonstrated. And, in any case, a greater initial financial outlay would be required in order to attain a critical mass than could eventually be translated into net savings. There is no escaping the reality that additional resources will be required. Where will they come from?

One possible source would be reallocation within the public budget, such as benefiting from the 'peace dividend'. There are already signs in a number of countries that the political priority given to education is being reflected in increased financial allocations, so much so that education budgets in these countries are again on top of the list of public spending. Yet this does not seem enough to catch up with growing demand and the backlog in teaching staff and facilities. New sources of finance will need to be tapped, and these can only come

from the private sector,[2] the local community or individuals, thus leading to the development of systems of mixed financing. This applies in particular to the higher levels of education, which have been those most heavily hit by budgetary cuts, though increasingly in some countries cuts tend to extend downwards to the provision of basic education. In many countries, private expenditure on education has been rising, heralding the advent of various forms of mixed financing, though not without political contestation.

Such systems of mixed financing have to be both economically efficient and socially acceptable. Reaching public consensus on this issue will be at the heart of future policy-making in education at a time, as indicated earlier, when the meaning of 'policy' is changing in a world of diverse educational provision and authority. Increasingly, the availability of sound educational data and information, and the capacity for monitoring the system and evaluating its performance, are becoming preconditions for effective investment-planning and policy-making. But there must be no illusion that the development of acceptable instruments of evaluation and accountability is an easy matter. The quality of teaching is notoriously difficult to assess and educational productivity, measured quantitatively, often distorts performance. Education is not an input/output industry but one in which the quality of the process itself is perhaps the best criterion of its success.

Towards a new humanism

Education is a long-term process, with an irreducible plurality of purpose. It binds together the past and the future of our societies. What we do about it today matters fundamentally for the kind of society that we wish to see develop, its values and the material and cultural well-being of its citizens. Learning for the twenty-first century must carry a vision of what that society will be and of the qualities that men and women should have to help to shape it. In this, education must increasingly play a pro-active rather than a merely reactive role,

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2. It must not be forgotten that sizeable investments in human resources already exist. One United States estimate from the early 1980s puts corporate spending on employee training at between $30 billion and $50 billion annually, rivalling outlays on higher education and representing an approximately twofold increase in current prices from the early 1960s. (*High Quality Education and Training for All*, p. 62, Paris, OECD, 1992, on which the present chapter has drawn.)

and this has been an underlying assumption throughout the argument and analysis of this chapter.

The need for such a role is particularly essential in order to safeguard against the unintentional consequences of technology-based, competition-driven and media-dominated societies which, if left unfettered, might result in the growing isolation of the individual and the 'dehumanization' of values and culture. This is not a question of rejecting scientific and technical progress, but rather of ensuring that such progress is healthily woven into the social and cultural fabric and fundamental human values. At a time when family and community structures are breaking up, education remains the main instrument that can knit together this fabric into a new humanism, a humanism that recognizes the indivisibility of culture, across the arts and the sciences, the humanities and technology, the emotional and the rational, the perceptive and the analytical, as well as across countries. Developing the concept of such a new humanism and sustaining its practical application is a major challenge for education in the twenty-first century.

Goals, expectations and realities for young people: issues for education in the twenty-first century

Phillip Hughes

Introduction: a new uncertainty

Over the past three decades at least, in response to the new challenges of social development, education systems have been subjected to a succession of diverging reform proposals which, paradoxically, have increased their rigidity and opposition to change.

This pattern of continual change which, as Tedesco (1993) notes, has had a perverse effect by increasing rigidity, is a universal response to a situation where technological and social developments have created their own momentum, running far ahead of our efforts to shape and direct the changes.

In the period leading to a new century and a new millennium, the global society is in a period of reappraisal and self-doubt, with few clear and convincing visions of the future. Without such visions, social aims tend to be either limited or confused, lacking a coherent and comprehensive set of purposes. The disappearance of Cold War rivalries has increased rather than reduced this uncertainty, with major power blocs now split into disparate societies, often in conflict. The period ahead will be disastrous if our separate societies can offer no better goals than individual prosperity and economic competitiveness.

The tensions are felt particularly by the youth in our society. Youth, in its current sense, is a creation of our industrial and, more particularly, post-industrial society. As Simhadri (1988) points out, there was no such thing as youth in traditional societies, with the end of childhood being the beginning of adulthood. Increasingly, there is now a substantial period following adolescence, before taking adult

responsibilities. That period is taken up largely by the need to prepare for the complex demands of adulthood in society, in vocations, in social responsibilities, in personal responsibilities. In India, for example, as Simhadri points out, the group aged 15–35 will total 313 million, or 26 per cent of the total world youth population, by the year 2000. The pressures of change are particularly severe on young people, for they are required to prepare for a world whose shape no one can predict.

The pressures for reform in education come largely from changing social demands and particularly the impact of those demands on young people. Almost without exception, individual countries are engaged in a reconsideration of their patterns of education and these are generally accompanied by reform and restructuring. International bodies, such as UNESCO, the United Nations Children's Fund (UNICEF), the World Bank and the Organisation for Economic Co-operation and Development (OECD) are also assessing progress and considering options on a global basis for education. The World Conference on Education for All (Jomtien, Thailand, 1990) involved some 200 nations in a significant reappraisal of efforts and a refocusing of emphases on a world basis. In Paris in 1993, OECD brought its member states together for a similar reappraisal and refocusing, at a Conference on Redefining the Curriculum. The results of both appraisals raised fundamental questions as to the appropriateness not only of the processes by which societies seek to advance education but as to the goals and priorities of that advance.

In the considerations of the International Commission on Education for the Twenty-first Century, both goals and processes of education, as well as the socio-political context of education, are essential parts of the focus.

Education: part of a broader spectrum of change

A common feature of changes in all societies over the past four decades has been the rapid increase in educational participation. For example, in Japan, where in 1950, senior-secondary-school enrolment stood at 42.5 per cent, this figure rose to 70.7 per cent by 1965, and by 1993 to 95.9 per cent (Hishimura, 1994). In industrialized countries, Australia, Canada, France, Malaysia, the Republic of Korea and the United Kingdom, for example, the same broad pattern is observable, moving from participation rates of substantially less than 50 per cent to rates of 90 per cent or more. This is observable in many societies although with different starting points and different rates of increase.

In Africa, the Addis Ababa Conference of 1961 set a target of 100 per cent primary-school attendance by 1980, with figures of 70 per cent for primary school and 15 per cent for secondary school by 1970. In the event, the 1970 results were 38 per cent for primary school and 2 per cent for secondary school, and there was a slowdown in the increase after that year, as countries found it difficult to provide the increased finance. The target figure has been revised, aiming at school attendance figures of 54 per cent by the year 2000 (Ly, 1988).

The Indian subcontinent shows similar problems. In Nepal, where school attendance levels overall are under 50 per cent, there are special concerns about rural female literacy levels, generally below 10 per cent (Smith, 1994). Bangladesh reveals similar difficulties, especially in the education of girls. Despite successes in increasing primary attendance, in 1991 only 15 per cent of girls were enrolled in secondary education as against 25 per cent of boys. Cultural traditions mitigated against increased opportunities for girls (Schwartz et al., 1994). In India itself, with substantially higher attendance rates and overall increases, as of 1986, some 130 million young people, mostly in rural areas, were illiterate. Again, girls are overrepresented, with literacy rates of 35 per cent in contrast to boys, 64 per cent (Simhadri, 1988). The overall literacy rate for India in 1990 was 48.3 per cent (UNESCO, 1992).

China, with an overall literacy rate of 73.5 per cent, has an ambitious programme for the universalization of primary education and the eradication of illiteracy by the year 2000. With its massive population of over 1.2 billion, there are 180 million illiterates above the age of 15 and over 2 million out-of-school children. The severest problems again are in rural areas and for girls.

In 1990 at Jomtien, the world community – brought together by UNESCO, UNICEF, the World Bank and UNDP – paused to take stock. This followed four decades of international effort directed towards improving the human and social conditions in the participating countries. The evaluations were disturbing. Using literacy, one of the most basic of human requirements, as an indicator, the situation in some senses had worsened, despite major efforts, nationally and internationally. The number of illiterates aged 15+, which stood at 760 million in 1970, had risen to 824 million by 1980 and 882 million by 1990, with an estimate of 912 million by the year 2000. As we have already seen, the efforts to improve school participation are facing similar difficulties in achieving their targets. Current figures indicate that 120 million children are not in school, ensuring that adult illiteracy

will survive well into the next century. In addition to those not in school, many pupils drop out before completing primary school and many others complete but fail to acquire the necessary learning. The estimate for the year 2000, projecting current trends, is that 200 million children will not be in school.

The Jomtien Conference indicated that these problems were indicators of a much wider range of major issues of concern. What was identified was a 'convergence of disadvantage' where difficulties or shortfalls in education, the economy, culture, health or social development tended to interact with all the other areas.

In the world's thirty-seven poorest countries, spending per capita on health has declined 50 per cent since 1980, while per pupil expenditure on education has declined by 25 per cent. In this context, the momentum of many societal development efforts has stalled, leaving hundreds of millions of people in conditions of absolute poverty. They are without adequate nutrition to sustain learning or labour, susceptible to diseases that could be controlled, unable to read or write, and so denied access to the very skills that could improve the quality of their lives dramatically. . . . A world in which only an elite few will live in health, safety and prosperity must be avoided; all people deserve the opportunity to fulfil human potential and contribute to shaping their society (World Conference . . ., 1990).

These words emphasize the urgency felt at Jomtien, an urgency which still applies. While many countries have made startling advances, even more have failed to do so and in some instances have regressed. In our current societies, all citizens need a much wider range of capabilities than has been the case. They need the capacity to work with and through technology, and they need basic knowledge and the ability to use it. In an interdependent world, the effect of deprivation extends beyond the society directly involved. Education has become an indispensable prerequisite for social, cultural and economic development, with the capacity not only to reduce disadvantage but also to build common understanding between different people, and different ethnic and cultural groups.

It would be easy to conclude that the world is divided into two distinct groups. In one, the countries have achieved or are achieving those levels of participation that guarantee a satisfactory foundation of basic learning. In the other, educational participation is well below the required levels and the task of building satisfactory levels of achievement seems remote.

The reality is far more complex. As the industrialized countries

have discovered, full participation is no guarantee of the achievement of worthwhile educational goals. All countries are discovering that the connections between education and other social goals, while real enough, cannot be taken for granted.

A broader vision

The 'success story' for the industrialized countries emerges in terms of the major increases in educational participation. A major motivation towards such increases has been the wish to create a more skilled population, a 'productive work-force'. High levels of unemployment in such countries have provided a strong argument for strengthening vocational capacities. Major changes have occurred in participation, not only in education but also in the work-force.

For example, in Australia in 1980, 46 per cent of 17-year-olds were in full-time education and 36 per cent in full-time employment; by 1990, the education figure had risen to 75 per cent and the employment figure fallen to 13 per cent. The estimates for the year 2001 are that 87 per cent of the age group will be in full-time education and 2 per cent in full-time employment. This represents a major change in work opportunities, with full-time employment for youth becoming a very rare option. This has been a reason for the substantial growth in youth unemployment, standing at almost 30 per cent in contrast to the 11 per cent of the general work-force. The increase in education participation is partly a matter of government policy – seeking to increase student employability – and partly a matter of students seeing education as a means of heightening their prospects for employment, in the absence of current opportunity. The implication is that, as skills and capacities are increased, employment will follow (DEET, 1991). There is reason to doubt the validity of this connection. The 1994 Annual Meeting of the OECD Council at Ministerial Level for reporting on the economic progress of the twenty-five member states indicated that, whereas there is an average 2.5 per cent annual economic growth, this has not substantially reduced unemployment, still of the order of 10 per cent of the work-force. Economic restructuring is succeeding in increasing productivity while reducing the numbers employed by many firms. The link between education and work, while important, is neither direct nor unique.

The OECD 1993 Conference on Redefining the Curriculum focused on the connections between education and employment, but as part of a wider concern. The conference concept of a 'curriculum for the twenty-first century' had many of the same implications as

the Jomtien prescription, basic education for all. The idea was a common curriculum, an enabling curriculum which is each person's democratic entitlement, opening up the possibilities not only of vocations, but of social participation and empowerment, as well as of personal fulfilment (Hughes, 1991). This was seen as a 'convergence of advantage', the mirror image of Jomtien's convergence of disadvantage.

So far, the reality has been very different, in terms of the effects of change. The impact is reminiscent of Dickens' words at the beginning of *A Tale of Two Cities*: 'It was the best of times. It was the worst of times.'

An Australian longitudinal study of over 20,000 young people illustrates graphically the dramatic impact of change in one society, for good and for ill.

The current generation of young people are more impressive physically than any preceding group. They are taller, stronger, can run faster, swim faster, play and excel in a wider range of sports. At the same time, they are more subject to drug abuse, including heroin, alcohol and tobacco. Deaths due to heroin and other opiates have grown by more than 400 per cent since 1970. More of them are drinking alcohol, beginning at an earlier age and drinking in increasing amounts, often with the deliberate intention of getting drunk.

Many of this age group are impressive socially. They speak well, conduct themselves with confidence, are concerned about social issues such as the environment, racism and war. Yet among young people violent crime has been increasing dramatically in the past 15 years, robbery by over 100 per cent, rape by over 150 per cent and serious assault by almost 300 per cent. Equally worrying is the phenomenon of youth suicide, especially among males: the occurrence of suicides has increased 300 per cent for 15–24-year-old males in the past 30 years. The rate of attempted suicide is many times higher than that of successful suicide.

In Australia, the general living standards for young people have improved substantially, the quality of housing is better, they spend more on clothes and leisure than earlier generations. At the same time we see an increase in reported child abuse; a tripling of the divorce rate from the 1960s to the 1980s, so that 45,000 children in 1987 were affected by the divorces of their parents; and, a growth in the occurrence of homelessness. The *Burdekin Report* for the Human Rights Commission says that a conservative estimate of the number of homeless young people (i.e. under 18, in this case) is 20,000 to 50,000 (Hughes, 1991).

The social changes, which are affecting young people so profoundly, are raising in many people substantial unease about the future.

Concern for the future is not new but it now appears in different ways. Research of a decade ago showed a deep concern for the future, felt by young people, expressing the dominant fears of the 1960s and 1970s. The Australian project, *Images of the Future*, revealed that 70 per cent of young people in the 15–19 age group expected the world to end with nuclear war (Wilson, 1984) and that they felt powerless to exert any influence on the situation. Today's views are different, but the fears remain as a much more diverse uncertainty. Changes of the past decade have ended the Cold War threat but have heightened the concerns in other areas. Ethnic rivalries held in check by other forces for many years have exploded in Europe, Africa and Asia. Environmental concerns have become much sharper as nations have begun to realize the price paid for unchecked environmental degradation and the loss of biological species. The threat of a nuclear holocaust is now less, but the spoiling of the environment on a worldwide scale may be equally damaging though more gradual. Personal anxieties, such as the quest for employment and the search for good relationships, add to the feelings of uncertainty.

The changes arise from many factors: the impact of technology and of new ideas on the economy, and the related changes to the nature, organization and distribution of work; the demographic and social changes related to population growth and leading to rapid industrialization and urbanization; ethnic and political migrations; and, through all these, the underlying challenge to traditional value systems. These changes in values link with the cultural changes related to developments in science and technology, particularly the media, and their impact on various levels of society, on governments, institutions, religious and educational establishments, the family and the individual.

In a recent review of surveys of the goals and expectations of young people in Australia, Eckersley identified a deep pessimism:

Surveys have charted Australia's increasing disillusion, discontent and disaffection. They suggest a people who, beneath a professed personal optimism, nonchalance and hedonism, are fearful, pessimistic, bewildered, cynical and insecure; who feel destabilised and powerless in the face of accelerating cultural, economic and technological change; and who are deeply alienated from the country's major institutions, especially government (Eckersley, 1993).

These comments from Australia are reflected more widely. UNICEF's report *The Progress of Nations* paints a disturbing picture for the industrial world.

Many nations are witnessing a steady rise in school drop-out rates and underperformance, in reported cases of the physical and sexual abuse of children, in teenage violence and suicide, in eating disorders, alcoholism, crime and drug abuse, and in a harder-to-quantify disaffection, demoralization and disillusionment. These symptoms, increasingly breaking the surface of homes and communities which are not poor, tell of the stress on family life and family relationships (UNICEF, 1993).

In Japan, with 96 per cent of the age group within a unified school system, there are similar concerns.

However, at the same time this quantitative expansion has generated qualitative deformations, leading to what has been called desolation of education. Senior high schools today are being faced with a host of problems and difficulties, including a widespread lowering of academic standards, increased school maladjustment, increases in delinquency among young people, intensification of violent behaviour in schools, continuing drop-outs . . . (Hishimura, 1994).

Thus, the problems occurring in countries which lack the resources to make quantitative advances also occur, in different but still disturbing forms, where these advances have already been won.

Quantitative progress has proved to be insufficient by itself. The rapid increase in participation in the industrialized countries has been a remarkable achievement. Yet it is already clear that the prescription 'more of the same' is not enough. Continuation at school for students who lack motivation and a clear sense of direction has proved to be unsatisfactory for them and a source of disturbance for other students. In the industrialized countries, students have a strongly instrumental view of education. Its task is to open up opportunities, especially vocational opportunities. Where it is not seen to do so, the result is disaffection, exhibited through passivity and boredom at best, and hostility and disruption in other instances.

What kind of education for what kind of society?

The situation is one of deep divisions and even deeper uncertainty as to how to bridge them, to build a coherent, compassionate and supportive world society. The divisions are more complex than they once appeared – between North and South, East and West, poor and rich. The divisions so clearly delineated by the Jomtien analysis between the industrialized, developing and less-developed countries reappear in different forms within individual societies, with some segments being the beneficiaries and some being marginalized or excluded.

Is education a solution to such a situation?

Education is a necessary but not sufficient condition for a solution

The arguments of Jomtien are still valid. To be deprived of basic education is to be deprived of the essential tools for modern living, the skills and understandings required to participate in a technological world where knowledge is an essential element in transforming people's environment. Without it, as we are currently seeing in so many societies, people become marginal to their own society. They lose the chance to participate and their society loses their potentially significant contributions.

The arguments of OECD at the Paris Conference of 1993 are also valid. Prosperous industrialized countries are in significant danger of exhibiting a similar internal dividing line. Those people with the levels of knowledge and skills to participate effectively can lead richly enhanced lives: others who fail to achieve such levels will be an excluded group, performing meaningless work or unemployed and dependent on welfare and charity.

The necessary contribution of education depends upon achieving a sufficient foundation for all people, a foundation on which they can build the individual and special skills they need. To achieve this will be a massive task, for it is something no country has ever achieved, even where the participation is universal. For a minority, a very substantial minority, their achievements and their motivation do not provide a basis to continue with the lifelong task that education has become.

As has already been emphasized, participation is not enough. Many children commence their schooling without the language skills and the supportive background to assist their learning. In most cases, such children fail to achieve satisfactory results in key areas of the curriculum and, for them, continued schooling is continued and deeper failure to achieve. In the past, such students could leave early and take up unskilled work, becoming part of the earning population. The restructuring of work has removed such opportunities and heightened the skill demands for the work that is available. For these students, continuation of schooling in the same modalities can only mean a postponement and heightening of the frustration of being excluded from the productive population.

A solution depends upon total commitment by society

Education is an enabling part of the process of solution; however, the needs are broader than can be satisfied by schooling. Many cultures are now beginning to realize the inadequacies, not merely of their processes but of their goals, their fundamental values.

In Eckersley's analysis of Western society he speaks of a breakdown in values.

The modern scourges of Western civilisation, such as youth suicide, drug abuse, and crime, are usually explained in personal, social and economic terms: unemployment, poverty, child abuse, family breakdown and other factors. My own and other research seem to indicate something more fundamental in the nature of Western societies. I believe this 'something' is a profound and growing failure of Western culture – a failure to provide a sense of meaning, belonging and purpose in our lives, as well as a framework of values. People need to have something to believe in and live for, to feel they are a part of a community and a valued member of society and to have a sense of spiritual fulfilment – that is a sense of relatedness and connectedness to the world and the universe in which they exist (Eckersley, 1994).

What we see instead of such a broad framework of values is the development of a strong sense of materialism, an emphasis on personal achievement in a strictly economic way, as though more community-oriented goals were not valid.

Carey and Zhengivei Lu write in a recent study of the changing goals of young people in China, switching from a reverence for knowledge to a more materialist set of goals. Indications of this include a substantial increase in drop-out rates, ranging from 9.5 per cent to as high as 50 per cent, and a dramatic rise in entrepreneurial activity.

Why does the century-old practice of valuing schooling appear to have dissipated so suddenly? The reasons are manifold. The most important one, or so it appears to us, is the elevation by official media, of materialism and the ability to make money, to an unprecedented level. With the ascendance of Dengian pragmatism, all other abilities and virtues are relegated to the background (Carey and Zhengivei Lu, 1993).

American commentators likewise identify the overemphasis on individualist goals. Etzioni, after analysing the youth situation, stated that what is required is an emphasis on communitarian rather than individualistic values, and on responsibilities as much as rights. He argued that the values rightly challenged in the 1980s left a moral vacuum.

The ethics of greed must be replaced by a commitment to family and by community involvement without material reward. Remedial programs cannot combat social disintegration manifested by violence, homicide and substance abuse (Etzioni, 1993).

Commentators such as Lee Kuan Yew, former Prime Minister of Singapore, draw harsh parallels between American and Asian society:

But as a total system I find parts of [the American approach] totally unacceptable: guns, drugs, violent crime, vagrancy, unbecoming behaviour in public – in sum, the breakdown of civil society. The expansion of the rights of the individual to behave or misbehave as he pleases has come at the expense of orderly society.

In the East the main object is to have a well-ordered society so that everyone can have maximum enjoyment of his freedoms. This freedom can only exist in an ordered State and not in a natural State of contention and anarchy (Lee Kuan Yew, 1994).

The nature of the goals that a society expresses, whether through deliberate action or otherwise, is an increasingly important aspect of its social being, at least as important as its resources and economic prosperity.

In Australia, surveys of student goals and expectations show a shift to materialistic goals, with a heavy emphasis on vocational preparation. Students and teachers were asked to rank a series of fifty goal statements on a Likert scale of importance. The factor analysis of these statements yielded five distinct groupings of expectations: Religious, Social, Personal, Academic and Vocational development. A recent study (Flynn, 1993) of Catholic schools indicated the following rankings for students and teachers:

Expectations of schools

Students' ranking	Expectations	Teachers' ranking
3	Personal development	1
4	Social development	2
2	Academic development	3
5	Religious development	4
1	Vocational development	5

The contrast between students' rankings of importance and those of teachers is striking, with the heavy emphasis given to Vocational and Academic for students, as distinct from Personal and Social for teachers. For students, the purpose of schools is strongly instrumental,

and the specific thrust is vocational. Even the inclusion of the Academic emphasis appears, on analysis, to be there because it is seen as Vocational. The strength of the Vocational emphasis has grown over the past decade, with much heavier weight given to Personal and Social factors in the large-scale originating study of 1983 (Collins and Hughes, 1983). This heavy emphasis, almost obsessive, on vocations appears in many studies of students' aspirations, such as the recent Australian Government survey, indicating that 64 per cent of Year 10–12 students indicated their aspiration to attend university, in spite of the fact that only 38 per cent of the total age group currently attend (DEET, 1992).

Single societies and the global society face the same hard choice. Our current directions take us to a point of deeper and less bridgeable divisions. Within individual societies, these divisions are between those who can participate fully, in productive vocations, in responsible citizenship, in satisfactory personal lives and, on the other hand, those who have not developed the capacity to make effective choices in any of these areas and become the so-called 'underclass of society'.

At the international level, the situation is the same, with some nations having the capacity to provide productive lives for their people and others lacking that capacity, and falling ever further behind. The realities of our interconnected world mean that these divided societies, at either level, are untenable and that we need to provide the conditions conducive to local communities and a world community that are both harmonious and productive.

At local and global levels, there is a need for a broad social commitment to societies which provide both harmony and equity. In such societies, education can play an enabling part. Without that context, education is simply a benefit to the already well-off. That social commitment, once made, implies an educational commitment, the provision of an effective foundation education for all, what UNESCO at Jomtien called 'basic education for all' and OECD at Paris called 'a common curriculum'. Such a curriculum carries its own implications, in particular for a new pedagogy which recognizes that our past patterns – in organization, in purposes, in assumptions on learning, in teaching approaches and in learning strategies – are inadequate where we have to make education an arena of real achievement for all.

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Educational co-operation between nations in the twenty-first century

Stephen P. Heyneman[1]

What will be the future relationship among sovereign states in the field of education? There are many potential issues – teaching processes, teacher preparation and remuneration, lifelong learning, educational standards, productivity and employment, scientific research and citizenship, social cohesion, economic development, structural reforms, the role of universities, adult literacy, languages of instruction and educational research. All are important, but what will actually motivate nations to co-operate on these issues? Will motivations change or will they remain the same? If motivations change, how will the changes influence the nature of co-operation, the international agencies charged with educational responsibilities, the staffing of these agencies and the content of their programmes? I believe the motivations for international co-operation will be different in the future.

Motivations for educational co-operation in the next century

Much has changed since the cold war rivalry ended, but one of the most important changes has been with the factors that affect motivation for foreign assistance. Foreign assistance is no longer justified on the

basis of competition between East and West. Domestic economic demands – unemployment, fiscal deficits, trade imbalance – have taken priority over foreign assistance. Over the last four years, sixteen of twenty-one donor countries have reduced foreign aid as a proportion of GDP (World Bank, 1996, p. 13). The voting public in industrialized countries tends to be older, hence more concerned with issues of pensions, health insurance and personal safety. Questions have been raised about the effectiveness of development assistance agencies: Are they really helping the poor? Could non-governmental organizations deliver assistance more effectively with less bureaucracy? Would non-governmental organizations be more free to operate autonomously from governments with records of corruption and human rights problems? There are also the post-conflict circumstances such as drought, civil war and genocide. Voting publics tend to see these situations as more compelling justifications for foreign aid. Lastly, there are the economic problems of the former Soviet Union itself, once a major source of foreign assistance in Africa, Asia and some parts of Latin America. Official development assistance will continue to be driven by humanitarian justifications. Nevertheless, it is safe to suggest that other motivations will play a role as well. Aid will probably be delivered and targeted differently and be lower in magnitude.

Trade and flows of private capital will play an increasingly important role in economic development. But as traditional aid declines, what will happen to education? Much of the international co-operation in education has been developed under the auspices of international aid. Will the decline in aid spell a similar decline in international co-operation in education?

Today there are more countries participating in studies organized by the International Association for the Evaluation of Educational Achievement (IEA) than at any time over the last thirty years. Projects include studies of literacy, mathematics and science, but also of civics education, videotaping of comparative teaching techniques and comparative curriculum emphases. Demand is high to join the co-operative project on educational indicators run by the Organisation for Economic Co-operation and Development (OECD), including countries with only loose affiliation with OECD itself. Almost every country in Eastern and Central Europe and the former Soviet Union would like access to comparable descriptive information about their education systems, and so would Malaysia, Chile, Brazil and China. The Asia Pacific Economic Conference (APEC) has inaugurated new programmes of educational co-operation, and the North American

Free Trade Agreement (NAFTA) and the World Trade Organization (WTO) have initiated new studies comparing labour markets. Each of these signals suggests that there are new demands for educational co-operation. What is behind these new demands? At the same time as traditional humanitarian-based assistance is on the decline, international co-operation in education is on the rise. What is behind this apparent anomaly?

Motivations in OECD countries

Co-operation is on the rise because of necessity: the level of educational expenditures (measured as a proportion of per capita GDP) has probably reached a maximum; the principal educational challenge in the next century will be to raise coverage at pre- and post-compulsory ages, and improve quality at all levels, but without increasing the level of fiscal expenditures; and to make major breakthroughs it is essential to increase the level of international information and the international co-operation necessary to obtain it. A few words about each follow.

Fiscal expenditures

The proportion of GDP allocated to education in OECD countries over the last decade has increased slightly in the United States, but has decreased slightly in Canada, Japan, the Netherlands and Austria, with the net result of a slight decline on average. There is reason to believe that the range of per capita GDP allocated to education in OECD countries (between 5 and 7 per cent) has reached a maximum.

In OECD countries population pressures do not come from the burden of more children but from its opposite – from the burden of a population living longer and the social pressures on families to support a high percentage of age dependency. Economic growth has stabilized from being slightly negative to slightly positive, but nowhere within the OECD countries has growth come close to the double digit level as in some parts of Latin America and Asia. Steady growth of between 3 and 5 per cent is considered an optimistic scenario for the OECD countries. Combine high age dependency and slow economic growth with national debt, health insurance and public security, and one can see that as a proportion of overall public resources, education resources are unlikely to increase.

Increasing demands for education

On the other hand, the demand for education continues to increase both at the pre- and the post-compulsory levels, and in terms of

quality, at all levels. Currently, the percentage of public educational investments allocated to pre-compulsory education ranges between 4 per cent (Japan) and 11 per cent (France). As more women enter the labour market, in part because two salaries are necessary to pay an increasing tax burden, the level of public investment in pre-compulsory education is likely to increase. The proportion of the age cohort that demands access to higher education has also grown over the last several decades. Differences among countries have narrowed and by the end of the century it seems likely that the proportion of the relevant age cohort attending post-compulsory education will level off at about 35 or 40 per cent, up from less than 10 per cent in 1968 (Heyneman, 1994).

Increasing demand and a stable or declining percentage of a low-growth tax base implies that structural and managerial reforms will be required in an unprecedented fashion. To increase quality and expand coverage at the pre- and post-compulsory levels, the only option will be for OECD countries to diversify resources, allocate current resources more wisely and retrench, that is eliminate or significantly reduce, low-priority educational functions.[2] But how will these managerial options be identified? How will the effects of these high-risk choices be monitored? Against what standard of performance will the reforms be measured?

Increasing demands for educational information

In the history of comparative and international education, there has never been a period like the present. The origins of the field lie in the nineteenth century when colourful and literate individuals such as Horace Mann, Matthew Arnold and Joseph Kay travelled to different countries and gathered ideas for use in their domestic schools. Today we are in a period where innovation, legislation and empirical results are in more demand than at any other time in the history of the field. Comparative and international education is currently enjoying a golden era, reflecting an expansion of political and professional

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2. According to the United States Department of Education, many structural and managerial changes are well under way. For instance, private financing now adds 27 per cent to public educational expenditures in the United States, 38 per cent in Germany and about 20 per cent in Japan (*The Condition of . . .,* 1994, p. 336). One illustration of a low-priority function now under considerable strain is the tradition of having free transportation to and from school in the United States.

visibility which can be expected to continue into the next century (Heyneman, 1993*a*, pp. 372–88).

But who is asking for this information? The demand is not necessarily from central governments. The roots are often with local school boards, local education authorities, local teacher associations, organizations of businesses and taxpayers who ask for action, ideas and measurement in order to judge the comparative effectiveness of local reform. On the other hand, state and national governments are required to respond to these requests. The demands for information are often non-partisan. The National Governors Association and the Chief State School Officers of the United States, both bipartisan organizations, helped lay the groundwork for the multitude of reforms in the United States and promoted the legislation, signed by President Clinton in April 1994, on Educational Goals 2000. Similarly, local concerns constitute the origins of much (though not always non-partisan) domestic educational debate in France, the Netherlands, Finland and the United Kingdom. The results of these domestic pressures for reform are motivated in part by economic pressures and the consequent need for international standards of excellence and in part by demands for greater social cohesion and good governance and by the feeling that other countries have solutions deserving of domestic attention. They are also motivated by straight professionalism and the recognition in education, as in health, agriculture or transport, that innovations in supporting managerial excellence can originate from many parts of the world.

In fact, this latter point is quite new. Only a few decades ago, most education managers – school-board presidents, university chancellors and head teachers – would hardly have thought it relevant to learn of managerial innovations from outside their own domestic environments, but much has changed. It is possible to hear Michigan schoolteachers debating the pros and cons of Japanese or German pedagogical practice, or British administrators discussing the results of contract schools in California, or German and Canadian university rectors trading information on alternatives sources of finance, and techniques for negotiating fees and tuitions with political authorities and students.

Local managerial authorities are no longer likely to reject outright new and interesting ideas because of their foreign origins. Nor are they likely to make as much of a distinction between the types of country considered relevant. British and Chilean voucher experiences are interesting to school authorities in Louisiana; Colombian

mechanisms of financing vocational education are of interest in the United Kingdom; and American school-board democracy is interesting to regional officials in the Russian Federation. Russian summer-camp vouchers (in Vladimir where youth now has behaviour problems similar to those in the West) are interesting to officials in American urban school districts. Schools are bankrupt in both Moscow and Chicago. Local officials do not judge innovation on the basis of its country of origin, as they once did, but rather on the likelihood of its local relevance. Local officials will decide whether the ideas are relevant to Chicago or Moscow. What they demand from their governments is information on good ideas and, unless their governments help locate this information quickly and succinctly, local voters may well demand a change in government.

This puts new and very healthy pressures on domestic and international education agencies. Resources for international education studies in the United States with bipartisan support at both federal and local levels is at an all-time high. Technologies and techniques continue to improve. International willingness to collaborate continues to increase within Europe, Asia, and the former Soviet Union. Given these tendencies, one can anticipate increasing demand for full membership in the international organizations responsible for carrying out educational comparisons, particularly IEA, OECD, UNESCO and APEC.

Motivations in other countries

What about the countries traditionally labelled as 'developing' countries in Africa, Asia, Latin America and the Middle East? What are their motivations for co-operation in the field of education? Have they remained stagnant?

Their motivations for international co-operation in the field of education have also changed. The incorporation of twenty-six new borrowers into the World Bank and the European Bank for Reconstruction and Development (EBRD) from the Europe and Central Asia region, including the Russian Federation, have changed the characteristics of the clientele. To these new clients the description of 'developing' country is interpreted as patronizing. There are many characteristics of OECD countries, such as family breakdown, crime and domestic violence, which are not worthy of emulation by countries with lower per capita GNPs. Political leaders in these countries may feel that their own cultures and social structures are as developed as those of countries with OECD membership. Objections to being

labelled as developing may also be expected from countries in Africa, Asia and Latin America. In fact, the term may in the future be eliminated from normal international discourse.

Sensitivity over a label is only a symbol of a wider phenomenon. Many countries have shifted their perspectives as a result of the end of the cold war, the expansion of the European Union, and the inauguration of NAFTA and of regional trading agreements in Asia. Less-industrialized countries that are World Bank borrowers now tend to see their interests as being in competition for trade advantage and labour-market niches in services, manufacturing and agriculture (Heyneman, 1997c).

A common vision for educational excellence has emerged from economic interdependence. All education systems must use resources wisely and treat all students fairly. In addition, all must provide intellectual challenge universally. Standards for performance of an education system do not differ systematically between Ghana and Georgia. Education officials in Africa, Asia, Latin America, the Middle East, Europe and Central Asia hold similar standards of excellence. As a result, they demand similar innovations and reforms as do education leaders of the OECD countries. This convergence of needs and interests can be expected to increase.

Convergence does not imply that an emphasis on topics within a mathematics curriculum, or science or language curriculum, will be identical. It is not a sign that local culture will cease to be pre-eminent. It does not imply that the purposes of education will cease to be determined by domestic priorities. Commonality of purpose is not a sign of an international 'conspiracy', nor is it a sign of imperialism or of paradigmatic determinism. It is simply a fact about education in a world where universal coverage is becoming a reality, a world where every country requires a minimal level of information to manage its enormous public-education systems to allow these systems to provide the knowledge and cultural experience for which they were designed.

Universal education is a permanent feature of national life and a normal feature of child-rearing. But, like health systems, education systems require a considerable amount of information. Whether in high-, middle- or low-income countries, all have common requirements: remuneration, supplies, public safety, faculty pensions, modern equipment and access to capital markets. Common requirements require common standards of professionalism, common indicators of efficiency and common demands for innovation. In principle, relevant innovations

do not differ between East and West, or between rich and poor countries. All countries demand new ideas. In turn, these demands will determine the characteristics of international co-operation in education in the next century, and the nature of the international organizations financed and staffed to service this international co-operation.

But are the international organizations founded after the Second World War capable of meeting these new demands? And if not, what changes will have to be made? What kinds of staff will they need? What kinds of programmes will they be responsible for? Where will they garner their financial resources? It is to these questions that we now turn.

International institutions

Current international institutions with responsibilities in education have three crippling problems.

First is an *imbalance in mandate*. Some institutions have mandates covering only the wealthier parts of the world, that is, Europe, North America and OECD countries. Other institutions have regional mandates: Africa, Asia or Latin America. Still others have worldwide mandates, but are burdened by weak governance structures of one-vote-per-country, making it difficult to specialize or maintain professional standards.

The second problem is *institutional duplication*. Much of the professional expertise and infrastructure required for international comparisons are common across agencies, even though the agencies have differing mandates. Despite the fact that the agencies share common sources of finance, staff functions overlap. This illustrates one of the managerial questions now being raised about the United Nations. Taxpayers may recognize that there are duplications in function and not feel compelled to continue to finance them.

UNICEF, the World Bank, OECD, the European Statistical Agency (Eurostat), UNESCO, IEA, the Organization of African Unity (OAU) and the South-East Asia Ministers of Education Organization (SEAMEO) all have separate but differing professional capabilities. On the other hand, they have overlapping data needs. The wealthier countries, such as the United States, tend to target international educational programmes through organizations which they believe capable of supplying information on countries relevant to trade and economic interests. This is normal and, from the domestic taxpayers' point of view, it is fair. For the most part, the 'countries of interest'

have been confined to OECD countries, i.e. fewer than thirty of the world's economies and education systems. UNESCO, however, covers almost 200 countries. These include China, the Russian Federation, Brazil, Indonesia, Nigeria and many economies and education systems which are now very interesting to the Americans as well as to other OECD countries. The United States is not a member of UNESCO and hence has few avenues to improve the professional coverage and quality of the information coming from those areas of the world even though it now recognizes that this information is essential.

Similarly, Eastern Europe and the former Soviet Union are of high interest to the members of the European Union. But in spite of the efforts to expand OECD's technical assistance, it is fair to say that OECD does not have the same mandate as does UNESCO to monitor and publicize the educational statistics from that important region.

Non-official agencies, such as IEA, that conduct systematic research and evaluation in the field of education are politically visible and increasingly important. Their governance structures are fragile. Moreover, they need a permanent institutional home that will not jeopardize professional autonomy.

The third problem is the *difference in technical and financial capability*. Standards of educational management are increasingly common. Standards in statistics and research necessary to monitor innovation are also common, but the resources necessary to perform these functions are vastly different.

Even where there are technical traditions, such as in the Russian Federation and Eastern Europe, the financial crisis makes it impossible for these countries to participate in the international assessments such as those organized by the Education Testing Service (ETS), IEA or OECD.[3] Financial problems make it impossible for them to keep abreast of the new demands for valid and reliable descriptive information required by UNESCO and other international agencies including the International Monetary Fund (IMF), the World Bank

3. There are 130 professionals working in the National Center for Educational Statistics in the United States and only 6 professionals working in the department of Educational Statistics in the Russian Federation. This suggests that the differences in availability and quality of information are not solely attributable to differences in economic resources, but rather in the allocation of available resources in order to open up statistical information responsibly to parliamentary authorities and to the general public. (Heyneman et al., 1995.)

and the regional development banks (Heyneman, 1993*b*, pp. 511–17; Puryear, 1995, pp. 79–91; Gutherie and Hansen, 1995). Similar data-quality problems are also common in Latin America and the Caribbean, sub-Saharan Africa and the Middle East.

There is an increasing understanding of professional educational standards and the necessity for new ideas on innovations and efficiency but, at the same time, there is a widening gap in the ability of countries to afford this information. The key to understanding the difference between aid in the past and aid in the future is to know that this gap in the ability to afford educational information is an intolerable situation to the industrial economies. It is in their own legitimate interest to have good, up-to-date quality information on education from all over the world. Industrial countries now depend on having valid comparisons, and access to the best and most innovative ideas available from anywhere, but they will not be available unless the three problems outlined above are solved.

Suggested solutions

Structural problems

The institutional situation requires an in-depth review. All agencies involved would need to be consulted; they would need to develop recommendations for changes in the structures and institutional mandates of the international organizations involved in servicing international educational needs. These recommendations should minimize duplication, maintain the necessary regional focus, and suggest areas where statistical programmes and functions can be combined.

Financial problems

Regularity: no professional education system of information can exist if it is ad hoc. The world can no longer afford to have data which are so inaccurate that major mistakes in judgement can result from relying on them. Systems must now be regular and predictable if they are to be professional. But this regularity requires stable financing.

Fair sharing of financing responsibility: even within OECD countries, the burden of responsibility for financing educational statistics and indicators has been very unbalanced. A small number of countries have led the way financially and technically. This is permissible when the product is an experiment to test whether or not it can be accomplished. That has now changed. Educational indicators and assessments will now become regular programmes and the imbalance

in financing therefore cannot be sustained. To match this change, a new agreement to bear the financial costs in an equitable fashion must now be brought forth.

Subsidized financing: countries in Africa, Asia, Latin America, the Middle East, Eastern and Central Europe, and the former Soviet Union need and deserve financial assistance of two kinds. First, they need an increased level of resources through the programmes of lending and bilateral programmes of technical assistance. These resources are necessary for long-term institution-building. For example, they might be used to assist statistics institutes at local, regional and national levels, university faculties or local private-education research and development companies.

Second, a grant-based programme is required to allow many countries to participate fully in major international projects. Their need for information and technical discussions is just as acute as that of OECD countries participating in the same exercises. The rationale for this fund, however, is not solely humanitarian. As in health, agriculture, population or trade, such a fund is an essential ingredient for ensuring that the educational statistical base does not differ widely in quality or coverage despite the fact that countries may be endowed with very different resources.

Staffing problems

International agencies are not staffed properly to perform new functions. Staffing is biased by national quotas; and staff with tenure are kept without regard to the external demand for their particular skill. No plan to improve and regularize international educational statistics will be effective without a thorough review of how to engage the best people and to have them stay only so far as they remain so.

Career paths of the most technically advanced staff may no longer be limited to domestic experiences. The American National Center for Educational Statistics (NCES), for instance, will require staff with an intimate understanding of the statistical problems in other environments. Whether the task is to measure one of the many sub-topics in the science curriculum in Florida or to calculate unit expenditures in Tokyo and Moscow, personal experience working with others addressing similar problems is necessary. A period working in an international agency may become a preferred career path for some of the better minds in the profession. This may also make it possible for international agencies to exploit secondments more systematically. Education ministries may inaugurate competitive programmes where

the best will compete for the opportunity to work in an international agency.

This cannot come too soon for the international agencies themselves. Staff in these agencies are sometimes out of synchronization with their shift in function. They tend to conceive of educational problems as analogous to medical models where education systems in the client countries are inefficient and ineffective, i.e. are 'sick' and they themselves are the doctors. It is increasingly common for local officials to reject this style of relationship. They recognize that all countries have systems with similar categories of educational dilemmas. Where is there a system without inefficiency and without some constraints on resources?

Staff in international agencies will have to cease functioning as scientific judges and begin functioning as scientific advisers. The difference is subtle but important. No longer will it be acceptable to suggest that there are policy lessons to disseminate or that there are policy models to emulate. Demand-based financing, vouchers, teacher remuneration mechanisms, etc., are all issues of contention on which there are differing sides and points of view. Instead of solutions, staff of international agencies will be expected to provide information on both sides of an issue so that the client can make intelligent choices. This will require more than an attitude change; it will require staff equipped with more intellectual rigour and more sophisticated professional experience. This suggests that the expectations for permanent staff in international agencies would have to shift from being experts themselves, to those whose job it would be to facilitate the inflow and outflow of expertise.

New functions and programmes

International education agencies will have many new functions in the next century, among them the collection and analysis of a wide variety of educational statistics including unit expenditures, private contributions to both public and private education, and academic achievement across a wide variety of curricular topics and performance objectives (utility would be regularly monitored in both formal and informal labour markets, as would political participation and political attitudes), systematic assessments of educational quality in higher education; international monitoring of performance of graduates across national boundaries; and monitoring of multinational firms which market educational equipment and software, examinations, and accreditation services. There will be 'macro-universities' providing

degrees simultaneously in different countries. Businesses will perform new functions in the certification of skills. There will be new roles for the licensing of professionals, new standards for the social sciences and a spread of new international degrees, such as the international baccalaureate. There will be a new trade in educators and educated people, for example, international contract teachers in specialized fields. There will also be new challenges to civic behaviour and civil rights, and new demands for professional standards of civics education and other sensitive areas of the curriculum.

All these activities will require new functions on the part of international education agencies. They will be called upon to monitor and help regulate the activities of these new corporations in ways similar to international pharmaceutical or other commerce. They may also be called upon to protect minority rights but, at the same time, to ensure standards of discourse of the minorities themselves so that they do not endanger civic peace. Educators and public-education systems will be increasingly recognized as holding the key to good governance (Heyneman, 1995, pp. 23–6; 1996, 1997*a*, *b*). Hence the role of international agencies in providing information, skills and a 'code of educational conduct' will inevitably increase.

Summary

Decline of the competition between East and West has significantly altered the reasons for international educational co-operation. OECD countries now recognize that national interests are not solely military, nor simply trade. Instead, national interests are intellectual and behavioural, including the degree to which countries can produce, develop and disseminate new skills, and the degree to which citizens know, understand and accept personal obligations and responsibilities as well as rights and privileges. The importance of these interests for large and diverse populations implies that OECD countries will have to dramatically improve the systems of educational delivery.

At the same time as educational demands are increasing, the sources for educational finance are stagnant. The hope for increasing both quality and coverage is to change dramatically the pace of internal reform. This requires better information, but information about all countries, not just information about other wealthy countries.

This new demand implies a significant shift in responsibility for international agencies, their structures, staff and programmes. Educational co-operation in the next century can be expected to increase notably in quantity and quality despite declining aid. Thus, the major

contact point in the field of education will not be the bilateral aid agency. In fact, many bilateral aid agencies may well disappear. The international responsibility in education will shift to the domestic education ministry, whose technical capacities and professional cadre with international experience will radically increase.

It also implies a shift for university education faculties. Instead of segregating international and comparative education into a specialized field, all education faculties, whether in administration, pedagogy, economics or psychology, will need to be familiar with international innovations, theories and issues. Few university faculties or research institutes can expect to be competitive if educational interests are limited to domestic and parochial experience. Tenure may be granted, not on the basis of empirical publications but increasingly on the basis of proven effectiveness to education leaders and managers. This implies that the ideal career path in a major university will have to be more heterogeneous, with periods of time assisting education in another country, in a local education system and in an international agency, as well as teaching and research in a university.

In low-income countries, needs and demands for ideas are no less severe than in OECD countries, but they will require new programmes of assistance. These will continue to be designed in collaboration with the development banks and international agencies, but they will also require new programmes on a grant-making basis. These can be financed through new structures yet to be designed.

The real issue is that educational co-operation is now in the domestic interest of all nations and all regions. It will no longer be a research experiment or a humanitarian gesture. The adjustment to these new functions will be very difficult for the current education agencies and their staff; however, this adjustment will be good for the field of education.

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Educational policy

Current trends
in educational reform
Juan Carlos Tedesco

The purpose of this chapter is to sum up the main lessons learned in the process of educational change over the last few decades. It consists of a series of reflections based on the information and experience acquired through international co-operation. In this connection it must be made clear that these reflections have been inspired basically by Latin American and European experiences, and that of the United States. The case of the Asian countries needs to be considered on its own owing to the significant influence of cultural factors in general and of the role of the family in particular. In the case of the African countries, where cultural factors are equally important, the analysis of educational change is closely bound up with the more general problem of the material living conditions of the population, which directly affect the chances of success of any learning strategy. The Arab States are comparable in some respects to those mentioned above, except those countries in which Islamic fundamentalism exerts a strong influence and educational change is associated with the clash between traditionalism and modernism.

Perverse effects of continual educational change

Over the past three decades at least, in response to the new challenges of social development, education systems have been subjected to a succession of diverging reform proposals which, paradoxically, have increased their rigidity and opposition to change.

In some political and social circles, there is thus considerable scepticism about the possibility of changing the functioning of

education systems. A brief survey of the history of the last few decades lends support to the idea that in education everything has been tried but with meagre results.

This scepticism is most marked with regard to changes brought about from within education systems by the persons involved. Teachers and other education personnel tend to be regarded more and more as part of the problem and not as part of the answer. The reasons for this are various and well known: constant changes decided without consultation or evaluation of results, deprofessionalization of personnel (aggravated over the past decade, especially in developing countries, by decreases in salaries due to adjustment policies) and increasingly corporative attitudes.

As a result, one of the chief barriers standing in the way of any educational reform is scepticism as to the possibility of changing the functioning of education administrations. Strategies for radical change from without provoke resistance on the part of those directly involved. Strategies based exclusively on the capacity of a system to change itself from within take a very long time to implement and the pressure of corporative demands is usually too strong to withstand. So there is a tendency at present to prioritize the institutional aspect of educational change. The aim is to open institutions to the requirements of society and introduce energizing factors into the inner workings of educational management, in short, create management with a greater capacity to react to demands and to results.

National consensus and the long term as conditions of success

One of the lessons learned from the perpetual reforms referred to above is that educational policies are not short-term policies or policies depending solely on one sector. The success of educational strategies is conditioned by continuity in their application, among other factors. However, continuity requires a consensus and the commitment of all those involved in the application of the strategy. In this connection, discussion at international level shows that the present situation is favourable to the establishment of new alliances around educational strategies. Sectors whose interests diverged in the past now tend to have in common certain basic educational objectives, which could therefore become the subject of a national consensus. Making society as a whole responsible for educational action means giving it the authority to lay down the guidelines. In this respect, educational policies tend to override government policies and take on the character

of what might be called state policies. Paradoxically, this implies in practical terms setting more store by certain forms of educational management at the roots of our systems: national education boards with diversified representation subject to national consensus, local education boards, autonomous institutions, etc., in short, sharing responsibility for educational management.

Recognizing that educational policies are long-term policies also means admitting that a considerable capacity for anticipating future demands and problems is required for working out the relevant strategies. From the political standpoint, the capacity for anticipation presupposes an agreement directing the behaviour of the persons involved in terms of national goals. Political agreement, however, is a necessary but not sufficient condition. The capacity for anticipation also presupposes the availability of reliable analyses of the current situation, a wealth of information on world trends and machinery for evaluating the results of the action taken so that changes can be made before the results are consolidated and modifications become difficult and costly. So one of the aspects on which efforts are being concentrated at present with a view to the changing of systems of educational management is the strengthening of information systems (measuring of results, observing international trends, etc.)

Financial resources are a necessary but not sufficient condition of educational change

The shortage of financial resources has been one of the reasons most often put forward to explain the poor results of educational action. There is no doubt that in most countries the resources set aside for education are inadequate. What is more, they have undergone constant variations due to political instability or inflation. Comparisons at international level show, however, that even when financial resources have been available, the educational results have been equally unsatisfactory. The case of the United States, which is probably the best example, speaks for itself.

For more than three decades, since the Soviets launched the world's first satellite, Sputnik, successive US governments have striven, sometimes quite vigorously, to improve education. Real expenditures per student rose at an annual rate of 3.75 per cent, nearly tripling between 1960 and 1988. Moreover, the added spending bought just what many advocates of increased educational spending sought: smaller class sizes and more experienced and educated teachers. During the past quarter-century, the average pupil–teacher ratio in public schools fell from more than twenty-five to less than eighteen,

a 30 per cent reduction. More than half of current teachers have a master's degree or higher. And, by 1986, half of the teachers had at least fifteen years of teaching experience.

These data taken together indicate the true magnitude of the problem. Spending has nearly tripled and performance has dropped. The added resources have clearly made the school system more expensive than in the past but do not seem to have made it better. The United States cannot hope to reverse trends in education just by spending more money. In our view, it must undertake reform that profoundly changes how money is spent. The nation must overhaul education organization.[1]

The subject of the financing of education deserves a separate study. Here it is mentioned merely as yet another element confirming the hypothesis that an overall educational change is needed, not just the continual adding of resources to the system as it exists.

Educational reform has gone beyond the extension of education to an approach based on change and qualitative improvement

The idea that more years of study mean relatively greater productivity and social participation has been superseded. Tremendous efforts have been made to extend education systems. Yet the countries in which the quantitative expansion of education has been most successful now find that the results are not commensurate with the efforts made by governments and families: high rates of repeating and low achievement rates show that even to solve the problem of the extension of education, a change must be brought about in the quality of the education available.

The emphasis on quality is now backed by changes in the social demand for education. Technological and organizational changes at the work-place and the strengthening of political democracy call for civic behaviour based on the development of certain abilities which traditional education systems do not normally cultivate: mastery of the codes in which information circulates, ability to process information, to solve problems, to work in a team, to express claims.

The question is *how* those abilities are inculcated, *how* they are developed. The experience gained through the curricular and educational reforms so far carried out suggests at least two main lines of inquiry.

1. See John E. Chubb and Eric A. Hanushek, in *Setting National Priorities; Policy for the Nineties*, Washington, D.C., The Brookings Institution, 1990.

The first concerns the possibility of laying down policies with regard to teaching methods. In this connection, international experience shows that there are a wide variety of procedures and that methods are decided on by the teachers even in cases where exhaustive rules and strict regulations exist. The alternative strategy to the laying down of policies or rules governing teaching methods is to enhance the professionalism of teachers by means of pre-service and in-service training.

The second line of inquiry is technically more complex. Until now, theories of education have supplied relatively satisfactory answers to the problem of how scientific concepts and data are learned. However, new challenges raise the problem of how abilities, values and attitudes are inculcated or developed. Here the answers are not so categorical, either with regard to the theory of education or with regard to its applications in education institutions.

The emphasis on quality today takes the form of a concern with academic achievement. A key aspect of current trends in educational change is precisely the development of effective devices for its evaluation.

Educational demand as a factor in change

One of the most important features of educational reform is to be found in its focusing on changing the supply. The role of the demand has been underestimated or considered only at certain initial stages in the process of change. One of the most novel characteristics of the current trends in educational reform is, on the contrary, the leading role accorded to the social demand. This trend is apparent in two different types of action: first, measures and programmes designed to give the users of the education system (parents or students) more power in decision-making through specific devices such as vouchers, institutional autonomy or denationalization and, second, programmes designed to improve the quality of the educational demand by providing the users with more information.

Strategies for educational change
are of a systemic character

Another important feature of the reform strategies applied in the past has been the focus on the changing of a particular component regarded as the key factor in educational change: teachers' salary increases, curricular reform, administrative changes (decentralization), equipment, infrastructure, etc. Evaluation of such changes has shown that their

meagre results are due to the fact that the changes were effected more or less in isolation from the other factors involved. Educational change depends on the interaction of multiple factors acting systemically.

Recognizing the systemic character of educational change does not mean that it is necessary or possible to change everything at the same time, however. On the other hand, it means that at a particular time it is necessary to take into account the effects on all the other factors of changing a specific component. An institutional change – decentralization, for example – which is introduced without a timetable and guidelines for the training of personnel, curricular reform, the salary structure or methods of providing teaching materials and equipment, will undoubtedly have a limited effect on academic achievement.

The chief problem in reform therefore consists in working out the sequence and the extent of the changes to be made for each component. Experience shows that these aspects (sequence and extent) can be dealt with more easily at local level than centrally. It is practically impossible to decide on a similar sequence of educational changes for widely differing social, geographical and cultural contexts. So there is a marked trend at present towards prioritizing institutional changes designed to give institutions more autonomy to work out their own strategies for improvement (school-by-school reform plans, institutional autonomy, etc.).

Institutional change is the priority

The key element in discussion concerning institutional changeovers is of course the role of the state. Here, too, international comparative analysis reveals that there is no easy way out, such as nationalization or denationalization, centralization or decentralization. International experience shows that the successful instances of decentralization are ones in which the central administration is strong and that the successful instances of denationalization are associated with firm state administrations.

Ultimately the issue depends on clearly defining the role of the central or state administration. In this respect at least three broad areas of responsibility emerge from current discussions. The first involves the setting of priorities through machinery for democratic discussion. The second involves the development and operation of devices for evaluating the results obtained in the pursuit of those priorities, local institutions and authorities being granted considerable autonomy to decide on ways of achieving these results. The third, particularly

important in countries with extreme social imbalances, involves the application of effective counterbalances for compensating differences, so as to neutralize the possible antidemocratic effects of decentralization strategies.

In short, changing the type of institutional organization through which educational services are provided is a priority from the strategical standpoint. Greater autonomy for education institutions and closer supervision of results, combined with compensatory devices ensuring fairness, appear to be the main features of the most promising changeovers in this field.

Reform or institutional innovation?

The trend towards greater institutional autonomy presupposes changing from the traditional model, i.e. 'reform of the system', to an approach based on institutional or inter-institutional innovations. In education systems with a tradition of centralization, innovation has been confined to the private sector and pilot projects in the public sector. At best, successful experiments have served as a basis for measures generalizing such changes, with results that have not always been very satisfactory. At present it is increasingly recognized that the success of innovations is bound up with their applicability to local conditions. For this reason it seems more important to generalize the ability to innovate than to generalize the innovations themselves. Successful innovations play an important role in the generalization of the ability to innovate if they are used in demonstration centres for teacher training. In this connection, it is also recognized that the ability to innovate is closely bound up with the professionalism of personnel.

The denationalization issue

In recent years the question of denationalization as a strategy for educational change has been keenly debated. This controversy obviously has its place in the wider context of the denationalization of state-controlled companies and utilities. In view of the specific character of education and its social effects, however, this issue deserves close consideration. The information available at least allows the following two conclusions to be drawn. First, there is no one-to-one relation between the denationalization of education and economic development and modernization. Countries with high percentages of private education attain results as satisfactory as those of countries in which state education is markedly predominant. Conversely, wider availability of private education is not related to satisfactory results

from either the economic or the educational standpoint. All in all, the private sector occupies a more important place in education in the developing countries than it does in the industrialized countries. Second, good academic achievement is generally associated with institutional factors such as an educational plan, leadership, teamwork and responsibility for results. All these factors and possibilities are normally associated with the running of private education institutions. However, when the public sector gives its institutions the same chance, the results are equally satisfactory. So the problem is how to introduce the energy of the private sector into the management of public education in such a way that it does not lose its democratic characteristics. This challenge brings us back to the question of institutional autonomy, supervision of achievement and compensation for differences.

Are the ability to innovate and institutional autonomy prerogatives of the affluent countries?

Educational reform based on greater autonomy and responsibility at local level presupposes acceptance of the need for a very high degree of personalization of services. In this connection it must be admitted that such strategies tend rather to be regarded as applying only to the industrialized countries or to the middle and upper social strata of the developing countries. Underlying this attitude, among other factors, is the existence in the developing countries of processes of differentiation and of increasing inequality. If personalization is then associated with the availability of resources, there is a danger of establishing a two-tier system in which the demands of the poor are met through large-scale programmes and the demands of the middle and upper social strata through personalized responses. It cannot be assumed, however, that because needs must be met on a large scale, personalized attention is less necessary in services designed for populations with small resources than it is in services for populations with considerable resources. In education, for example, a wealth of evidence points to the highly individual ways in which children from low-income families cope with the requirements of the learning process.

The application of varied strategies to obtain homogeneous results is therefore a prerequisite for the attainment of democratic goals. In this connection it seems necessary to make it clear that the tendencies of educational change in the developing countries are closely bound up with the role of international co-operation. National resources, as

well as being slender, are, as we know, normally concentrated on the payment of salaries. The scope for investment in teacher training, educational innovation, equipment, information systems, and so on, is very limited. So the role of international co-operation is crucial from the strategic standpoint. Laying down adequate guidelines in this field is therefore a tremendously responsible task.

The financing
of education systems

Serge Péano

With 1,033 million schoolchildren and students enrolled in 1992 – more than a quarter of the world's population – education systems are a vital part of society in all countries.

Countries set aside a not inconsiderable proportion of their resources to finance education, with public expenditure on education representing in 1992 about $1,197 billion, or some 5.1 per cent of the world's GNP.

Enrolments and educational expenditure are unequally split throughout the world. Developed countries are responsible for 82 per cent of the world public expenditure on education, but have 22 per cent of the world's schoolchildren enrolled in pre-primary, first and second levels, and 14 per cent of their population under the age of 15 (see Table 1). This difference is above all a reflection of the unequal distribution of wealth throughout the world, but it is also the result of public expenditure on education that is greater in the developed countries than in the developing countries in both relative (5.3 and 4.2 per cent of respective GNP in 1992) and absolute ($987 billion and $210 billion in 1992) terms. Expenditure per pupil at pre-primary, first and second levels was more than twenty times higher in the developed countries in 1992 ($3,525) than in the developing countries ($158).

Education systems and their requirements in the area of finance are varied. On the one hand, population changes and the expansion of enrolments, particularly in developing countries, and, on the other, the limited amount of resources available mean that education systems

in many countries are caught in a financial vice, their further expansion hampered by inadequate funding.

Table 1. Population under 15 years of age, enrolment numbers and educational expenditure

	Population		Public expenditure on education (1992)		Expenditure per pupil (pre-primary, first and second levels) (1992)	
	<15 years (1995)	Enrolment in pre-primary, first and second levels (millions) (1992)	$ billion	% of GNP	$	% of per capita GNP
Developed countries:	251	231	987[1]	5.3[1]	3 525[1]	17.7[1]
Northern America	64	56	370	5.7	–	–
Asia/Oceania	52	44	225[1]	4.8[1]	–	–
Europe/Russian Federation	135	131	419[1]	5.2[1]	–	–
Developing countries:	1 551	802	210	4.2	158[2]	13.0[2]
Sub-Saharan Africa	270	88	16	5.7	61[2]	20.9[2]
Arab States	104	50	26	5.6	161[2]	15.0[2]
Latin America and the Caribbean	163	112	57	4.4	281[2]	9.2[2]
Eastern Asia/Oceania	513	311	41	3.1	88[2]	11.2[2]
Southern Asia	492	228	60	4.4	168[2]	14.9[2]
World total	1 802	1 033	1 197[1]	5.1[1]	–	–

1. Excluding countries of the former USSR.
2. Selected countries.
Source: based on the *World Education Report 1995*, Paris, UNESCO Publishing, 1995.

Population growth and the development of education

Population growth and educational development explain why education systems need more funds, as these are related to the growing number of students and teachers, and improvement of learning conditions.

The number of school places required is linked first of all to changes in the population (demographic growth). Whereas the population of children under the age of 15 (see Table 2) has diminished by 3 per cent over the last fifteen years in the developed countries, it has increased considerably (by 19 per cent) in the developing countries. The sub-Saharan African countries have experienced the highest increase (55 per cent), followed by the Arab States (40 per cent). The absolute increase is greater in Southern Asia (111 million).

Related to the presumptions of a global drop in fertility, United Nations projections indicate that the growth of world population will continue to slow down steadily, falling to less than 1.0 per cent a year during 2020–30. Consequently, world population is projected to grow from an estimated 5.72 billion in 1995 to 8.29 billion in 2025, reaching 10 billion people by 2050.

Table 2. Trends in population under 15 years of age (millions)

	1980	1995	Change (%) 1980–95
Developed countries:	258	251	− 3
Northern America	58	64	+ 10
Asia/Oceania	53	52	− 9
Europe/Russian Federation	148	135	− 9
Developing countries:	1 306	1 551	+ 19
Sub-Saharan Africa	174	270	+ 55
Arab States	74	104	+ 40
Latin America and the Caribbean	141	163	+ 16
Eastern Asia/Oceania	526	513	− 2
Southern Asia	381	492	+ 29
World total	1 564	1 802	+ 15

Source: based on the *World Education Report 1995*, Paris, UNESCO Publishing, 1995.

Table 3. Size and growth of world population, 1950–2045

	Population at end of period (billions)	Annual rate of change of population (%)		
		World total	Developed countries	Developing countries
1950–55	2.75	1.78	1.2	2.05
1960–65	3.34	1.99	1.1	2.36
1970–75	4.08	1.96	0.81	2.37
1980–85	4.85	1.73	0.56	2.09
1990–95	5.72	1.57	0.4	1.88
2000–05	6.59	1.37	0.25	1.63
2010–15	7.47	1.2	0.18	1.41
2020–25	8.29	1	0.1	1.17
2030–35	9.01	0.78	– 0.08	0.92
2040–45	9.59	0.57	– 0.14	0.67

Source: World Economic and Social Survey, New York, United Nations, 1995.

While population growth rates in both developed and developing regions decline over time, the decline has been relatively more rapid in the developed regions, from 1.2 per cent in the 1950s to 0.4 per cent in 1994 (see Tables 3 and 4). The population growth rate in the developed countries is expected to become negative after 2025. In the developing countries the population growth rate is expected to decrease from 1.88 per cent at present to 1.17 in 2020–25. While in Asia and Latin America and the Caribbean the population growth rate will plunge below 1 per cent in 2020–25, at the same time in African countries it will still continue to grow at more than 2 per cent per annum (see Table 4).

The impact of these population trends on the intake capacity of education systems is made greater by the expansion of enrolments. Over the past twenty years, enrolment ratios have risen at all levels of education and in all regions of the world, producing increases in enrolment numbers that are greater than the population increases, with the sole exception of primary education in the developed countries (primary education is universal in developed countries, and the figures

**Table 4. Average annual rate of world population growth, in 1990–95
and 2020–25 (%)**

	Average annual rate of growth	
	1990–95	2020–25
Developed countries	0.4	0.1
Developing countries:	1.88	1.17
Africa	2.81	2.08
Asia	1.7	0.93
Latin America and the Caribbean	1.84	0.96
World total	1.57	1

Source: World Economic and Social Survey, New York, United Nations, 1995.

simply record variations in population size and repetition rates). Similar effects can be expected after the universalization of primary and basic education in the developing countries, in particular in Africa.

Primary education is not yet generally available in all countries of the world. In 1995, the estimated net enrolment ratio for the 6–11 age group was only 55.2 per cent for boys and 47.2 per cent for girls in sub-Saharan Africa, compared with the range of 80–90 per cent for other developing regions. These average figures mask considerable repetition and drop-out rates, as well as cross-country disparities, i.e. in several countries the number of primary-school pupils represents less than one-third of the population in the age group normally enrolled at that level. For this level, the biggest increases in enrolment between 1985 and 1992 occurred in Southern Asia (25 per cent), the Arab states (23 per cent) and in sub-Saharan Africa (19 per cent) (see Table 5).

Enrolments in second-level education have increased considerably in all regions of the world over recent years (see Table 6). Social demand and the expansion of primary education are leading to very considerable pressures on secondary-education systems. For this level, the biggest percentage increase in enrolment between 1985 and 1992 occurred in Southern Asia (43) and sub-Saharan Africa (42), because of the population growth in these regions and previous low rates of enrolment. In contrast, in the developed countries, the enrolment in second-level education declined by 2 per cent during the same period.

Table 5. Enrolment in formal first-level education (millions)

	1985	1992	Change (%) 1985–92
Developed countries	87	89	+ 2
Developing countries:	477	522	+ 9
Sub-Saharan Africa	58	69	+ 19
Arab States	26	32	+ 23
Latin America and the Caribbean	70	78	+ 11
Eastern Asia/Oceania	203	195	– 4
Southern Asia	114	142	+ 25
World total	564	611	+ 8

Source: *World Education Report 1955*, Paris, UNESCO Publishing, 1995.

Table 6. Enrolment in formal second-level education (millions)

	1985	1992	Change (%) 1985–92
Developed countries	109	107	– 2
Developing countries:	185	227	+ 23
Sub-Saharan Africa	12	17	+ 42
Arab States	12	16	+ 23
Latin America and the Caribbean	20	23	+ 15
Eastern Asia/Oceania	79	84	+ 6
Southern Asia	56	80	+ 43
World total	294	334	+ 14

Source: *World Education Report 1995,* Paris, UNESCO Publishing, 1995.

In higher education, student numbers are also undergoing a substantial increase in both developing and developed countries, even though higher-education students represent only a small proportion of the whole population. Between 1985 and 1992, higher-education enrolment increased from 22.9 to 32.4 million students in the developing countries, and from 35.7 to 41.3 million students in the developed countries. With the expansion of secondary education, one may expect in the years to come more and more pressure for access to higher education as a global trend.

Economic and financial constraints

Economic and financial constraints are limiting the real public resources available for education. A look at past and projected population changes shows that the problem of finance for education does not arise entirely in the same terms in the developed countries, where population growth has stabilized or is negative and where enrolments have already broadly developed, as in the developing countries that are having to face up to considerable population growth and the expansion of enrolments.

The developing countries that have to manage substantial changes in pupil numbers are also those that, for the last decade, have been facing serious economic and financial difficulties. The sluggish economic growth in the developed countries, fluctuations in prices for export commodities and the increase in the price of imported goods have led to serious disequilibria in economic development and balance of payments in many developing countries, and compelled them to borrow from external sources in the 1970s and 1980s.

The continuing economic recession and the deficit of balance of payments together with the burden of the external debt repayment led in the late 1980s and early 1990s to a debt crisis that prompted many developing countries to apply for emergency loans and assistance, and to adopt so-called structural adjustment programmes, either freely or under pressure from the World Bank and the International Monetary Fund (IMF).

Although the education sector in general, and primary and basic education in particular, were protected from the strong negative impact of the structural adjustment programmes, these programmes and other donor-driven projects often included 'conditionality' which affected the education sector indirectly, for example, through the freeze on the recruitment of civil servants, on their wages and salaries or subsidies and allowances (which affected teachers and administrative staff in

ministries of education and regional offices). In addition, under conditions of stringency and belt-tightening, education systems have to compete for public resources with other sensitive sectors of government expenditure, such as health or social security.

The fact that the share of GNP devoted to public expenditure on education increased does not necessarily mean that the actual amount of funding equally increased, i.e. in the period of economic recession the volume of GNP may fall and result in a smaller amount of real funding in spite of the stable or higher relative share of educational expenditure as compared with GNP. Table 7 provides illustrations of these discrepancies: for the developed countries, the share of GNP devoted to educational expenditure remained virtually stable between 1980 and 1992 (5.2–5.3 per cent) but the absolute figures show a

Table 7. Trends in share of GNP devoted to public expenditure on education

	1980		1985		1990		1992	
	$ billion	% of GNP	$ billion	% of GNP	$ billion	% of GNP	$ billion	% of GNP
Developed countries:[1]	425	5.2	465	5.1	854	5.1	987	5.3
Northern America	155	5.2	222	5.1	330	5.4	370	5.7
Asia/Oceania[1]	73	5.8	79	5.1	161	4.8	225	4.8
Europe	196	5.1	164	5.1	363	5.0	419	5.2
Developing countries:	102	3.8	101	4.0	163	4.0	210	4.2
Sub-Saharan Africa	16	5.1	11	4.8	15	5.3	16	5.7
Arab States	18	4.1	24	5.8	25	5.2	26	5.6
Latin America and the Caribbean	34	3.9	29	4.0	47	4.1	57	4.4
Eastern Asia/Oceania	16	2.8	20	3.2	32	3.0	41	3.1
Southern Asia	13	4.1	15	3.3	36	3.9	60	4.4
World total[1]	527	4.9	566	4.9	1 017	4.9	1 197	5.1

1. Excluding countries of the former USSR.
Source: World Education Report 1995, Paris, UNESCO Publishing, 1995.

constant increase from $425 billion in 1980 to $987 billion in 1992 as a function of the increase in volume of GNP.

In contrast, for the countries of sub-Saharan Africa, the share of GNP devoted to education was on the rise from 5.1 per cent in 1980 to 5.3 per cent in 1990, and 5.7 per cent in 1992, but the actual volume of funding fluctuated respectively from $16 billion to $15 billion and then again to $16 billion.

Another observation one can make from these comparisons is that such relative indicators as share of GNP devoted to education can be misleading or insufficient if they are not analysed together with other data. For example, in 1992 the 5.7 per cent of GNP devoted to education in sub-Saharan Africa ($16 billion) was 23 times less the 5.7 per cent of GNP devoted to education in Northern America, due to the different base volume of GNP in these two regions.

The trends in average expenditure per pupil/student in pre-primary, first and second levels of education are also useful to compare the development of education in different regions of the world (see Table 8). The increase of the unit cost in the developed countries between 1985 and 1992 from 16.8 to 17.7 per cent of GNP per capita meant its absolute increase from $1,796 to $3,525. In the developing countries,

Table 8. Trends in average expenditure per pupil (pre-primary, first and second levels)

	1985		1992	
	$	% of GNP per capita	$	% of GNP per capita
Developed countries	1 796	16.8	3 525	17.7
Developing countries	73	11.3	158	13.0
Sub-Saharan Africa	56	18.0	61	20.9
Arab States	176	17.2	161	15.0
Latin America and the Caribbean	147	7.6	281	9.2
Eastern Asia/Oceania	42	10.4	88	11.2
Southern Asia	55	13.2	168	14.9

Source: World Education Report 1995, Paris, UNESCO Publishing, 1995.

this indicator increased from 11.3 to 13 per cent, while in absolute terms it rose from only $73 to $158 during 1985–92. The most dramatic situation is observed in sub-Saharan Africa where the unit cost increased in this period from $56 to merely $61, although its share in GNP per capita surged up to 20.9 per cent in 1992 (as a result of the stagnation of the latter). In this sense, a certain progress has been achieved in Southern Asia, where the unit cost improved from $55 in 1985 to $168 in 1992, above average for the developing countries as a whole.

Looking beyond the purely financial aspects, one can observe that the reduction in unit cost per pupil/student, or its slower increase as compared with the numbers enrolled, means in practical terms fewer teachers recruited, reductions in teachers' salaries in real terms and, consequently, a decrease in motivation; it also means a cutback in non-salary recurrent expenditure, such as textbooks and maintenance, or school construction, all resulting in deterioration of the teaching/learning conditions of teachers and pupils.

Who benefits from education and who should pay?

By its nature and tradition, education in general is considered to be a public good, guaranteed by the state and accessed by everybody. Economists still argue about where exactly is the frontier between education as a public and a private good, and tend to regard education as a quasi-public good. The debates on this subject normally conclude that education is a public good when its effects are consumed collectively by the society and at the same time a private good when it directly benefits an individual.

It is fairly widely agreed that government has an attribute of developer and equalizer of educational opportunities. In financing and allocating public money, a government has to strive to provide those services that are most public in economic terms, to achieve the highest social benefit.

The cost of education is progressively increasing from level to level and, on the supply side, the state needs to guarantee basic education for all children of the respective age groups, and at the same time it has to regulate student flows and limit the demand for and access to the upper levels of education, in particular higher education. No government at present is in a position a priori to provide higher education to all graduates of secondary schools and to meet the demand for university degrees.

The higher the level of education of an individual, in particular,

if it is a university degree or Ph.D., the better are the prospects for their upward mobility in the labour market, remuneration and other social benefits. It was concluded by the studies in many countries that private returns to higher education are considerably higher than those to basic education.

Since the 1980s, policy-makers in different parts of the world have increasingly recognized that the traditional methods of educational finance and management are unable to deliver even quality basic education to all children and that radical changes are needed. The trends in financing the costs of higher education in the world show that in the 1960s and 1970s, the share of taxpayers, i.e. the government budget, was increasing, while in the 1980s and 1990s a shift towards financing by students/parents (tuition and user fees) and other non-government sources (industry, commerce, donors) accompanied the reduction in the share of public funds for this level of education.

The role of public authorities in educational financing

The role of public authorities, including regional and local public authorities, in educational financing remains significant even under conditions of decentralization and financial constraints. The regulation of educational supply and demand in the country, and deciding on the balance between equity and efficiency of education, between qualitative or quantitative aspects, remains with the public authorities, in particular, central ministries of education. Three functions which public authorities should perform in any context with regard to educational finance are: the elaboration of national educational legislation, monitoring its putting into practice and evaluating its implementation; the provision of actual funds for education (which are indispensable for any type or level of education, including actual or hidden subsidies to private, higher or continuing education); and management of education systems, securing the availability of an adequate number of schools, teachers, textbooks, school materials, furniture, infrastructure etc., where necessary. Even in a decentralized context, it is up to the public authorities at the central/regional/local level to determine the degree of delegation of relevant responsibilities to the lower levels of administration, to communities or directly to institutions.

The funding role of public authorities is always important when there is a need for investments in non-profit-making programmes and projects, such as school and road construction, teacher training, projects on school electricity or fences, school-feeding programmes, etc.

Central-level governments have an important role to play in diversification of educational funding and regulating its cost-reduction, cost-sharing, cost-recovery and income generation at the lower levels of educational administration. Diversifying sources of public funding may involve broadening the tax base, granting taxing powers and delegating financing responsibility to lower levels, and earmarking taxes for education in general or to particular levels and types.

The regulatory mechanisms at the central level are increasingly required in the decentralized context to soften the disparities between urban and rural areas, and between different provinces and communities. One form is devolution of decision-making, by which sub-national governments are made primarily responsible for providing education and have the authority to raise and spend revenues. China provides an example: in rural areas, primary education is mainly managed by the village government and financed by resources from the village, and lower-secondary education is mainly managed and funded by the town. In cities, primary education is funded and managed by the city government.

Another form of decentralization is deconcentration of decision-making, which involves the transfer of authority to lower levels within central or higher-level government agencies. Chile's decentralization reform is an example. In this reform, the central government remains the dominant source of public financing of primary and secondary education (about 90 per cent of total public education funds in 1990), but municipalities are assigned new revenue sources and new expenditure responsibilities. Municipal schools receive both enrolment-based grants (known as vouchers) from the central government and funds from new sources of municipal revenue. The reform transferred school property to municipalities and moved teachers from central to municipal payrolls. Government grants can also be provided to private schools that do not charge tuition fees. Since government grants are tied to school enrolment, the financing scheme gives an incentive for schools to provide quality education and an opportunity for pupils to choose schools they prefer.

A mixed form of decentralization has taken place in India. Education was devolved to state governments by the constitution of 1950. In 1992, the National Policy on Education was revised to deconcentrate decision-making within the state so that district governments would have more authority to plan and manage primary education. Furthermore, village education committees are being reactivated to increase community involvement in making decisions

at the school level. In India, active village education committees are seen as the most cost-effective method to ensure that teachers work and schools function.

To be effective, decentralization requires simultaneous efforts to build and strengthen administrative capacity at lower levels and to incorporate measures for accountability and monitoring. As shown by the case of Brazil, the devolution of primary education to municipalities alone does not ensure that municipal schools are run efficiently or that the distribution of resources is free from political interference. Also, as demonstrated in the reforms in China and Chile, decentralization can result in widening inequalities of resources given to schools in different localities because of disparities among communities.

Development of private education also changes but does not undermine the regulatory functions of public authorities. In any country of the world, private education depends on subsidies from the public, in particular, local authorities, and depends on favourable state legislation and a supportive political environment. Private schools and universities should also follow the educational standards adopted at the national level. Typically, government representatives are required to sit on the governing boards of these schools. Subsidized schools are commonly required to pay their teachers salaries at least equivalent to those received in the publicly financed schools. They also face regulations over teacher credentials, teaching hours and other conditions of work, as well as hiring and firing procedures. In some cases, as in France and the Netherlands, private-school teachers become civil servants, over whose selection, retention and reward private schools have much less control.

Generally recommended solutions

The generally recommended solutions are to make better use of existing resources and find other sources of financing. To allow state budgets to cope with the difficulties of financing education systems, the measures generally recommended by many aid agencies and economists are aimed either at better use of existing resources through modification of the parameters for producing an education service, an improvement in the administration and management of the system, or recourse to new sources of funding.

These proposed measures do not exclude increasing public expenditure on education by raising taxes or the proportion of public funds allotted to education (or both). Some countries have in fact

managed to increase the proportion of the state budget allotted to education.

Governments must be constantly concerned to make more effective use of public resources. This concern is simply more pressing at times of financial stringency. Making better use of resources and achieving more with the same means amounts to reducing unit costs and improving the efficiency and management of the system.

To reduce the costs of education, particularly in primary and secondary education, it is possible to act on the process by which education is provided in a number of ways.

→ *By increasing the number of pupils in each class.* The size of classes is a variable that has to be adjusted so as to match the number of school places needed to the number of classes the system can finance. There is research evidence that if the average size of classes is changed, for example, from twenty to forty-five pupils per teacher, this has little effect on what pupils learn at school. Nevertheless, the very high average number of pupils per class in some countries greatly reduces the possibility of extending this policy.

→ *By using double or triple shift systems, or multigrade classes in primary education.* Teachers are responsible for two or three groups of pupils. This solution has the disadvantage of reducing the pupils' classroom time but can be effective in also reducing the number of teachers needed. Introducing the system in practice is not always easy and may lead to teacher underemployment. It also raises management problems relating to the use of one classroom by two or three groups of pupils.

→ *By using new and less expensive teaching technologies.* Distance-teaching experiments in higher education have been carried out in several countries. Experiments with teaching by television are less conclusive.

→ *By allotting some teaching time to assistants or national service volunteers* whose qualifications are not as high as those of established teachers and who are therefore paid less.

→ *By making economies of scale* (avoid having schools that are too small in size). This is not always possible, particularly in areas where population density is low.

Improving the efficiency of education, and reducing repetition and drop-out, make it possible to increase the relevance and effectiveness of educational expenditure. Reducing the number of repetitions makes it possible to cut the total number of school places needed. Reducing drop-out tends to increase the number of pupils in school by extending

the length of schooling. Improving the efficiency of the education system makes expenditure on education more effective but may lead to an increase in pupil numbers and hence to a greater need for funds.

In addition, improving efficiency means undertaking measures that make it possible. Among these, the most effective are acknowledged to be the provision to pupils of a sufficient number of textbooks and to teachers of teaching materials. Improving quality and efficiency requires extra expenditure.

Decentralizing the administration, giving greater autonomy to schools and improving the management of systems can also make it possible to increase the effectiveness of expenditure on education. Decentralization and autonomy for schools make it possible to adapt educational expenditure more successfully to the needs of the schools and to give school principals and local administrators greater responsibility. These measures assume that there exists a framework of regulations and laws, that responsibilities are clearly defined, and that resources and expenditure are supervised, so as to avoid the problems of corruption and the embezzlement of public funds.

Improving administrative services, particularly management of the assignment of teachers, should allow more efficient use to be made of the resources available to the education system. Improved tax collection can provide additional resources while ensuring that there is equality in shouldering the tax burden.

Apart from state funds, the sources of finance that can be used for education are chiefly those provided by families, local authorities, local communities or businesses. Foreign aid and self-financing by schools also make it possible to reduce the pressure on public funds.

Contributions by families to the financing of education may take the form of tuition and user fees or contributions in kind. Introduction of tuition and user fees has be cautiously and carefully programmed because it can affect access to education and equality of opportunity. A sample of nine West African countries in the mid-1970s suggests that meeting the public costs of primary schooling for families in the lowest 40 per cent income group, who have two children at primary school, would have meant spending between 10 and 50 per cent of their family income.

Tuition and user fees are particularly recommended for higher education, and in general for educational levels over and above basic education. The fact that those who benefit from such education will have advantages later on in the form of higher pay justifies their making a contribution to its cost. To maintain equality of access to

these levels of education, systems of study grants and loans should be introduced along with tuition fees.

A graduate levy can also make it possible to recover some of the money spent on individuals by the state. In regions where the financial resources of families are small, their contribution can take forms other than cash, such as the provision of food for the teachers or school repairs and maintenance. Schools, however, should not ask families for pointless or excessive expenditure.

Tuition and user fees and their volume may affect enrolment. For example, in Malawi, where tuition fees were raised in 1982 by 50 per cent, enrolments initially declined and then their growth was slow. On the other hand, when a new government abolished fees in 1994, the response was massive and immediate: the enrolment in primary school increased from 1.9 million to 3 million during the year. In Botswana, primary school fees were halved in 1973 and enrolments jumped by 17 per cent. Then, in 1980, fees were entirely removed, and again the growth in enrolments (at 10 per cent) was higher than in the preceding years. In Nigeria, primary enrolment had increased from 6.2 million in 1976 to 14.7 million in 1983. Following the introduction of tuition fees in 1984, however, they fell back, dropping to 12.5 million by 1986.

User fees may also have a negative income effect when they adversely affect the ability of households to meet other basic needs. The United Republic of Tanzania provides a case in point: the primary gross enrolment rate fell from 93 to 69 per cent during 1980–86, a period of steep economic decline during which fees remained unchanged.

Local communities, whether or not they have the status of local authorities, can make a contribution by building schools, housing teachers and, sometimes, topping up the teachers' pay. In some countries, city and village communities have gone so far as to provide the whole of the teachers' pay to make sure that there is a school in the locality. The contribution made by communities may be in the form of cash or may take some other form. The involvement of communities can make it possible to reduce building costs by using local materials and simple techniques, and allow lower maintenance costs.

Approaches can be made to businesses, but their involvement should probably be focused more on vocational or higher education. Some countries have introduced corporation taxes. Incentives in the form of tax exemptions can also be introduced. Earmarked taxes have been used in Nepal, China, Botswana and Turkey to finance education

expansion programmes. In 1986, Pakistan introduced a surcharge on some imports, designating the proceeds to the education system. In Brazil, a tax amounting to 2.5 per cent of the wages of employees in the private sector is levied by the government and earmarked specifically for primary schooling. In 1982, the Republic of Korea introduced a five-year education tax on the sale of tobacco, and on income from interest and dividends. By 1987, this tax financed about 15 per cent of Ministry of Education expenditure.

Operations allowing educational establishments to be self-financing and income-generating have been carried out in many countries when educational and fiscal legislation allows them. However, they may at the first stage need some 'seed' investments which should be carefully compared with expected revenues, in particular in cases where these projects are not directly related to the profiles of the institutions. For higher-education establishments, these may take the form of research contracts, contracts for providing training for companies, payment for consultancy services, or rent or payment for advice. The way to self-financing may also lie in the direction of productive work by the pupils and students. Some experiments have been carried out in primary schools without any notable results, when the actual and hidden costs of the projects offset the net revenues, but it seems a more promising possibility for technical and vocational schools, where the economic need overlaps with the aim of education, to which schools must continue to give priority.

Recourse to foreign aid is necessary in those countries with the greatest difficulties and whose national resources do not make it possible to finance education systems. This sort of financing requires the co-ordination of aid from various sources and integration of the undertakings financed from these sources into national policies for the development of education systems.

Some aid agencies also recommend the establishment of a network of private establishments which, provided they do not receive significant subventions, could make it possible to increase enrolments without the use of public funds. Private establishments in receipt of reasonable subventions can permit increased enrolment while limiting average public expenditure per pupil.

Making use of the private sector to provide education raises problems with regard to equality of access to education and supervision of schools by the public authorities. Religious groups and non-profit charity organizations play an important part in many countries in the management and financing of private education institutions. The

framework of laws and regulations should be constructed so as, at least, not to prevent the development of an array of private establishments.

Some observations to think over for the future

One cannot deny either the demographic pressures or the economic and financial pressures upon education. Adjustments have to be made for the balance between the demand for education, which is linked to the population growth, and the supply of education, which is linked to the resources available, and sometimes to the detriment of the quality and consistency of the education system or to the detriment of equality. The public authorities are responsible for choosing the policies that will make it possible to face up to these pressures and guide the development of education systems in their respective countries.

Education is a dual economic and social investment. A country's economic development calls for a greater labour productivity and capital, and therefore requires employees to be able to use modern technologies, and to be creative and adaptable. Such aptitudes are very dependent on the standard of initial education that people receive. The money spent on education is not solely a social item of expenditure; the purpose of education is also to train people for citizenship, provide for the transfer of knowledge and culture from one generation to another, and develop people's talents. Education systems also have to provide the skills that the economy and market will need in the future. In addition, education is a way of fighting poverty. Those sectors of the population that have no access to basic social services remain trapped in poverty and are a hindrance to development. Expenditure on education should not be regarded simply as social expenditure and a burden on public finances.

Investment in education has long-term effects and does not bring immediate effects. Underinvestment in education may have an impact on the structure of the labour market and on social and economic development in some twenty to forty years.

Investment in education should be protected in times of crisis, recession or structural adjustment. Education is a precondition for long-term economic and social development, i.e. to preserve the chance of long-term development, and because many years and considerable effort are needed in order to rebuild run-down education systems, expenditure on education should be maintained in real terms during times of crisis, recession or structural adjustment.

Only the re-establishment of adequate economic growth can make it possible to finance the development of education systems. The measures recommended to overcome the difficulties of financing education systems are not enough to cope with the considerable increases in pupil numbers or improvements in the quality of education. For healthy economies, it is easier to expand the education systems, i.e. to provide funding for education commensurate to their economic development. At the same time, the levels of literacy and qualifications of the population are essential preconditions for foreign investments in any country and, consequently, its potential economic growth.

International solidarity is vital to enable those countries experiencing the greatest difficulties, in connection with both demographic pressures and economic transition, to meet present and future problems of educational finance. International aid may be catalytic in certain education development projects where other funding is hard to obtain or is insufficient.

There is no single solution. There cannot be one single political response to the problem of how to finance education systems. The response cannot be the same in all countries because of the variety of national situations, the different levels of economic development and the state of education systems. There may also be different solutions for different levels of education. Recourse to non-public funding can be justified in the case of vocational and higher education. Comparative analysis of schemes tried out elsewhere may be helpful in providing a choice of several options to the same issue of educational finance, depending on a particular situation and national context, such as tuition fees or student loans.

Priorities must be laid down for public action. Shortage of resources may lead to questions being asked about the priorities of public action. Should not the state give economic and social development top priority? Where education is concerned, public spending must be focused, first of all, on the expansion and quality of basic education. Expenditure of a pure educational (instructional) nature should take precedence over expenditure on the subsistence of pupils and students.

Teachers' working conditions. Education takes place primarily in the classroom, between the teacher and the pupils. The effectiveness of education is linked first of all to the teacher's motivation and quality and to the teaching materials available. To make sure that expenditure on education is effective, teachers must be properly paid, they must be given proper working conditions and they must enjoy social esteem.

Borrowing may in some cases be a means of financing development and avoiding the decay of education systems. As education is a very long-term economic investment, it is logical to consider financing it by long-term internal or external loans, thus transferring to future generations a portion of the present investment, from which they will benefit. Borrowing may run counter to policies that seek to reduce external debt. Nevertheless, if the debt is not excessive or if the danger of the decay of the education system is great, it can enable some countries to maintain and expand their educational investment.

Privatization of secondary education: issues and policy implications

Mark Bray

Introduction

Recent years have brought a global upsurge of interest in privatization in all sectors of the economy and society, including education. Privatization has been widely advocated as a mechanism to improve efficiency, cater for pluralistic preferences, make institutions more accountable to their clients and reduce government expenditure.

However, some aspects of privatization are controversial. In many cases, policies have been based more on ideology and aspiration than on empirical demonstration of their benefits, and even advocates of privatization differ in their views on how it may best be achieved. This chapter summarizes evidence on issues associated with the privatization of secondary education and presents policy implications for governments in settings of various types. The work has a broad geographic focus, and takes examples from all parts of the world.

Meanings, dimensions and types of privatization

Privatization, by definition, is a process – an '-ization' – rather than a state. It is the process of moving from less public ownership, financing and/or control to more private ownership, financing and/or control. Although the term indicates the direction of change, it says nothing about the starting point. Thus this chapter is concerned as much with systems that were already largely private but became even more private, as with systems that at the outset were largely or fully public.

However, privatization is a complex and ambiguous concept. A clue to this is given by the reference to three dimensions of change:

ownership, financing and control. A change in one of these dimensions does not necessarily demand a change in the other two; and indeed it is possible for changes to involve simultaneous movements in opposite directions. Thus an increase in non-government financing, for example, does not necessarily require any change in the formal ownership of schools and does not necessarily give the non-government providers of finance any more control than they had before. Likewise, reforms to give non-government actors stronger control can be achieved without changes in either ownership or financing.

As might be expected, diversity in patterns of ownership, financing and control also creates major difficulties in identifying the starting point, i.e. deciding whether in the first place individual schools and whole education systems are either private or public. Some school systems rely heavily on institutions which are nominally owned by voluntary agencies but which receive substantial government grants, are subject to far-reaching government controls and are generally considered part of public provision of education. Conversely, in many countries schools which are nominally owned and controlled by governments receive substantial non-government funds and are subject to partial non-government direction. And some schools which are totally funded as private institutions may do their best to imitate public schools and be seen by the government as part of public provision.

Further complexities arise from the fact that the term private, which is commonly used interchangeably with non-government, encompasses a very wide range of operators. Of particular importance is the distinction between commercial entrepreneurs and non-profit organizations such as churches and communities. The motives of the non-government organizations in charge of particular schools are likely to have major implications for the ways in which those schools are run.

Bearing in mind all these complexities and the different ways in which the term privatization is used, subsequent sections of this chapter explore four major models. They are not mutually exclusive and indeed could all be introduced together in a single country. Some models require deliberate action by the government authorities but others can occur more or less by default. Thus privatization should not be taken only as a planned activity; indeed, privatization sometimes occurs despite, rather than because of, government intentions. The four types of privatization are discussed below.

Transfer of ownership of public schools. Deliberate transfer of ownership (and, by implication, control) of existing public schools to

private hands is perhaps the most striking form of privatization. Such a move is especially radical when it involves a shift from non-profit to commercial operation, though this type of change is rare.

Shifting sectoral balance without redesignating existing institutions. This form of privatization occurs through a more evolutionary shift in the balance of types of institution. Thus, the number and size of government schools might be held constant, but the number and size of parallel private schools might be permitted or encouraged to increase. Alternatively, the government sector might expand, but the private sector might expand more. Or the government sector might contract, but the private sector might not contract so much, might remain constant, or might expand.

Increased government funding and support for private schools. Governments may strengthen the private sector by giving financial and other support to private schools. Some governments are experimenting with systems of vouchers, in which families can choose to send children to private schools but meet some or all of the costs from a financial allocation earmarked by the government.

Increased private financing and/or control of government schools. In this form of privatization, schools remain nominally under government ownership but the proportion of finance and/or control by non-government sources is increased. Governments in some countries have experienced severe fiscal crisis, and parents and communities have had to increase financial contributions to their schools in order to bridge gaps. In other countries, governments' financial health has remained strong but for ideological and other reasons the authorities have required school principals to be more responsive to the market-place.

Historical context, evolving patterns and contemporary diversity

Historically, almost all schooling used to be private. The view that governments have responsibility for the education of their citizens has only been widely held since the nineteenth century in Europe, and since the early or mid-twentieth century in most other parts of the world.[1] Before that, almost all schooling was conducted by churches

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1. A. Green, *Education and State Formation: The Rise of Education Systems in England, France and the USA,* London, Macmillan, 1990; E. Jiminez and M. E. Lockheed, *Public and Private Secondary Education in Developing Countries: A Comparative Study,* Washington, D.C., The World Bank, 1995. (Discussion Paper, 309.)

Fig. 1. Different types of school (public and private) and curriculum

			NATURE OF SCHOOL			
			Elite	**Standard**	**Second-chance**	**Supplementary**
Mainstream		Public				
		Private				
Alternative		Public				
		Private				

NATURE OF CURRICULUM

and other religious bodies, or by tutors employed on an individual basis by families with sufficient means. The present widespread ideological shift towards privatization may thus be perceived as a return towards an earlier centre of gravity rather than a completely new phenomenon.

Despite the existence of this ideological swing, moreover, developments in some countries have been in the opposite direction: after a policy review in 1988, the government of Kenya extended its public-school system by taking over large numbers of unaided secondary schools; in 1994 the government of Malawi adopted a comparable policy at the primary level. These moves may be described as publicization rather than privatization.

To help explain these contrasting patterns, it is necessary to distinguish between four different types of school. Figure 1 presents a classification of both public and private schools. Alternative curricula include curricula with religious, linguistic, cultural and other emphases. The four types of school – elite, standard, second-chance or supplementary – are explained below.

Elite schools generally provide better-quality education, have superior facilities and recruit pupils mainly from the middle and upper classes. Some parents who cannot get their children into elite public schools are willing to pay high fees to elite private schools. Pupils in elite private schools could have gone to public institutions had their families wished, but they attend the private schools instead. This is a form of differentiated demand.

Standard schools cater for the bulk of the population. Great variation, of course, exists within the group (and some are in a sense substandard, i.e. of poor quality). However, the schools are here described as standard to distinguish them from elite institutions. In most countries, almost

all standard schools are in the public sector since, by definition, there is nothing special to attract parents to pay for private education. However, some societies do have non-elite alternative-curriculum private schools and it is even possible to conceive of non-elite mainstream-curriculum private schools attracting pupils, perhaps because of their location, a reputation for good discipline, or other factors. In most cases, pupils in standard private schools could have gained places in public schools had they wished.

Second-chance schools, even with mainstream curricula, may be of two types. The public institutions are likely to cater for pupils who are repeating grades, while the private institutions enrol pupils who were unable to secure places in public institutions. In the latter case, the schools cater for excess rather than differentiated demand, in that the public sector is too small to provide places for all pupils who would like them. The quality of intake to such schools is usually inferior; and in many cases the quality of educational process is also inferior.

Supplementary schools provide extra tuition for pupils who are already enrolled elsewhere. Most supplementary schools are private, and some students attend public schools during normal hours and then private schools in the evenings, at weekends or during vacations. Many supplementary schools provide extra tuition in academic subjects, to help candidates to score highly in examinations. Other supplementary schools teach subjects or skills that are not taught elsewhere, such as religion, music and foreign languages.

The point that private schools are not necessarily high-quality institutions is important. Much discussion on privatization fails to recognize that private schools may be of very poor quality as well as very good quality. This is partly because much of the debate has been led by researchers and policy analysts in industrialized countries,[2] in which private schools meet only differentiated and not excess demand. Desirable policies are very different for the different types of private

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2. D. S. Anderson, 'Public and Private Schools: Sociological Perspectives', in: T. Husen and T. N. Postlethwaite (eds.), *The International Encyclopedia of Education*, pp. 4824–31, Oxford, Pergamon Press, 1994; J. Coleman, T. Hoffer and S. Kilgore, *High School Achievement: Public, Catholic and Private Schools Compared*, New York, Basic Books, 1982; K. B. Smith and K. J. Meier, *The Case Against School Choice: Politics, Markets and Fools*, Armonk, N.Y., M. E. Sharpe, 1995; G. Walford, *Private Schools in Ten Countries: Policy and Practice*, London, Routledge, 1989.

school and it is unfortunate that many people group them all together under a single umbrella labelled private. The private schools taken over by the governments of Kenya and Malawi were chiefly of the low-quality, second-chance type. The decision in these countries to provide government assistance was based on the desire both to improve standards in the institutions and to reduce inequalities in the distribution of government resources. The authorities in these countries had rather different attitudes towards the high-quality private schools, which were permitted not only to maintain their operations but also to expand and multiply.

Four strategies for privatization
Transfer of ownership of public schools

While deliberate transfer of ownership of state enterprises has been common in industry and in other economic sectors, it has been rare in education. Governments are still expected to play a major role in education and schools are usually treated differently from steel mills, railways and telephone companies. However, it is possible to identify some examples of this form of privatization.

Singapore provides one of the clearest examples. The government has embarked on two initiatives, namely the Independent Schools Scheme launched in 1987 and the Autonomous Schools project launched in 1993. Under the former, existing government and aided (public sector) schools have been permitted to become private institutions while still receiving government grants. As private institutions, the schools are allowed to charge fees up to a government-determined maximum. The schools can also control their own curricula, staffing and pupil recruitment, though the government retains restrictions on minimum teacher qualifications. The Autonomous Schools initiative has some similarities, though the government has determined a lower ceiling on fees. In 1995, Singapore had approximately 150 secondary schools, of which eight were Independent Schools and twelve were Autonomous Schools.[3] Two of the eight Independent Schools had been government institutions and the other six had been aided. Among the Autonomous Schools, eight had been government and four had been aided.

3. J. Tan, 'Independent Schools in Singapore: Implications for Social and Educational Inequalities', *International Journal of Educational Development*, Vol. 13, No. 4, 1993, pp. 239–52; J. Tan, 'Independent and Autonomous Schools in Singapore', 1995. (Personal communication.)

A parallel initiative has been embarked upon in South Africa. In this case, elite schools which were formerly exclusive White-only institutions have been permitted to become private institutions. The move allows the schools to charge fees and determine admissions policies, and therefore to remain exclusive institutions. It also permits the government to focus its efforts on schooling for the majority in less-elite institutions.

A rather different type of example may be taken from Mozambique. At the close of the colonial period, three-quarters of the secondary schools in Mozambique were owned by the private sector, one-third of them by the Roman Catholic Church. In 1975, however, a newly independent socialist government nationalized all schools. The nationalization decree was revoked in 1990, and private schools were again permitted to operate. Within two years, thirty-two private institutions were operating at all levels. These institutions included some which, prior to nationalization, had been owned by the Roman Catholic Church and which had been handed back. In one sense, therefore, this was a case of government schools being privatized; but the longer historical perspective shows that it was the partial restoration of a previous situation.

Patterns in Poland and Hungary have in some respects been similar, for governments have also initiated a partial denationalization process in those countries.[4] However, in these settings the denationalization has been more complex than in Mozambique. Because the period of state control had lasted for over forty years, it was not easy to identify the people and bodies to whom institutions should be handed back.

Shifting sectoral balance without redesignating existing institutions

Privatization in the whole system, by shifting sectoral balance, is more common than transfer of ownership of particular institutions. In the United Republic of Tanzania, for example, over a period of three decades from 1963, the private sector emerged from near insignificance to a situation in which private secondary schools outnumbered public ones. The number of public schools increased dramatically, particularly after the mid-1980s. However, the number of private schools increased even more dramatically. Important factors were the policies of President Julius Nyerere and his ruling socialist party, particularly for the decade

4. M. Kozakiewicz, 'The Difficult Road to Educational Pluralism in Central and Eastern Europe', *Prospects*, Vol. XXII, No. 2, 1992, pp. 207–15.

from 1967.[5] In the late 1960s, the expansion of the private sector, which had been rapid earlier in the decade, was brought almost to a halt. Private primary schools were nationalized, and private secondary schools severely restricted because they were considered incompatible with the socialist ideology. Even in the public sector, the bulk of the government's resources were devoted to primary education on the grounds that it was important to achieve universal literacy and minimize social inequalities at that level.

However, the combined result of population growth, rapid expansion of primary education, and restriction on the establishment of both public and private secondary schools was a sharp decline in transition rates from primary to secondary school. Since this caused considerable frustration, the government decided to relax its earlier restrictions on both public and private secondary education. Only non-profit organizations such as churches and communities were permitted to sponsor private schools; but the relaxation of restrictions led to opening of private institutions on an unprecedented scale. Socialism has now been abandoned in the United Republic of Tanzania, with the result that there are even fewer official constraints on the private sector.

Among the countries of the former Soviet Union and its satellites, the post-socialist era has brought different patterns.[6] These countries already had substantial secondary-education systems with reasonable quality, and the private institutions which have emerged generally meet differentiated rather than excess demand, particularly serving the new economic elite. The scale of this demand is nothing like that in the United Republic of Tanzania. Even in the former Soviet countries with the most active private sectors, during the mid-1990s private secondary schools accounted for less than 5 per cent of the total.

Patterns in China are in some ways similar to those in Eastern Europe. In spite of the fact that China remains a socialist state,

5. L. Buchert, *Education and Development in Tanzania 1919–90*, London, James Coleman, 1994; J. Samoff, 'Local Initiatives and National Policies: The Politics of Private Schooling in Tanzania', *International Journal of Educational Research*, Vol. 15, No. 5, 1991, pp. 377–91.
6. J. Kuzma, 'Polish Educational Reform from the End of World War II to 1994: The Context for Contemporary Education', *East/West Education*, Vol. 15, No. 2, 1994, pp. 153–64; B. Laporte and J. Schweitzer, 'Education and Training', in N. A. Barr (ed.), *Labour Markets and Social Policy in Central and Eastern Europe: The Transition and Beyond,* New York, Oxford University Press, 1994.

'marketization' of the economy has been encouraged in much the same way as is the case in many countries that have abandoned socialism. Private schools have emerged as part of this 'marketization', though the sector has considerable internal diversity. While some private schools serve the new urban economic elite, others serve the rural poor. The demands of fees and other contributions for public primary schools have placed public education beyond the reach of some households. While some children from such households have dropped out of school altogether, others have been enrolled in low-cost private tutorial schools which are able to operate at lower cost and in turn to charge lower fees.[7]

Increased government funding and support for private schools

Sometimes, increased government funding for private schools brings increased controls, and effectively makes those schools part of the public sector. However, in other cases, governments are prepared to give public resources to private schools without exerting extensive controls. In these cases, the move could be described as privatization.

Perhaps the most striking example of this form of privatization has been the system of vouchers through which families can use public resources to pay for places in private schools. Chile is one country in which this model has been adopted. Under the system, both municipal (public) and non-profit private schools are paid fixed sums for each child enrolled, and parents have considerable choice in the institutions to which they send their children.[8] A comparable system operates in the Netherlands, where parents have the right to a free primary and secondary education at any public or religious private school, and where schools are funded by capitation grants on the basis of enrolments. A voucher scheme was also launched in Colombia in 1991,[9] and various experiments are being conducted in the United States.[10]

7. M. Bray, *Counting the Full Cost: Parental and Community Financing of Education in East Asia*, p. 14, Washington, D.C., The World Bank in collaboration with UNICEF, 1996.

8. T. Castañeda, *Innovations in Financing Education: The Case of Chile*, Washington, D.C., The World Bank, 1986. (EDT Discussion Paper, 35.)

9. A. Montenegro, *An Incomplete Educational Reform: The Case of Colombia*. Washington, D.C., The World Bank, 1995. (HCO Working Paper, 60.)

10. S. Hakim, P. Seidenstat and G. W. Bowman (eds.), *Privatizing Education and Educational Choice: Concepts, Plans and Experiences*, New York, Praeger, 1994.

Increased private financing and/or control of government schools

This form of privatization is probably the most common of all. In many countries, parents and communities have been asked to provide increasing proportions of school finance. In Togo, for example, economic crisis required the government in 1982 to freeze appointments of teachers on civil service terms. Staffing gaps were partly bridged by recruitment of 'auxiliaries', many of whom were locally employed by parents' associations. By 1995, auxiliaries formed 85 per cent of teachers at the lower-secondary level and 55 per cent at the upper-secondary level.[11] Likewise, in Uganda, about 70 per cent of costs of public secondary schools are met by parents and other private sources.[12] Comparable developments have been evident in such countries as Cambodia, Cameroon, China, Mongolia, Nigeria and Viet Nam.[13] However, a distinction should be made between financial contributions and control over the operation of schools. In many settings, parents and communities simply pay fees and make other contributions as a type of tax, and have little control over the educational process.

In other settings, governments have given parents and communities stronger control without necessarily demanding increased financial contributions. Reforms in parts of Australia, Canada, New Zealand, the United Kingdom and the United States come to mind under this heading.[14] Through boards of governors and similar bodies, parents and other community members can decide how to spend school budgets. In some systems, boards of governors can also control curricula and staffing. School principals and their sponsoring bodies may also

11. Government of Togo, Draft Letter of Education Sector Policy. Lomé, Ministry of National Education and Scientific Research, 1995, p. 3.

12. C. E. Cumming, D. A. A. Brock, P. K. Kayiso and C. Opio-Owalu, *Uganda: Secondary Education Costs and Finance Study*, Cambridge/Kampala, Cambridge Education Consultants/Serefaco Consultants, 1995.

13. Bray, 1996, op. cit.; M. Bray, 'Community Financing of Education: Rationales, Mechanisms and Policy Implications in Less Developed Countries', in C. Colclough (ed.), *New Strategies for Financing Education and Health in Developing Countries: A Critical Assessment*, Oxford, Clarendon Press, 1997.

14. Anderson, op. cit.; T. Bush, M. Coleman and D. Glover, *Managing Autonomous Schools: The Grant-Maintained Experience*, London, Paul Chapman, 1993; R. Levačić, 'Local Management of Schools as an Organizational Form: Theory and Application', *Journal of Education Policy*, Vol. 8, No. 2, 1993, pp. 123–41; D. Mitchell, C. McGee, R. Molten and D. Oliver, *Hear Our Voices: Final Report of Monitoring Today's Schools Research Project,* Hamilton/Wellington, University of Waikato/Ministry of Education, 1993.

be required to compete more actively with other schools for both pupils and financial resources. This is a form of privatization within the public sector.

Also fitting into this category of privatization are initiatives in Latin America in which some government schools have been placed under the management of non-government organizations. In parts of Peru, for example, church bodies that have been keen to operate schools have been permitted to take over management of existing government schools rather than construct independent institutions. Parallel initiatives have been undertaken in parts of Bolivia.

Outcomes and issues arising from privatization

The principal outcomes and issues arising from privatization are here considered under five headings: efficiency, accountability, diversity, access and equity.

Efficiency

Efficiency has been a focal point of policy debates about privatization of education in both industrialized and less-developed countries. Most of the evidence indicates that private schools are more efficient than public ones, but more research is needed before statements can be completely firm.

Important research on this topic has been conducted by Jimenez and colleagues on Colombia, the Dominican Republic, the Philippines, Thailand and the United Republic of Tanzania.[15] The findings of these studies, which focused on selected core academic subjects in secondary education, are summarized in Table 1. The researchers took care to control for the home background of students and for other effects, though the studies excluded household and other non-institutional inputs, such as supplementary books, additional tutoring and endowments. These inputs may be particularly high for private schools and could therefore be important to the comparison. On the

15. D. Cox and E. Jimenez, 'The Relative Effectiveness of Private and Public Schools: Evidence from Two Developing Countries', *Journal of Development Economics*, Vol. 34, No. 1, 1991, pp. 99–121; E. Jimenez, M. E. Lockheed, E. Luna and V. Paqueo, 'School Effects and Costs for Private and Public Schools in the Dominican Republic', *International Journal of Educational Research*, Vol. 15, No. 5, 1991, pp. 393–410; E. Jimenez, M. E. Lockheed and N. Wattanawaha, 'The Relative Efficiency of Private and Public Schools: The Case of Thailand', *The World Bank Economic Review*, Vol. 2, No. 2, 1988, pp. 139–64.

Table 1. Cost-effectiveness of private secondary schools, selected countries, early 1980s

	Indicator of achievement	Ratio of private to public cost	Relative advantage[1]	Ratio of relative cost to effectiveness
Colombia	Average mathematics and verbal	0.69	1.13	0.61
Dominican Republic	Mathematics O-type[2]	0.65	1.31	0.50
	Mathematics F-type[2]	1.46	1.47	0.99
Philippines	Mathematics	0.83	1.00	0.83
	English	0.83	1.18	0.70
	Filipino	0.83	1.02	0.81
United Republic of Tanzania	Average mathematics and verbal	0.69	1.16	0.59
Thailand	Mathematics	0.39	2.63	0.17

1. Proportional gain in achievement score if a randomly selected student, with the characteristics of the average public-school student, attends a private rather than a public school, holding constant that student's background.
2. F-type schools are authorized to give Ministry of Education examinations. O-type schools are not so authorized.
Source: M. E. Lockheed and E. Jimenez, *Public and Private Schools in Developing Countries*, pp. 7, 9, Washington, D.C., The World Bank, 1994. (HRO Working Paper, 43.)

data that were available, the studies suggested that private schools generally achieved better results at lower costs and as such were more cost-effective than were public schools.

However, one study in India seemed to contradict these findings. It focused on primary-school mathematics and reading in Tamil Nadu state, and indicated that fully private schools were the least cost-effective. Government-aided schools were the most cost-effective, and fully-government schools were intermediate.[16] In contrast, another Indian study, on both primary and secondary schools in Uttar Pradesh

16. S. Bashir, *Public versus Private in Primary Education: Comparisons of School Effectiveness and Costs in Tamil Nadu*, p. 264, London, London School of Economics, University of London, 1994. (Ph.D. thesis.)

state, produced findings more in line with those of Jimenez and colleagues. The magnitude of the findings diverged considerably for junior and senior secondary schools; but in both types of institution private unaided schools were shown to be considerably more cost-effective than aided and government schools.[17]

To explain the differences in effectiveness, most authors highlight the importance of management practices. Lockheed and Jimenez,[18] for example, showed that head teachers in private schools generally have more control over school-level decisions capable of affecting student achievement. This includes selection of teachers, adaptation of the curriculum, improvement of instructional practice and choice of textbooks. To identify cost factors, they conducted a small follow-up survey to their main research, in which they paired elite and non-elite private and public schools in each of the countries. This survey did not show dramatic differences in the resources and physical facilities in the pairs of schools; but it appeared that the private schools used these inputs more cost-effectively.

Several studies have also observed that private schools are less constrained by the conditions of service and accompanying salaries that are mandatory in the public service. In India, for example, many private schools hire teachers with lower qualifications who are less costly but not necessarily less effective than their counterparts in the public schools.[19] Cost-saving patterns are also evident in Japan, where many private schools employ: (a) teachers who have retired from the public sector; (b) women who have been unable to secure career-track positions in large companies or the civil service; and (c) part-time staff.[20]

However, while the research seems on balance to show that private schools are more cost-effective than public ones, most researchers still underline the need for caution. Riddell, following careful review of the work not only by Jimenez and colleagues but also by other researchers, stressed that 'there is no overwhelming conclusion regarding the [cost-effectiveness] advantages of private schools over public

17. G. G. Kingdon, *An Economic Evaluation of School Management-Types in Urban India: A Case Study of Uttar Pradesh*, p. 233, Oxford, University of Oxford, 1994. (Ph.D. thesis.)
18. Op. cit., p. 15.
19. Kingdon, op. cit., p. 175.
20. E. James and G. Benjamin, *Public Policy and Private Education in Japan*, p. 101, New York, Macmillan, 1988.

schools, notwithstanding statements to the contrary'.[21] A similar comment has been made by Anderson[22] with reference to industrialized countries. More research on this topic is needed before firm statements can be made.

Moreover, as noted by Lockheed and Jimenez,[23] the fact that particular samples of private schools might appear more efficient than comparable samples of public schools is not necessarily in itself a strong argument for privatization. First, full-scale privatization would by definition remove some of the advantages which the private schools currently exploit: for example, there would not be enough retired teachers and people seeking part-time jobs for every school to gain efficiencies to the extent that was previously demonstrated when only a few institutions were seeking such personnel. Second, some management practices can be improved within the public sector: head teachers can be given greater freedom to manage resources and adapt curricula, without their schools necessarily being privatized.

Accountability

The arguments about accountability chiefly rest on the suppositions that: (a) when parents pay for schooling, they are more likely to demand satisfactory performance from the principals and teachers; and (b) in turn the principals and teachers will be more disposed to listen to the views of parents when they know that those parents could withdraw their custom if not satisfied.

This seems a reasonable pair of suppositions and there is evidence for its validity in various settings. Accountability is particularly visible in elite private schools, the clients of which are generally well educated and articulate. Schools attached to local churches or community organizations may also give parents and others a strong voice in policy matters. Researching issues in the Netherlands, James[24] found that many people believed private schools to be more personal and responsive to consumer wishes, as well as more careful about how they spent their funds.

21. A. R. Riddell, 'The Evidence on Public/Private Educational Trade-offs in Developing Countries', *International Journal of Educational Development*, Vol. 13, No. 4, 1993, p. 384.
22. Op. cit., p. 4827.
23. Op. cit., p. 18.
24. E. James, 'Public and Private Education in International Perspective', in W. L. Boyd and J. G. Cibulka (eds.), *Private Schools and Public Policy: International Perspectives*, pp. 213–35, New York, Falmer Press, 1989.

However, not all private schools are responsive to parents and communities. Even village self-help schools sometimes suffer from domination by subsections of the population. This has been highlighted in Uganda by Opolot,[25] and that setting is far from unique. Thus it is not always the case that 'he who pays the piper calls the tune'. As noted above, parents and communities in many societies simply find that they have to pay fees in lieu of taxation, and have very little control over the functioning of the institutions.

Diversity

Elite schools often attract clients by offering curricula emphasizing sports, music and art as well as academic subjects. This can of course happen in public as well as in private schools, though it is often more obvious in the private sector. Similar comments apply to schools which offer alternative curricula: there is no fundamental reason why such schools cannot exist in the public sector, but they tend to be more common in the private sector. In Malaysia, for example, a group of Chinese Independent Schools offers a curriculum which meets national requirements but which also incorporates study of the Chinese language, history and culture. Comparable private schools serving ethnic and racial minorities may be found in many countries. Likewise, it is easy to find private schools serving religious groups. In Papua New Guinea, for example, private schools outside the mainstream system are run by Seventh Day Adventists; in Indonesia, Nigeria and Pakistan, private schools serve various Islamic groups; and schools are operated by various Roman Catholic orders in countries as far apart as Brazil, the Philippines and the United Republic of Tanzania. Yet other private schools serve different language groups. In Hong Kong, China, for example, private schools have been established to operate in Mandarin-Chinese, Japanese, Korean, German and French.

In these instances, diversity is self-evident. The chief policy questions for the governments concern the extent to which they wish to tolerate and support such diversity. Some governments consider diversity in private schools desirable not only for populations with different cultural and other characteristics, but also as a way to identify good pedagogical practices which can later be introduced to state schools. The Polish government, for example, has suggested that private

25. J. A. Opolot, *Study on Costs and Cost-Effective Approaches to Primary Education in Uganda*, pp. 112–13, Kampala, UNICEF, 1994.

schools can 'play the role of the "social laboratory", finding new didactic, financial and curricular solutions to problems before they are introduced into the state education system'.[26] A similar statement was made by the Chilean government when it introduced the voucher scheme.[27] However, other governments have found diversity threatening, and have restricted or prohibited private schools in the name of national unity. At various points in history, private schools have been prohibited in the Democratic Republic of the Congo, Pakistan and Sri Lanka, for example, and also in most socialist states. Many governments are now more tolerant of diversity, but this tolerance is not universal.

Compared with elite and alternative-curriculum private schools, second-chance private schools are less likely to promote diversity. Indeed, since in many cases these schools are launched by communities in the hope that the institutions will be taken over by the government, the tendency is for the self-help schools to mirror government ones as closely as possible. Sometimes, governments even make close copying a condition for take-over, and set standards on curriculum, buildings and teacher qualifications which must be followed before take-over will be considered. This has been the case in Nigeria and Botswana, for example.[28] Once again, therefore, the matter of diversity strongly depends on the type of private school under consideration.

Access

Where private schooling merely substitutes for public schooling, leaving the total number of places constant, at least in macro terms the private sector cannot be said to expand access (though of course there may be improved local access if schools are closer to the homes of particular children). However, in many settings the private sector expands the total number of places. This is particularly obvious in the case of second-chance institutions.

The catch, however, is that second-chance private schools are often

26. Kozakiewicz, op. cit., p. 212.

27. V. Espínola, *The Decentralization of the Education System in Chile (1980–1994)*, p. 11, Santiago, Centro de Investigación y Desarrollo de le Educación, 1994.

28. M. Okoye, 'Community Secondary Schools: A Case Study of a Nigerian Innovation in Self-Help', *International Journal of Educational Development*, Vol. 6, No. 4, 1986, pp. 263–74; J. Swartland and D. Taylor, 'Community Financing of Schools in Botswana', in M. Bray and K. Lillis (eds.), *Community Financing of Education: Issues and Policy Implication in Less Developed Countries*, pp. 139–53, Oxford, Pergamon Press, 1988.

of poor quality. They certainly expand access, but it is expanded access to education of a questionable type. Cowan, who is among the ardent advocates of privatization, is quite wrong to state that the scholastic level of Kenya's self-help secondary schools 'appears to be on a par with government-operated secondary schools'.[29] On the contrary, the fact that self-help schools have been greatly inferior to government schools has been widely known both from casual observation and more careful empirical demonstration.[30]

Only 24.2 per cent of candidates from unaided community secondary schools passed the school-leaving examination in 1992. This may be compared with 29.0 per cent from government-aided secondary schools, and 81.1 per cent from elite private schools.[31] The figure for unaided community secondary schools was particularly striking since presumably a large number of students had been weeded out before they even got as far as the examination.

Finally, where the status of existing institutions is changed from public to private, policy-makers must watch for the impact not only on pupils currently enrolled in the schools but also on children who would have gone to those schools had the schools still been in the public sector but who now will be excluded by the fees, sectarian orientation or other factors. This requires careful attention to school mapping, and commonly raises complex questions not only about geographical access to alternative institutions but also about the quality of these alternatives.

Equity

Issues of equity are perhaps the greatest tension associated with private schooling. It is obvious that access to elite private institutions is controlled by ability to pay the fees. Moreover, in so far as elite private schools may 'steal' the best teachers from the public sector, development of such institutions actually depresses the performance of the mainstream. Some elite private schools offer scholarships to students from families who would be unable to pay the fees, but this is rarely

29. L. G. Cowan, *Privatization in the Developing World*, p. 83, New York, Greenwood Press, 1990.
30. J. B. Knight and R. H. Sabot, *Education, Productivity and Inequality: The East African Natural Experiment*, New York, Oxford University Press, 1990; P. A. Wellings, 'Unaided Education in Kenya: Blessing or Blight?', *Research in Education*, No. 29, 1983, pp. 11–28.
31. The World Bank, *Nepal: Critical Issues in Secondary Education and Options for Reform*, p. 15, Washington, D.C., The World Bank, 1994.

more than a minor concession.[32] It was chiefly for reasons of equity that the majority of socialist regimes prohibited private schooling – they recognized that private schools perpetuated social inequalities even across generations.

Second-chance private schools may increase access, but also perpetuate inequalities. These schools are mainly populated by children of middle- and lower-middle-income groups who have not been able to get into government or elite private schools but whose families have enough money to finance a second chance. The ability to pay the fees helps these families to retain a higher socio-economic status than the poorest groups in society. The most problematic situations are ones in which poor families contribute to private community secondary schools, only to find that those schools are filled by the children of the middle classes and the rich. This problem has been noted in the United Republic of Tanzania,[33] and has also been a feature in Kenya.[34]

However, one point made evident by Figure 1 is that public schools are not necessarily more equitable than private ones. Although schools in the public sector do not use fees as the principal gatekeeping mechanism, they often have other selection devices. When differentiation and selectivity are permitted in the public schools, families with greater income and taste for education usually have access to the top public schools and therefore satisfy their preferences within the public system. Barriers to the poor are less obvious, and also perhaps less obstructive; but they are nevertheless there. The irony is that elite private schools only emerge with vigour when the public schools are homogenized.

On the rural/urban dimension, the fact that many elite private schools have boarding facilities means that the location of those schools can be different from the location of pupils' home residences, and the schools do not necessarily have a strong urban bias. Concerning day schools, however, even casual observation indicates that in most countries private schools are more common in urban than in rural areas. This is partly because prosperous families are more likely to

32. See, for example, ibid., pp. 41.
33. J. C. J. Galabawa, 'Characteristics, Financing, Unit Costs and Selection Issues of Non-Government Secondary School Provision in Tanzania', paper prepared for the Workshop on Investing in Human Capital, Arusha International Conference Centre, Arusha, 1994.
34. Bray, 1997, op. cit.

Table 2. Number of schools by rural/urban location, Madhya Pradesh state, India, 1986

	All schools	Private aided	Private unaided	Total private	% of total which are private
Primary					
Rural	57 745	769	489	1 258	2.2
Urban	6 344	413	1 807	2 220	35.0
Middle					
Rural	9 690	148	300	448	4.6
Urban	3 002	228	1 118	1 346	44.8
Secondary					
Rural	1 097	63	40	103	9.4
Urban	508	102	135	237	46.6
Higher secondary					
Rural	795	66	40	106	13.3
Urban	1 016	192	112	304	29.9

Source: B. Mahajan, R. S. Tyagi and U. S. Chaturvedi, *Educational Administration in Madhya Pradesh: Structures, Processes and Future Prospects*, p. 95, New Delhi, Vikas, 1994.

reside in urban and peri-urban areas, but even more because private schools, which usually recruit only small proportions out of populations of a given size, require concentrations of people in order to recruit enough pupils to be viable. Table 2 presents some figures on the rural/urban distribution of schools in India's Madhya Pradesh state. Since private day schools are concentrated in urban areas, residents in these areas have more opportunities than their counterparts in rural ones.

Implications for government policies

This review of patterns and strategies has shown that privatization and the issues associated with it are much more complex than is widely assumed. This complexity, together with the fact that the circumstances facing individual governments vary widely, precludes identification of detailed policy implications which are universally recognizable. However, it is possible to set out a few implications which have broad applicability. For example, all policy-makers need

to classify their existing schools with care, define the precise ways in which they are using terms and identify specific goals. These points are elaborated upon below, prior to identification of particular strategies that will assist specific types of privatization.

Classifying schools, defining terms and identifying goals

It has already been pointed out that systems which at first sight appear to be private on closer scrutiny sometimes seem more like public systems, and vice versa. One of the first tasks for policy-makers, therefore, is careful classification of schools in their own systems. Such classification should be based on observation of realities rather than reliance on traditional and potentially misleading labels. Following this, policy-makers will need to define precisely which type of privatization that they have in mind. A helpful starting point for classification could be the matrix presented in Figure 1, which distinguished on the one hand between elite, ordinary, second-chance and supplementary schools, and on the other hand between mainstream and alternative-curriculum institutions. Policy-makers must also realize that private schools are not necessarily commercial enterprises and that in some countries even officially non-profit schools may make healthy financial surpluses for their sponsors. Together with these points, it is worth repeating, should come recognition that while many private schools are of superior quality to public schools, this is not necessarily the case. Indeed in many countries the majority of private secondary schools are markedly inferior to public ones.

The next step is to identify priority goals. Is the chief goal *to extend access,* even at the expense of quality? If so, then private second-chance schools may be encouraged. Is the chief goal *to give parents choice*? If so, then for some settings the answer may lie in encouragement of elite and alternative-curriculum private schools, and for other settings the answer may lie in a system of vouchers. Is the chief goal *to reduce the government budget*? If so, it might be desirable to transfer ownership of government schools to private entrepreneurs and voluntary agencies, and/or to demand fees and other contributions in government schools. Is the chief goal *to improve efficiency and cost-effectiveness*? If so, mechanisms and incentives should be introduced for public schools to save money while maintaining quality, and perhaps for schools to compete with each other for pupils. One major incentive would be permission for schools to retain savings from one financial year for use in subsequent financial years.

This list could be extended. In some contexts, goals have little to

do with education in itself, but instead arise from broader political rivalries in which education is the arena for battle. Some privatization schemes, for example, aim to reduce the power of teachers' unions. Others aim to fulfil election pledges that have less to do with rational appraisal of alternative policies than with the promises of individual politicians and desires to undercut rivals. Policy-makers must also recognize that multiple goals are not necessarily harmonious. Efficiency may improve, but only at the expense of quality. Choice may increase, but only at the expense of equity. Budgets may be cut, but only at the expense of reduced government control. Rarely is it possible to achieve all goals in a straightforward way.

Privatization of existing institutions

From these contextual comments, it is appropriate to move to discussion of specific strategies. The Singaporean model has been cited as a prominent example of privatization of existing institutions and deserves further analysis. Under the Independent Schools Scheme, the Government of Singapore first set up the framework and then invited applications from existing schools. A vetting body was established within the Ministry of Education and applications were either granted or denied according to predetermined criteria. However, selection following application is not the only possible strategy. The twelve Autonomous Schools created in Singapore in 1994 and 1995 were identified centrally by the ministry and were privatized by government directive rather than by the institutions volunteering themselves. Such a strategy has the benefit of greater certainty.

Denationalization of schools, as in Hungary, Mozambique and Poland, demands rather different procedures. In this situation, policy-makers have to determine which schools are eligible for denationalization and on what grounds. Questions of compensation may be involved and it is necessary to identify the precise bodies and/or individuals to whom the ownership will be transferred.

Encouraging parallel private schools

This type of privatization is in many respects easier. It can be achieved simply by allowing new private institutions to open or expand alongside existing public ones. Different policies are needed for schools which are run as commercial enterprises and for alternative-curriculum schools, compared with community self-help initiatives. Most agencies and individuals considering establishment of profit-making and alternative-curriculum schools first ask whether their institutions are likely to be

permitted to operate for the foreseeable future. Where government policy appears unstable, potential sponsors of private schools are usually very cautious. One basic requirement, therefore, is for the government to demonstrate convincingly that policies which permit operation of private institutions will be sustained.

In contrast, communities and other bodies which operate second-chance private schools, far from wishing to protect their independence, may be more anxious for signs that the government will take over the institutions. In such cases, communities may be encouraged to launch schools and to bear the burden for a few years in the expectation that the government will in due course relieve them of that burden.

Going beyond basic permission to operate private schools, governments can offer more positive incentives to all types of institution. Voucher systems deserve serious consideration in some settings. Alternative incentives might include low-interest loans, technical advice, land grants, free or subsidized textbooks and exemption from taxation. In some settings, private schools are permitted to rent the facilities of government schools, operating either in parallel or at the times when the government schools are not in session. And in many countries, governments provide grants of various kinds for teachers and equipment.

Noting that demand for private schooling is to some extent conditioned by the price of the alternative, governments may also wish to review policies on fees in the public system. Chile, the United Republic of Tanzania, Viet Nam and Zimbabwe are among countries in which governments have introduced fees in public secondary schools since the mid-1980s.

Governments may also help private institutions by providing information about them to parents. Such information, for the general public, would include the locations of individual schools, characteristics of curricula, scale of charges, quality of instruction and nature of facilities.

Governments may also monitor and regulate private schools. While monitoring and regulation might seem against the spirit of free enterprise, in some circumstances it might benefit the private sector because it could enhance public confidence. Regulation may be on the nature of facilities (e.g. to ensure that there are adequate laboratories and that buildings meet safety standards) and on aspects of the curriculum (e.g. to ensure that essential subjects are covered).

Finally, governments can encourage growth of parallel private schools by restricting the supply of public schools. This has been the

situation in the United Republic of Tanzania, where, as noted, many private schools exist because of excess demand. Such a situation is not always to be recommended; nevertheless, limitation in the supply of public-sector places is in fact one of the most powerful stimuli to private-sector activities.

Privatization within public schools

One of the most dramatic forms of privatization within the state system has been the scheme for Local Management of Schools (LMS), launched in England in 1988.[35] Under LMS, schools are funded according to their enrolments and are required to compete with each other for pupils. The scheme was designed to make popular schools rich and unpopular schools non-viable. It was introduced in a broader climate of financial stringency which had already required many schools to seek forms of private sponsorship and to enter the market-place in a way which radically contrasted with existing traditions.[36]

The full effects of LMS cannot yet be assessed, but several broad observations may have international relevance. While school authorities have become much more conscious of the ways in which they use money, which has in turn increased efficiency, they are also under greater strain. Head teachers spend considerably more time managing resources, with consequent loss of time for the curriculum and other matters of pedagogy. Also, in the new competitive environment, some schools have become less tolerant of disruptive pupils. This is especially problematic in a society which insists on compulsory schooling.

LMS was introduced by a Conservative Government in a climate which sought to reduce the power of teachers' unions. Teachers' workloads have generally increased under LMS, and one way in which schools have saved money has been by terminating employment of more experienced staff in order to employ younger teachers who are less expensive. Many schools also employ more part-time staff than used to be the case and local education authorities have found that they can no longer force schools to take on staff whom they wish to redeploy because of rationalization in other parts of the system.

Another type of privatization within the public system, mentioned above, has been the handing over of government schools to be managed

35. Levačić, op. cit.; G. Wallace (ed.), *Local Management of Schools: Research and Experience*, Clevedon, Multilingual Matters, 1992. (BERA Dialogues, 6.)
36. R. Pring, *Privatization. Educational Management and Administration,* Vol. 16, No. 2, 1988, pp. 85–96.

by churches and other non-government organizations, as in Bolivia and Peru. This is a rather different type of policy, but also has major political as well as educational implications. While the change might improve the management of the institutions, it could discourage enrolment of pupils who are not members of the Churches and other organizations made responsible for the schools. The policy also has broader implications for the role of such bodies in national affairs.

Conclusions

Privatization is undoubtedly a global trend, not only in the economic sphere but also in social sectors, including education. Movements are not solely in one direction, but the overall centre of gravity has shifted in the direction of increased private ownership, financing and control of schools. In all types of economy, privatization may be advocated as a way to alleviate pressure on government budgets. Other factors in the impetus for privatization include greater emphasis on pluralism and public choice, and a view that private schools may be more cost-effective. However, some advocates of privatization overstate their case.

The experiences of the 1990s, both in longstanding capitalist countries and in former socialist ones, have shown that privatization is much more complex than had been widely assumed in the 1980s and that it has had some unpredicted outcomes.

Education is perhaps even more complex than other sectors, because schools are not usually seen as enterprises which should aim primarily to make profits and indeed many operators of private schools do not even aim to make profits. Research does seem to indicate that private schools are generally more cost-effective than public ones; but insufficient evidence has been accumulated to be totally certain of that point. In any case, even if true, it is not necessarily a strong argument for privatization, first because statements about private schools might not remain valid if all public schools were privatized, second because many of the effective management practices of private schools can be emulated by public schools without actually privatizing them, and third because schools have many other roles which may outweigh considerations of cost-effectiveness.

Many problems of equity in education systems arise from the existence and operation not only of elite private schools but also second-chance, supplementary and even alternative-curriculum ones. Partly because of these problems, no government is currently aiming at complete privatization of every school in the country, and in most

schemes for deliberate privatization, governments still reserve significant powers of control and regulation.

Finally, it must again be stressed that privatization is not a panacea. Governments need to balance many factors, and in most settings the most appropriate model combines elements of private operation with elements of public operation. Because each society is different, it is impossible to commend a single model which is universally desirable. However, one of the merits of comparative study of education systems is that it highlights some of the advantages and disadvantages of different models, and generates ideas which can be used in the creation of specific models for particular countries.

Successful innovations in Commonwealth Caribbean education

Errol Miller

To describe and enumerate successful innovations in Commonwealth Caribbean education without first locating this small subregion in the geopolitical context would be like drawing a map without co-ordinates. Some pertinent statements about background features and factors are therefore required.

Commonwealth Caribbean education in a geopolitical context

In terms of education, Commonwealth Caribbean nations are First World countries of modest means. Grasping the import of this apparently contradictory classification is absolutely critical in understanding education and innovation in this subregion. While the means to support education in the Commonwealth Caribbean have always been decidedly Third World, the education system has always been First World in several respects.

The levels of participation of Caribbean people in the education system is comparable to the First World. Mass education in the subregion has a long history and similar beginnings to comparable systems in the industrialized world. By the 1880s these British colonies had enrolled more than 50 per cent of their school-age children in some form of elementary schooling and had achieved literacy rates that were not far short of the highest level achieved worldwide at that time. The point to note is that this high level of participation in the school system has been despite the relatively poor provisions and not because of adequate facilities. Historically, it is true to say that in

education the Caribbean state has been the delinquent, not the people. Consequently, school buildings are often dilapidated while enrolment often exceeds capacity, and books and equipment are never in abundant supply. Poor state provisions have always concealed the people's earnest efforts to acquire high-quality education.

The educational standards demanded by the citizenry are decidedly First World. Parents, students and citizenry have never excused or compromised the educational standards to be achieved on the basis of poor or modest state provisions. Accordingly, parents and students have always demanded that the school system should grant credentials that are internationally negotiable. The unsavoury aspects of this situation are that high quality is demanded in circumstances of modest means and an overemphasis is placed on external examinations directed to assess the competence of individual students.

Despite the limitations of the provision for education, the level of educational achievement of a significant number of students of this subregion has been relatively high. For example, the subregion has a long history of its students gaining access and doing well in the schools, colleges and universities of the industrialized world. Brathwaite, in his study of colonial society in Jamaica,[1] noted that between 1770 and 1820, 229 Jamaicans went to Oxford and Cambridge. Brathwaite's finding about Jamaican education over 200 years ago holds true for the entire Commonwealth Caribbean and for all periods of its history, including the present: the subregion has produced a number of internationally recognized scholars, writers, scientists, artists, musicians and social activists disproportionate to its size and population.

Contemporary manifestations of the paradox

To claim that Commonwealth Caribbean education offers many aspects of First World education on Third World resources may appear at first glance to be self-congratulatory and self-serving: the kind of pretentious deception that has made politicians infamous. However, the empirical justification for such a portrayal is both contemporary as well as historical.

The United Nations Development Programme's 1993 Human Development Index ranks 173 countries worldwide on the basis of

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1. Edward Brathwaite, *The Development of Creole Society in Jamaica 1770–1820*, Oxford, Clarendon Press, 1971.

human development criteria including years of schooling, adult literacy and educational attainment. Of these countries, 31 are listed as industrialized if one excludes the new countries emerging from the breakup of the former Soviet Union and 46 if one includes them. For the purpose of this discussion we exclude these 15 new states from the industrialized country category.

When the index ranking of the 31 industrialized countries is compared with the ranking of the 12 Commonwealth Caribbean countries, 9 of the 12 Commonwealth Caribbean countries are ranked above the lowest of the 31 industrialized countries. Barbados is the highest-ranked Caribbean country at 20, ahead of Ireland, Italy, Spain, Greece, Hungary, Czechoslovakia and Portugal and just below Israel, Luxembourg, New Zealand and Belgium. Among the 127 countries listed as developing, Barbados ranked first and Trinidad and Tobago and the Bahamas fifth and sixth, respectively. The point to note is the considerable overlap on the index between these so-called developing Commonwealth Caribbean countries and the so-called developed First World countries.

In 1993 UNESCO published for the first time its index for monitoring progress towards Education For All targets set by the World Declaration on Education for All adopted at the World Conference on Education for All (Jomtien, Thailand, 1990) and its accompanying Framework for Action to Meet Basic Learning Needs. This index includes indicators measuring participation, performance and provision in education for 87 developing countries. In essence it is a productivity index, since countries ranked highest would have the relatively highest levels of participation and performance in contrast to the lowest relative levels of provision.

The UNESCO index ranked Jamaica first and Trinidad and Tobago ninth. According to this index, among the developing countries surveyed, Jamaica obtained the highest levels of participation and performance compared with its provision for basic education. Interestingly, the UNESCO index did not rank developed countries. However, a comparison of functional literacy rates obtained in Jamaica and Barbados at the end of primary schooling at age 12 with comparable achievement in the United States is instructive. The best available evidence suggests that in the United States about 85 per cent of children are functionally literate at the end of Grade 6. In Jamaica the comparable figure is 78 per cent functionally literate at the end of Grade 6, while Barbados matches the United States with 85 per cent. The interesting point is that the United States spends on average

$3,364 per child compared with $601 per child in Barbados and $92 in Jamaica.[2]

On less than one-fifth of the American expenditure, Barbados is able to match the standard of output of primary schooling, while Jamaica comes within seven points on one thirty-seventh of the expenditure. (Clearly those who believe that the Jamaican primary-school system can be made more effective with existing inputs are firmly of the school of thought that confidently asserts that it is possible to get something for nothing.)

It would be erroneous to think that recent developments, financed from international assistance, have catapulted the Commonwealth Caribbean to these favourable comparisons with the industrialized countries. This can be illustrated by examining and comparing enrolment data produced by Benavot and Riddle for 126 countries for the period 1870 to 1940.[3] Table 1 shows a comparison of enrolment between the Caribbean and Western Europe in 1900.

Table 1. Comparison of primary-school enrolment: 1900

Caribbean countries	% enrolment	Western Europe	% enrolment
Bahamas	71.9	France	83.1
Grenada	63.0	Ireland	81.9
Saint Vincent and the Grenadines	54.1	England and Wales	74.1
Saint Lucia	52.0	Germany	73.2
Trinidad and Tobago	51.7	Netherlands	66.4
Jamaica	50.6	Belgium	59.0
Barbados[1]	50.0	Spain	48.1
Suriname	43.6	Italy	38.2
Guyana	40.6	Greece	36.1
Leeward Islands	32.3	Portugal	20.6

1. Enrolment in Barbados in 1900 appears to be underestimated.
Source: Compiled from A. Benavot and P. Riddle, 'The Expansion of Primary Education, 1870–1940: Trends and Issues', *Sociology of Education,* Vol. 61, July 1988.

2. E. Miller, Primary Education and Literacy in the Caribbean, *Caribbean Affairs,* Vol. 3, No. 3, 1990, pp. 66–103.
3. Aaron Benavot and Phyllis Riddle, 'The Expansion of Primary Education, 1870–1940: Trends and Issues', *Sociology of Education*, Vol. 61, July 1988, pp. 191–210.

The table shows that in 1900, while enrolment in Western European countries was generally higher than that of the English and Dutch Caribbean, that difference was not great. There was substantial overlap. Two further points are worthy of note about primary-school enrolment at the turn of the twentieth century. First, Western European rates of enrolment were only equalled or surpassed by similar enrolment rates in the United States, Canada, Australia and New Zealand. Second, enrolment in the top seven Caribbean countries was higher than almost all countries in Eastern and Southern Europe, and all countries in Asia, Africa and Latin America.

Schooling, equality and persistent poverty

What have been the Commonwealth Caribbean imperatives that account for demand for schooling and standards comparable to the First World on means that are decidedly Third World? To understand this strong demand for both quantity and quality in education against the background of limited and meagre resources, it is necessary to take account of the perennial striving on the part of the vast majority of Caribbean peoples for social equality, utilizing education as a means of escaping the trap of persistent poverty and the interplay of these factors in the education system. To the marginalized majorities in the Commonwealth Caribbean, education has been the major means of both achieving social equality and of breaking out of the trap of persistent poverty.

Upward social mobility has been the main reason for high levels of participation in the education system. The ruling elites in the Caribbean have always been visible minorities who have had to make major concessions to the marginal majorities. Social advancement through education has always been one item perennially negotiated between these two social factions, especially after episodes of violent confrontation. Advancement through education has been one of the means of ameliorating marginal majority discontent in the subregion.

This has translated into limited access for the marginal majority to the same schools, and to the type and quality of education that the ruling minorities provide to their own children. While the quantity of access to such education has always been a contentious point of social negotiation, it has nevertheless, been a powerful source fuelling participation and striving in the education system. Consequently, in the post-war era of adult suffrage and representative government, providing access to education permitting upward social mobility has been an important arena of political competition.

Another dimension is that the vast majority of Commonwealth Caribbean peoples have long realized that the economies of their countries do not operate to their advantage. They understand fully that the terms of world trade are stacked against their countries. Further, they have always known that the ruling elites of their countries have always passed on to them most of the adverse outcomes of this unjust trading regime. As a result, Commonwealth Caribbean peoples have long held to the view that if goods, services and capital can move freely in the world in pursuit of comparative advantage, so too should people. To them, immigration barriers are legal but unjust restrictions imposed by the powerful in support of their exploitation of the powerless. As such, these barriers are to be crossed by fair means if possible and foul means if necessary. In either case, education is perceived as a major mechanism by which they can market their skills and labour wherever comparative advantage exists in the world.

Whether for reasons of upward social mobility available locally or economic advancement through migration, education in the Commonwealth Caribbean has always been a major means of escaping persistent poverty and of achieving personal recognition in society. Accordingly, education in the Commonwealth Caribbean has always been associated with social and economic prospects beyond those available in local communities and even the countries in which the schools are located. It is this linkage between local schooling and the global economy, combined with the urge to gain social recognition and status through educational achievement, that has driven Commonwealth Caribbean countries to enjoy levels of participation and standards of attainment in education that are outside their geopolitical or economic classification category.

Relationship between schooling and society

The paradox of Caribbean education highlights the current inadequate formulation of the relationship between education and society. Why should it be surprising or perplexing to find people of lesser means sharing similar values, standards and levels of performance with people of greater means? At the heart of the paradox or puzzle is the prevailing conception of a linear relationship between education and so-called development.

The development paradigm

The social sciences, in seeking to gain respectability and acceptance as sciences, have adopted methodologies and theoretical constructs from

the natural sciences. While these may have gained some of the desired respectability and acceptance, there is some doubt as to the extent to which these adoptions have advanced understanding and explanation of social phenomena. The development paradigm is one such example. Despite its popularity, the development paradigm's explanatory and predictive powers must be seriously questioned.[4] Certainly policies based on it have not had spectacular success, at least not in education. There is insufficient scope in these reflections to fully challenge development theories and hypotheses, but in the writer's opinion they have confused much more than they have clarified about education and society.

The Caribbean experience certainly underlines the limitations of the development scenario. Although the Caribbean has enjoyed levels of mass education comparable to the industrialized countries, it has not been able to match those countries in terms of levels of economic development. However, Caribbean countries have been able to match the richer countries in life expectancy, infant mortality, literacy and on other basic human-needs indicators. In terms of the accumulation of wealth, the Caribbean lags far behind the industrialized countries largely as a result of the global political economy. Indeed, within the subregion, educational advancements made in one era have been reversed in the succeeding era by measures imposed by external sources, beyond its control. The constant struggle in any era of Commonwealth Caribbean history has been to conserve prior gains.

Successful innovations in Caribbean education

A distinction must be made between invention and innovation. Invention is both original and universal while innovation is relative and contextual. An invention is a new creation that previously had no existence anywhere while an innovation is newness and novelty in a particular context. With this distinction in mind, Commonwealth Caribbean education cannot be said to be particularly inventive although, like any other region, it has had its fair share of new creations. On the other hand, the education systems in the subregion are constantly implementing innovations. There are few educational ideas anywhere that have not been tested at some time and in some place in the Commonwealth Caribbean.

4. Errol Miller, 'Education and Society in the Commonwealth Caribbean: Some Reflections', in Errol Miller (ed.), *Education and Society in the Commonwealth Caribbean,* Kingston, Institute of Social and Economic Research, University of the West Indies, Mona Campus, 1991.

Successful innovations are determined here on the basis of two criteria: first, that the innovation had positive impact on large numbers of Caribbean people and second, that the innovation survived its originators and took root by being institutionalized in some form in the school system.

School-based management and the democratization of school boards

Jamaica has had a long history of school-based management going back to 1879 with the establishment of the public secondary-school system. In 1950, this system of management was extended to primary schools.

The essence of this system is that each school or college is managed by a Board of Management with authority to employ and dismiss the principal, teachers and other staff, to admit, discipline and expel students, to manage its financial affairs, and to determine the use of the school premises and facilities. The board is constrained to act within the framework of the Education Act and Regulations, and government policy for education. However, within these guidelines, the board has responsibility for the day-to-day operations of the school. For example, the board should only hire teachers who satisfy the guidelines set by the Ministry of Education in terms of academic and professional qualifications. However, once the board acts within these guidelines, its decisions cannot be overturned by the ministry.

While not without its own tensions and problems, the system of school-based management and the democratization of School Boards in Jamaica have given the principal, staff and communities a considerable stake and say in the management of schools. This has translated into strong community support for and contribution to the operation of schools, and is one of the factors contributing to the effectiveness of schooling in Jamaica. It is also one of the factors contributing to Jamaica's ranking as the most effective school system among developing countries.

Innovations in early-childhood education

Early-childhood education throughout the region has been provided by a partnership in which governments have been minor players. In most countries, the bulk of the children who receive early-childhood education do so at community schools. These schools are given different names in different countries, e.g. pre-school centres and basic schools, but they all have very similar features. They are operated by individuals or agencies with a community base. The curriculum is a mixture of

day care and readiness programmes. The teachers are 'motherly' women possessed of 'love, service and devotion' but limited education and even less professional training. Fees are very modest and many schools operate under very adverse conditions. Some receive a subsidy from government but even then this subsidy is small when compared with real costs. The Bernard Van Leer Foundation (with the University of the West Indies), UNICEF, and Servol (a Trinidadian non-governmental organization) have combined to develop innovative approaches to improve these community or grass-roots schools mainly serving disadvantaged populations.

Curriculum development

The post-independence era in the Commonwealth Caribbean has witnessed extensive work in reforming curricula at all levels of the education system in every country. Curriculum development has been one of the largest undertakings in the subregion. The mission has been to decolonize the content of Caribbean schooling. Accordingly, Ministries of Education across the subregion have established curriculum units and committees, and have implemented numerous projects.

Using mainly national personnel, new curricula have been developed in every subject area with more national and Caribbean content, illustrations and images than was previously the case. In addition, Caribbean residents have been encouraged to write textbooks to replace the foreign books used for more than a century. Curriculum guides for teachers, textbooks and workbooks for pupils have all been authored by Caribbean nationals. While there was some in-service training of teachers related to the introduction of new curricula and textbooks, the inputs were insufficient relative to the magnitude of the task.

Given the cultural pluralism that marks the Caribbean, one of the interesting outcomes of the curriculum-development process in the subregion is the wealth of multicultural material that has been produced. Stripped of its Commonwealth Caribbean nationalism, this material should be of interest to other parts of the world new to the challenges of multiculturalism. Nettleford has pointed out that intercultural learning sits at the core of global education, but the Caribbean is yet to fully realize its potential as a world leader in this area of education.[5]

5. Rex Nettleford, 'Education and Society in the Caribbean: Issues and Problems', in Errol Miller (ed.), *Education and Society in the Commonwealth Caribbean*, Kingston, Institute of Social and Economic Research, University of the West Indies, Mona Campus, 1991.

It is even further behind in attempting to explore its market potential in this field.

Innovations in first-language instruction: the Dutch Caribbean

While the Netherlands Antilles is not part of the Commonwealth Caribbean, its innovations in first-language education are worthy of note here. The most complex language situation in the Caribbean exists in the Netherlands Antilles. Dutch is the official language in all the Antillean countries. In Aruba, Bonaire and Curaçao, most people speak Papiamentu, a West African Creole with a largely Portuguese vocabulary. Spanish is widely understood and spoken because of the islands' proximity to Venezuela. In Saba, Saint Eustatius and Saint Maarten, English is the language of most of the people.

Historically, throughout the Caribbean, primary education has been delivered in the official language of the country. This policy poses enormous problems for teachers, especially in the early grades of primary school, because of the dissonance between the language that children come to school knowing and the language in which they must then learn. A study in Aruba found that the discrepancy between the vernacular and the official medium of instruction works to the disadvantage of the majority of pupils: 88 per cent of the Dutch-speaking children completed primary schooling without repeating any grade, against 51 per cent of children from a Papiamentu-speaking background. These differentials in achievement were constant even when social class and intelligence were taken into account.

The constraints to the effectiveness of the language milieu to the effectiveness of primary schooling in the different Caribbean countries have attracted a great deal of research, led by Craig in Jamaica and Carrington in Trinidad and Tobago, and in Saint Lucia. These researchers have developed models of teaching and instructional strategies designed to overcome some of the problems posed by this situation. However, the most sustained, carefully thought-out and far-reaching policies and programmes to address this situation have been worked out in the Netherlands Antilles. Their experience and approach is worth noting. The stated policy of the Government of the Netherlands Antilles is that first-language education is the essential prerequisite of the provision of quality education and the realization of basic learning needs. This has been the position of the government for several years. Nevertheless, the introduction of the first language in schools is still only in the initial stages of implementation. The reasons for the very cautious approach in the implementation of this

policy are: resistance from parents and teachers; lack of teaching and other supportive materials, especially in the Papiamentu language; problems relating to the standardization of Papiamentu; and lack of consensus about the specific approach to use in the introduction of the vernacular. Notwithstanding these difficulties, there have been positive achievements: the introduction of Papiamentu as a subject throughout the primary-school system and in some sectors of secondary education and at the expressed desire of parents, as the language of instruction in some primary schools; the introduction of English as a medium of instruction in primary schools in Saba and in half of the schools in Saint Maarten; a turnaround of public opinion with regard to first-language education brought about by large-scale information and awareness campaigns; the preparation of teachers through pre-service and large scale in-service training programmes to teach Papiamentu; the production and introduction of textbooks in Papiamentu through collaborative efforts between the Ministry of Education and the teaching profession; and the development of a curriculum for the introduction of Papiamentu as a subject.

The language policy of the Government of the Netherlands Antilles goes beyond first-language education and seeks to promote the learning of foreign languages. It takes note of the growing awareness within Antillean society of the need to improve foreign-language learning. The general language policy is to promote, through the school system, the learning of Dutch, Papiamentu, English and Spanish, while at the same time introducing to those who are interested French, Portuguese, German and Japanese. Taking note of the need to remove language barriers in the Caribbean, Spanish and English are taught at the primary level in addition to Dutch and Papiamentu. In short, the language policy is aimed at promoting and expanding the multilingualism of the Antillean child and eventually the Antillean society. In this area of multilingualism promoted through primary education, the Netherlands Antilles leads the region. At the other end of the continuum, some countries are still struggling to overcome the problems created by the disjunction between the vernacular of the child and the official language of the school.

Comprehensive secondary schooling in Saint Kitts and Nevis

In the late 1960s, Saint Kitts and Nevis abolished grammar schools and introduced comprehensive secondary schooling. Like many other reforms in Caribbean educational history, the comprehensive-school concept was borrowed from elsewhere. What makes the Saint Kitts

and Nevis innovation unique is that, unlike in the United Kingdom, comprehensive education was not merely added to the system of secondary education; it replaced grammar-school education and became the secondary system itself. This is an example where the borrower went further with the reform than the source from which it borrowed.

There are several intriguing aspects of the Saint Kitts and Nevis reforms. Proportionately, the country offers secondary education to a higher proportion of its children than do most other countries in the Commonwealth Caribbean. That it has been able to put more than 90 per cent of its children through five years of secondary schooling is no mean achievement. In this regard, the reform could be said to have achieved one of its goals, that of making secondary education available to all segments of the population since the numbers enrolled could not be said to be an elite of any kind, social or intellectual.

These egalitarian reforms have brought with them qualitative as well as quantitative improvements. Saint Kitts and Nevis Caribbean Examinations Council (CXC) and General Certificate of Education (GCE) results rank with the best in the subregion. Saint Kitts and Nevis enters among the highest proportion of the age cohort in the CXC examinations, the entrants sit more subjects per candidate and pass more subjects taken than any other country in the subregion. Contrary to the assumptions that only a small proportion of the general population has the intellectual capacity to successfully undertake the rigours of the CXC and GCE curricula and examinations, the Saint Kitts and Nevis experience seems to indicate that mass secondary education and poor examination results are not necessary correlates. Using mass comprehensive education, Saint Kitts and Nevis has managed to produce the best academic results in the Commonwealth Caribbean.[6]

Carrington, surveying literacy levels in the Commonwealth Caribbean, came to the conclusion that Saint Kitts and Nevis had the highest level of literacy in the region.[7] This twin-island state nudged out Barbados from its usual place as leader in educational standards. An interesting hypothesis is that increased access to secondary education also brought with it improved performance at

6. J. Halliday, 'Education and society in Saint Kitts and Nevis', in E. Miller (ed.), *Education and Society in the Commonwealth Caribbean,* pp. 27–57, Kingston, Institute of Social and Economic Research, University of the West Indies, Mona Campus, 1991.
7. Michael Manley, *Up the Down Escalator,* London, André Deutsch, 1987.

the primary level, as children have sought to avail themselves of these new educational opportunities.

Saint Kitts has remained a mono-crop sugar economy. Nevis has remained a peasant economy. Tourism has offered some economic diversification, but it has not entirely changed the economic realities. While some economic restructuring has occurred, economic factors by themselves cannot account for improving standards in education in the twin-island state. Probably of greater significance has been the fact that nationals have begun to replace expatriates in all sectors of the economy. Freed in 1958 from the shackles of the Leeward Island Federation, which often brought outsiders to occupy key positions, statehood and independence have brought greater internal control and with them greater opportunities for nationals. Education has played a key role in permitting the substitution of nationals for expatriates.

The changes in Saint Kitts and Nevis have been more political and social than economic. But changes have occurred in all areas. Educational reforms have helped to consolidate these social, economic and political changes. Together they have released great energy, expectations and efforts which have confounded conventional education wisdom about quantity and quality relationships in reformed systems. To date, not a great deal of attention has been paid to these developments in Saint Kitts and Nevis. They are not well known, yet the changes that have occurred in education in Saint Kitts and Nevis appear to be profound.

Caribbean Examinations Council

The CXC was established in 1974 to replace the Cambridge, Oxford and London Universities' examinations that Commonwealth Caribbean secondary students had taken for more than a century. The Commonwealth Caribbean has followed the British traditional norm of external examinations as the means of assessment of the accomplishment of students at the end of secondary schooling. CXC was conceived to continue this tradition, but in Caribbean terms. In the creation of CXC, the Commonwealth Caribbean drew upon the best available expertise in the Commonwealth and the world at that time. This included experts from the United Kingdom whose ideas were not implemented, given the entrenched traditional patterns. The success of CXC contributed to some extent to the adoption and implementation of similar strategies in the General Certificate of Secondary Education (GCSE) in the late 1980s in the United

Kingdom. Interestingly, the movement for reform in the examining process in the United States is focusing on assessment procedures and patterns now standard in the CXC process.

Regional co-operation in teacher education

Prior to the establishment of the University of the West Indies (UWI), departments of education certified teachers. They determined the curriculum as well as the examinations. With the exception of Trinidad and Tobago, all Caribbean governments have devolved their state licensing function in teacher education to the university. UWI has therefore been charged by the regional governments with the responsibility of guaranteeing standards in teacher education by exercising sole authority in setting professional standards for teacher certification.

Since 1965, the university has presided over a regional partnership involving Ministries of Education, teachers' colleges, teachers' unions, the general public and itself. At Mona, this has been effected through the Joint Board of Teacher Education, and at Cave Hill through the Eastern Caribbean Standing Conference. Through these mechanisms, the university has been performing a state function, the certification of teachers, while maintaining its traditional role in academic and professional education.

Teachers certified by UWI are automatically registered by Commonwealth Caribbean states. At the same time, this close linkage has facilitated the matriculation of teachers' college graduates into UWI. The teachers' certification is written into the university's matriculation requirements. The university, on the other hand, by controlling entry qualifications, curricula and examinations, has promoted improvements in the quality of teacher education.

In addition, the partnership has required that the university plays a developmental and policy role in teacher education. From the feedback from constantly monitoring standards in teacher education, the university has had to conduct research into perennial problems and develop appropriate strategies to solve their problems. By accumulating knowledge from these research and development efforts, the university has increasingly been drawn into a policy advisory role by Ministries of Education.

Community Colleges

Community Colleges in the Caribbean must not be confused with their American counterparts, although they share some common

features. This form of tertiary institution has emerged in the subregion in the past twenty years in response to several pressing needs:

→ To expand access to tertiary education and to offer it at lower cost by means of locating the Community College close to its clientele. At present, while the Commonwealth Caribbean has universal primary education and mass secondary education, only about 5 per cent of the 18–24 year-old cohort are enrolled in any type of tertiary education. The Community College has been one type of tertiary institution adopted to address the need to expand tertiary enrolment.

→ To amalgamate several small single-discipline institutions into a larger multi-disciplinary entity, thus reducing administrative costs while at the same time facilitating combinations that were difficult in the former arrangement. Hence, several countries have merged sixth-form colleges and sixth forms, technical colleges, teachers' colleges and nursing schools into a Community College.

→ To provide multiple links with further education. For example, the College of the Bahamas now offers to its students in the Bahamas, the Bachelor of Education and Bachelor of Arts degrees of UWI. Similarly, the Sir Arthur Lewis Community College and the Antigua State College offer the first year of the Bachelor of Arts, Bachelor of Science and Bachelor of Social Sciences to their students in Saint Lucia and Antigua, respectively. The Community College becomes in this case a link with UWI, offering partial or complete degree programmes.

→ To provide job training related to the economy of the communities in which the colleges are located. For example, the Montego Bay Community College, Jamaica, in addition to its academic programmes, offers a whole range of courses and programmes related to jobs in tourism, from front-desk management, food and beverages to auditing.

→ To provide continuing educational opportunities to out-of-school persons desiring to advance themselves at the work-place or elsewhere. Programmes offered here vary from resitting the CXC to Chinese cooking.

The pattern has been for Community Colleges in the Commonwealth Caribbean to operate two different types of entry requirement. Entry to full-time programmes requires satisfactory CXC results and as such are strict academic requirements. On the other hand, entry to part-time or day-release programmes are based on open entry patterns and are largely directed by demand. This dual system of entry is also

reflected in the financial arrangements for these colleges. While the academic parts are funded partially or totally by government, the open entry operations are usually self-financing.

Innovations in university education

UWI is a multinational university. Founded in 1948 and supported by fourteen Commonwealth Caribbean governments, it is one of only two surviving regional universities in the world. Several other regional universities did not survive the dissolution of the federations of which they were an integral part. The University of East Africa is one such example of regional failure.

UWI's success in surviving as a regional institution is probably its most unique contribution to the Commonwealth Caribbean. The colonial legacy was for Caribbean countries to relate bilaterally with the centres of world power. Relations with each other were often conducted through the metropole. Relations with each other on a regional basis came relatively late in the colonial period and had virtually no infrastructural support. While it must be conceded that regional financing on a continuing basis is evidence of at least a regional will, government funds from national treasuries have invariably been made available on condition that there should be a university presence in each country as well as evidence of direct returns from these funds. From a single campus, the university has evolved to three full campuses, apart from a campus in the Bahamas where the Department of Tourism is located and university centres in each of the non-campus countries.

UWI's relationship to the different social strata of Caribbean society requires some comment. The upper strata have had a long history of educating their offspring in the metropole. Although the metropolitan centre may have changed from the United Kingdom to North America, that tradition has not changed. Nor has UWI been able to make any significant change in this practice. Accordingly, UWI has had much less success in providing the leadership in Caribbean commerce and industry than in providing similar leadership in politics and the public service.

The bulk of students who have passed through the portals of the regional university have been drawn from the middle strata of Caribbean society. UWI has served to a great extent the socio-economic aspirations of the middle classes, helping them either to improve or to maintain their social positions. The lower strata of Caribbean society continue to have minority representation at the university. Tertiary

institutions, particularly teachers' colleges, have been the major avenue of access for such students. The university's major achievement in this regard is that it has brought higher education within their reach and made such education more accessible to these strata, even if equity remains an elusive goal. Interestingly, more women than men from the lower strata have gained access to UWI. On the one hand, the university can share the credit for helping to liberate one of the most marginal elements of Caribbean society – lower-social-strata women.

Innovations in non-formal education

There have been several successful attempts to mount programmes designed to meet the needs of the out-of-school population. Three innovations in non-formal education are described here.

SERVOL's Adolescent Development Programme

Besides its Early Childhood Education Programme, SERVOL also operates an Adolescent Development Programme for youths between the ages of 16 and 19 years in need of special remedial help, having dropped out of the school system or having failed to master basic competencies taught in the school system.

By 1989, thirty adolescent development centres had been established, each monitored by a village board of education, staffed by teachers specially trained for working in the centres and supervised by trained field officers. This linkage between the formal and non-formal systems of delivering education to adolescents has had some interesting spin-offs. One example resulted from the complaints of some secondary-school principals that several students in their schools were not only wasting their time but were a disruptive influence on their fellow students. The ministry responded by initiating a pilot project in which several of these 'difficult' students were asked to follow SERVOL's three-month attitudinal programme, being free at the end either to continue with SERVOL or return to their schools.

The JAMAL programme and eradicating illiteracy
in Jamaica

The JAMAL Foundation emerged in 1974 from a restructuring of the National Literacy Board, established in 1972, which had incorporated and absorbed the small literacy programme that has been operated by the Social Welfare Commission since 1951. The objectives of JAMAL were to eradicate illiteracy in Jamaica within the shortest possible time, to improve the literacy skills of the adult population

Table 2. Functional illiteracy in Jamaica: 1960–1987

Year	Functional illiteracy of population, 15 years and over
1960	42.9
1975	32.0
1981	24.3
1987	18.0

Source: Compiled from National Literacy Surveys (1960–1987).

and to develop human resources and so enable each adult citizen to participate meaningfully in the social, economic and cultural development of the country. Table 2 shows functional illiteracy levels in Jamaica, as measured by national surveys, between 1960 and 1987.

The table shows that there has been a substantial reduction in the level of functional illiteracy in the adult population in Jamaica over the period 1960 to 1987. Over this same period the adult population has grown substantially. The improvement in literacy levels has therefore occurred during a period of significant growth in the population. In this context, the qualitative improvements in literary levels become even more impressive. The most significant improvements have taken place between 1960 and 1981. Improvements slowed in the 1980s.

Many lessons can be learned from the JAMAL experience. First, the timing of the national assault on illiteracy was propitious. After a decade of independence, Jamaicans had convinced themselves that they could manage their affairs better than the colonial administrators. Possessed of this new confidence, they were ready to tackle deep-rooted and fundamental problems. Illiteracy was one such problem. The mass of the Jamaican people was of the view that independence held great prospects for their personal advancement and that education was a major avenue along which to make such advancement.

Previously, Jamaican professionals, learning from their peers mainly from North America, had developed materials and methodologies that could successfully teach illiterate Jamaican adults to read. No sooner had the professionals perfected their art than the national resolve to eradicate illiteracy emerged, for the reasons outlined above. Resources were mobilized. Appropriate management and organizational structures

were put in place. Teachers, students and committee members were motivated to participate in this national effort. Thousands of adults were taught to read, comprehend and write at an acceptable level. The country developed the institutional capacity to eradicate adult illiteracy through JAMAL. The fact that 18 per cent of the adult population is still illiterate is not for want of capacity or will. The capacity to educate them was created and the will emerged.

Human Employment and Resource Training (HEART), Jamaica

The HEART Trust was established as a statutory corporation by an Act of the Jamaican Parliament in 1982 to provide out-of-school training in basic skills, and to monitor and co-ordinate non-formal skills-training projects. The major functions of the trust are: financing, developing and monitoring employment training schemes; providing employment opportunities; helping to place persons seeking employment; and promoting employment projects.

The HEART Trust is funded through three main sources: first, Employers' Contributions – all employers who have a payroll of $J86,000 per year are required by law to contribute 3 per cent to the trust or to assist with on-the-job training of school leavers, this being the main source of income of the trust; secondly, grants and loans – several multilateral and bilateral agencies have contributed to the trust through grants and some loans, and since 1982 the trust has benefited from over $J24 million from this source; thirdly, subvention from the annual budget of the government.

HEART operates six major programmes: The School Leavers Programme; The Academy Programme (for youths from 17 to 25 years who have attained a minimum academic standard of at least Grade 9 English and Mathematics); Industrial Training; Craft/Apparel and Sewn Products Programme; The Solidarity Programme (for unemployed youths who can neither go on to further training nor find gainful employment); and the Learning for Earning Activity Project (LEAP) (designed to enrich the curriculum of selected urban schools serving marginal communities and to provide income-earning opportunities to students whose chronic absence from school was related to economic factors).

Up to March 1989, some 41,818 youths had graduated from the various HEART programmes, another 8,220 were undergoing training. This means that over a period of eight years, HEART served over 50,000 young people in Jamaica in the critical area of making the

transition from school to the world of work. The *Economic and Social Survey, Jamaica 1988*, published by the Planning Institute of Jamaica, observed that in 1988 the output of skilled and semi-skilled labour increased by 11.8 per cent to 11,165. It further observed that HEART programmes contributed significantly to the number trained, noting that some 8,331 of these persons (75 per cent) came from these programmes.

The achievements of the HEART programmes become even more impressive when the record of employment of graduates is examined. Private-sector firms employed 60 per cent of graduates of on-the-job training in their firms, while 20 per cent were employed by other firms. These data seem to suggest that, through HEART, school-leavers with mediocre educational credentials have been able to

Table 3. Retrogression in real per capita GDP – 1987

Country	No. of years retrogressed	Comparable year
Guyana, Haiti, Nicaragua	27	1960
El Salvador, Venezuela	23	1964
Jamaica	22	1965
Bolivia	21	1966
Bahamas	19	1968
Argentina	18	1969
Chile, Guatemala	16	1971
Honduras	14	1973
Costa Rica, Peru	13	1974
Ecuador, Suriname, Trinidad	11	1976
Barbados, Mexico, Uruguay	8	1979
Dominican Republic, Paraguay	7	1980
Panama	5	1982
Brazil, Colombia	0	1987
All countries	8	1979

Source: Taken from Report of Governors, May 1989, Inter-American Development Bank.

articulate better with firms in the private sectors than was previously the case.

Table 3 shows the severity of the decline in economic performance and social well-being in the Latin American and Caribbean region in the 1980s. Real per capita GDP in 1987 fell to a level, in the region as a whole, comparable to that for 1979. However, that average masked wide differences in the degree of decline in different countries. The decline among Commonwealth Caribbean countries ranged from eight years in the case of Barbados, to twenty-seven years in the case of Guyana. The 1980s witnessed the worst decline in economic development in the region since the 1930s.

The situation of the Commonwealth Caribbean is that the successful innovations of the past must face the challenges of survival imposed by the social retrogression consequent upon economic decline and structural adjustment. The subregion must run faster to remain in the same place. The education system must be more effective just to maintain its past standards. This is but another example of the experience of the Caribbean trying to go up the down escalator.

There can be no question that Commonwealth Caribbean educators and students will be tested to the limit by these circumstances. It is to be hoped that thinkers, activists and leaders will emerge who will understand the relationship between the democratic process, self-reliance and social and educational transformation. The only assurance seems to be that Caribbean peoples have faced severe difficulties before and have found the will and the means to triumph over circumstances. There is no reason to believe that this time will be different.

Education and work

Olivier Bertrand

This topic covers an inordinately large field, particularly if we take these two terms in their widest sense, with education including vocational training, and work including paid and non-paid work and the different notions of employment and qualification. An attempt to condense the accomplishments of research and experience in this field into a few pages would be immoderately ambitious. Consequently, this chapter is not intended to be an exhaustive account, but rather a summary of the main conclusions and most prominent ideas.

As far as possible, our study is based on the available literature and on recent or on-going studies. Particular attention will be paid to studies initiated by international organizations, but we also refer to those from a wide and contrasting range of national sources, excluding, however, studies with too specific a character.

The relationship between education and work is dealt with in turn from two angles:

→ the role of education, in its widest sense, in preparing people for paid work, which may be examined from the point of view of theories, techniques of analysis and projection, policies, and practices. This is the object of the first four parts of this chapter;

→ the interaction between education and productive work, and notably the role of work in the educational process.

Education, work productivity and economic efficiency: the theoretical approach

The question of the contribution of education to production, and therefore to economic growth, and its value as an investment for individuals and society, is the central concern of the economics of education. This developed at the beginning of the 1960s and was the subject of many debates and copious literature until the mid-1970s. Reviewing all these studies does not come within the scope of this paper, which aims to concentrate specifically on work. However, these theoretical approaches cannot be overlooked in so far as they were related to educational policies. Reference to them is facilitated, however, by the existence of several summaries (Blaug, 1968, 1976, 1985; Easton and Klees, 1990; Little, 1986; Klees, 1989; Miller, 1993; and Danièle Blondel's introductory paper to this book (pp. 13 et seq.).

Human capital

During the 1960s, the dominant theory concerning the relationship between education and employment was the 'human capital' theory (Becker, 1964). According to this, economic factors alone are not sufficient to explain the growth observed, particularly in the United States. There exists a residual factor which must correspond to the human element, and in particular, to education.

Investment in education and training can only increase the skills and capacities of those concerned. These skills and capacities – which are rare commodities – increase productivity, particularly in the modern sector. Employers reward the proprietors of these commodities with earnings. The level of these earnings thus gives a fair indication of the productivity of a given employee, and market activity ensures that rare skills are assigned to the productive sector (Little, 1986; also Blaug, 1968, 1985).

The central idea of this theory is that individuals invest for their future by making a rational estimate of the returns of education, and then orient their careers in consequence. Individual estimates may be transposed to the collective scale by integrating the overall costs of education. Estimating the rates of return enables the optimum development potential of different levels and forms of education to be evaluated, and thus becomes a tool for planning.

Since the 1970s, the human capital theory has come under heavy criticism, and has been confronted with the development of other theories. These have all been systematically reviewed by Blaug (1976,

1985). He emphasizes the fact that the concept of human capital was developed in the United States (where access to further education is unrestricted and where public initiatives were limited) at a time of expansion and optimism, and inquires whether it might remain valid in very different contexts. Analysing the different studies which provided the basis for the theory of human capital and its successive extensions (from continuing training to primary instruction by level, special field and type of establishment), he remarks in several cases on the insufficiency of data, the fragile nature of the hypotheses and the anomalies in the results.

A major query concerns the respective roles of natural gifts and of family environment in relation to the duration of the education received when calculating income differences. The most detailed statistical data suggest that, taken individually, the role of education is insignificant, and that it assumes its full importance only when taken in relation with one of the other two factors (Blaug, 1976, 1985). Furthermore, it has been observed that in current economic and technological conditions it has become extremely difficult to individualize and quantify work within the framework of a traditional analysis of the factors of production (Blondel, 1989).

Alternative theories

While these observations led to a more subtle appreciation of the theory of human capital, more radical doubts arose with the emergence of the alternative theories. The first of these is known as the 'screening' theory, according to which the value of schooling resides not so much in its provision of new knowledge as an increment to human capital, but rather in the fact that it is an instrument for the selection of the most gifted, and of the behaviour best adapted to employers' demands. Employers therefore allow the education system to proceed on their behalf with the recruitment of personnel for skilled jobs. The role of schools would therefore be one of socialization, and would consist more of selecting and of promoting 'correct' behaviour that would be of more interest to employers than what had actually been learned.

Contrary to the previous theory, which encouraged the constant development of education seen as investment, the screening theory is accompanied by considerations of the risk of educational inflation, since inflation of this nature in no way alleviates the pressure of demand in a job-queuing situation. The theory's view of the priority given by employers to their employees' behaviour seems quite well

suited to recent observations of the situation in European countries. But Blaug's interpretation (1985) that this concerns operative-type behaviour in a Taylorist-type organization no longer seems to apply to recent developments in the organization of work and in skills (see below).

The views of radical and institutionalist American economists, together with theories of the segmentation of the work market, fit into a context that is opposed to the neo-classical approach of human capital. They question the search for a 'socially optimal' quantity, quality and type of education in a world of conflict where political factors play an important role. They tend to condemn the neo-classicists for their mistaken pursuit of criteria of technical efficiency which they believe will enable them to make choices in the interests of society. The segmentation model tends to lay the blame for unemployment more on the nature of the jobs available than on the inadequacies of education. It considers it possible to 'link investments in education and training to transformations of the structures of employment, and to the level of unemployment and underemployment, if the forces that modify both education and employment influence them both in the same way during the same period' (Carnoy, 1977).

Having reviewed these different theories, Klees (1989) ends up with a view which is 'more than slightly jaundiced' (compared with Blaug's), which leads him to doubt the effectiveness of the instruments and techniques of planning which are examined below. With Easton (1990), he particularly challenges the dogmatic application of neo-classical theses to educational policies, and the illusion of a universal scientific approach, to which he prefers the study of actual problems.

The Organisation for Economic Co-operation and Development (OECD), on the other hand, with a concern for measurement and accounting, recently displayed renewed interest in the problems raised by investment in knowledge, from the individual point of view as well as from that of business and the community. From this standpoint, the latest study on the subject seeks to transcend the traditional theoretical debate by defining human capital independently of its inputs and its rate of use, which moves the starting point of the analysis in the direction of human capacity (Miller, 1993).

International comparisons

To complete this report, we should mention a series of research which is quite different in spirit and method, but which has a common foundation of international comparisons.

An initial series adopted a sociological approach and concentrated on the relation between the organization of work in a company, qualification and training. The Franco-German comparative studies carried out by the Laboratoire d'économie et de sociologie du travail (LEST) in Aix-en-Provence (Maurice et al., 1982) and by Lutz in Nuremberg (1976) suggested mainly that the historical development of the training system and the availability of skilled personnel influenced the organization of the company and, indirectly, its economic efficiency. These studies were followed by others comparing France and Japan. At the same time, several comparative studies were made of Japan, on the one hand, and the United States and the United Kingdom, on the other, in an attempt to analyse the implications of the Japanese model of training and work organization.

A second series, of an economic nature, compared competing British and European firms and sought to examine the relationship between productivity and the skills and training of the personnel. Their considered conclusion was that there was a close relation between the lower productivity of the British companies and the lower skill levels of their personnel (Steedman and Wagner, 1987).

These different studies provoked a great deal of debate about the role of the education system in the organization of work. In France (Commissariat Général du Plan, 1978), and even more so in the United Kingdom and the United States (Marshall and Tucker, 1992; Miller, 1993), concern was shown about the negative trend affecting many firms in these countries – inferior skills of the personnel, organization discouraging acquisition of skills, mediocre production quality and poor competitiveness – as opposed to the positive trend which predominates in Germany and Japan; high qualifications, organization encouraging acquisition of skills, quality production with high added value and better competitiveness. An interesting aspect of these studies is the direction of this relation: the availability of educated staff could encourage companies to adopt other modes of organization and even other types of production (this, however, would not be sufficient if the attitude of the employers was not so disposed).

A very different type of research applies the statistical method, and attempts to discover the correspondence between economic variables, occupational structures and levels of education. Substantial studies were undertaken by L. Emmerij and J. P. Jallade at OECD in 1970 (OECD, 1970), but were not followed through by this organization. Other statistical studies of this nature were carried out later under the auspices of the World Bank (Zymelman, 1980).

This type of study implicitly seeks to determine whether there exists a standard for occupational or educational structures which is associated with a certain level of efficiency or a stage of economic development. This seems very doubtful in the case of education, as expansion in this domain is linked to supply and social demand at least as much as to economic demand. Concerning the relation between the stages of socio-economic development and occupational structures, however, some interesting studies have been carried out in Hungary.

Education and qualifications: the qualitative approach

It is probably more helpful to view the relationship between education and employment through a more qualitative assessment of changes that have occurred in the content of work and in the corresponding skills and of the way in which employers have taken account of these changes. In other words, attention needs to be directed towards qualifications, although we need to remember that this term may lead to confusion since it may mean: (a) the skills required to do a job; (b) the skills that a worker possesses (linked mainly to his or her training); or (c) skills that are recognized in the labour market.

These three concepts are not identical and in any case there is no hard and fast correlation between training and employment: most jobs can be done by people with different kinds of training, and a specific kind of training can lead to a wide range of jobs.

It is therefore extremely difficult to define objective standards of qualification, since everything depends on the particular institutional and social context (Commissariat Général du Plan, 1978). There are considerable differences, for example, in the approaches adopted in Germany (on the basis of a consensus between social partners), in France (a state monopoly of diplomas) and in the United Kingdom (a detailed survey of the skills required carried out by bodies linked to employers), which makes it difficult to compare them or transfer them from one country to another. This matter is currently being examined in the United States, where efforts are being made to establish a national system.

It is by taking account of such factors that we are able to examine the possible consequences of changes in the context of work and in employment structures, for vocational forms of education and training in the main but also for general education, as will be seen below.

With the acceleration of technological change since the beginning of the 1980s, there developed (and often still exists) a tendency to link, directly and automatically, the development of the content of

work with the development of technology, particularly where the new information technologies are concerned. In fact, many studies have demonstrated that technology was not the only element which determined the structures of occupation and the content of work, and that these also depended on the type of production linked with economic considerations and the type of organization chosen by the companies in question (Hallak and Caillods, 1981; Grootings, 1987).

The linkage of economic, technological and organizational development has consequences of several kinds for qualifications and training:

→ it leads to a change in employment structures, i.e. in the distribution between different groups of occupational structure. In this respect, there are two undeniable trends: the decrease of workers in industrial and manual jobs and a rise in tertiary employment; the increase in the numbers of engineers, executives, those doing intellectual work and technical specialists, to the detriment of labourers and some types of office worker, beginning with the least skilled;

→ secondly, the work content of each of these jobs is changing, which is leading to new demands in terms of knowledge, skills and behaviour (or behavioural skills). This second point would need to be elaborated upon at length in order to take account of the specific problems of each sector or group of jobs and of each country. We limit ourselves here to a few general considerations.

In particular, we may recall the debate in which the supporters of the descaling theory, those in favour of a polarization of qualifications, and those who were for a general rise in the standard of qualifications were often at loggerheads. Until the 1970s the former were able to point to the extension of Taylorism, reinforced by the first computer generation which was rigid and centralized. Since the 1980s, there has been a new economic situation with increasing international competition (cf. the paper by Gorham, 1993) leading to higher quality and a wider variety of goods. This process has converged with the development of decentralized computer technology that encourages autonomy and the recombination of various tasks. These two factors together, alongside the need to motivate workers, encourage the development of new forms of organization, resulting in a trend towards higher qualifications in the advanced industrialized countries. One can at least observe that mass production demanding a work-force with a low level of skills is tending to gravitate towards the low-wage countries, and that automation has so far mainly affected the most simple and most repetitive jobs.

However, this conclusion needs to be qualified, and first of all according to sectors of activity and occupational groups. For example, while the increasing predominance of tertiary employment cannot be denied, we must avoid drawing hasty conclusions, because these jobs form an extremely heterogeneous group. It is in the tertiary sector that the majority of highly qualified jobs are to be found, but here also is where there remains the greatest possibility of keeping certain poorly qualified jobs (Bertrand, 1993). Furthermore, distinctions should be made according to countries and businesses, linking up with what was said above about the negative trend associating skills, productivity and competitiveness. It is mainly in successful and innovative firms in the advanced industrialized countries that the trend towards higher qualifications is most marked. Although such tendencies are on the increase, they may still only involve a minority (Kern and Schumann, 1984).

Finally, we need to ask questions about the eventuality and consequences of an increasing use of computer technologies for increasingly complex tasks, where these techniques would replace human work (among the numerous studies on this theme, see for example: Bertrand, 1992*b*; CEDEFOP, 1991; Grootings, 1987; Levin and Rumberger, 1989; Noyelle, 1990; Tanguy, 1986, and all the studies made by OECD in their programme on the development and use of human resources in a context of technological development and industrial reorganization).

From the point of view of knowledge, it is generally agreed that the new qualifications demand a more abstract form of thought, which generally leads either to raising the standard of education or to increasing its theoretical content. However, it has been shown that even in the context of a modernization of the economy, this development did not necessarily apply to all industrial jobs, some of which called more for adaptability to a variety of functions and to group work while others continued to be based on more traditional skills (Tanguy, 1991).

The traditional approach giving priority to theoretical knowledge, considered as a prerequisite for the learning of new skills, has also been challenged. Different experiments have proved that it could be effective to begin such learning in a more practical context. Evidence of this has begun to emerge in advanced industrialized countries such as the United States, but it is even truer in traditional societies (Raizen, 1991).

A study by the Department of Labor in the United States (1991) has shown that technical skills came only fifth in a list of employers'

expectations, after the ability to manage resources, relate to other people, evaluate information and understand operating systems. As far as the impact of new technologies in particular is concerned, contrary to a widely held opinion, the problem facing the education system is not to train workers to use them, but to train them to do things which machines cannot do, such as unpredictable tasks, or those demanding creativity and, above all, a human relationship (Bertrand, 1992*b*). As Gorz (1988) has remarked,

education must reverse its priorities; instead of training 'human computers' whose capacities for memorizing, analyzing and calculating are exceeded and largely made redundant by computers, we should concentrate on developing distinctively human skills: manual, artistic, affective, interpersonal and moral skills and the ability to ask unexpected questions, to make sense of things and to reject nonsense even when it is logically coherent.

I should add that this is a far more complex task than acquiring additional technical knowledge because it implies a larger sum of basic experience and behaviour patterns. However, we should not conclude from this that the acquisition of technological skills is entirely useless, since it is also necessary to provide people with a command of technology and to secure their participation in the process that creates new technologies, particularly in developing countries (Hallak, 1990).

In the advanced industrial countries, companies are tending to give increasing priority to the attitudes and behaviour of the people they employ, rather than to their technical capacities, which in any case need to be renewed continually (CEDEFOP, 1991; Raizen, 1991). There seems to be a tendency, particularly in the most efficient companies and new modes of organization, to give priority to analytical and problem-solving ability, adaptability and the capacity for innovation and oral and written expression.

The contrast between the skills that the most successful companies require nowadays and the skills that used to be looked for may be summarized in Table 1 which, although it deals with the financial sector, could be applied to other sectors as well.

Adler (1987) has suggested a parallel analysis which contrasts new requirements with the old in four areas: responsibilities, skills, interdependence and training. Reich (1991) has taken up and summarized these analyses in the distinction he makes between three categories of work: production (which is tending to decrease), the provision of personal services and the manipulation of symbols (which are tending to increase).

Table 1

Traditional skills	New skills
General	
1. Stable activity in a rigid organization	1. Adaptability to new products, technologies and methods of organization
2. Direct work on documents	2. Abstract work on screen, using codes and symbols
3. Ability to receive and follow instructions	3. Autonomy and responsibility
4. Individualized work	4. Work in constant contact with customers and colleagues
5. Limited horizon in time and space	5. Broader horizon in time and space
Specific	
Higher level:	
1. General management staff	1. Specialists alongside general management staff
2. Managers of the firm and of personnel	2. High-level technical staff
Intermediate level:	
1. Specialized production work	1. Versatility in working in sales and relations with the user
2. Detailed knowledge of procedures	2. Broad knowledge of the firm, its products, markets and customers
Subordinate level:	
1. Specialized work of collecting and processing information	1. Tendency to eliminate information-gathering jobs through automation and restructuring

In conclusion, it should be stressed that the challenge presented to education systems by the development of skills is not how to train elite groups capable of adapting to state-of-the-art technologies. The challenge resides rather in the fact that the modern economy in the most advanced countries no longer has much room for the least educated and least qualified. The major risk for these countries is that of exclusion and the division of society. The education system cannot afford to ignore this.

The developing countries have not yet reached this point. Even

more than the industrialized countries, their hopes for creating jobs lie in small firms and in self-employment. In their case too, education systems are not only faced with the problem of disseminating knowledge and technical skills, but even more with the problem of developing attitudes and patterns of behaviour, in particular those which encourage self-confidence and a spirit of initiative and help people to work independently (Frost, 1991).

An analysis of these developments, not only by national co-ordinating bodies but also by direct investigation inside companies, could help to throw light on the direction which the education and training system should take. Nevertheless, study of the tendencies affecting job content must be supplemented by a study of employers' methods of recruitment and work-force management, concerning in particular the way in which they are dealing with these developments, and, more generally, an analysis of the functioning of the labour market (Hallak and Caillods, 1981; Bertrand, 1992a). Thus, faced by a shortage of qualified staff, employers may adopt various approaches:

→ attempt to replace people by machines;
→ recruit qualified young people by making use of initial training structures;
→ seek to adapt and upgrade the existing work-force, possibly through the provision of additional training.

The first approach soon encounters problems when anything other than simple and repetitive tasks are involved, since all automated processes require intelligent supervision. The second may damage continuity within the firm, create conflict between generations and cultures and result in unemployment for older, less-qualified staff. The response demanded of the education system depends on which of these solutions is chosen, although this cannot be reduced to merely matching one to the other, as shown below.

Finally, with regard to the effects of harmonization between training and employment on the labour market, questions are bound to arise on the possible impact of internationalization, mentioned in the paper by Gorham. Recent studies carried out on behalf of the European Commission suggest that the most mobile workers come from opposite ends of the spectrum: the least skilled move for economic reasons and in their case the problem of education is more one of social integration than of professional qualifications, while, on the other hand, senior management staff adapt more easily and higher-education establishments are increasingly involved in training them (in the case of Europe with the support of Community programmes).

Education and employment: the difficulties of quantitative forecasting and the methods of adjustment

There are several ways of attempting to take the present and future development of employment into account, in order to calculate the number of staff that need to be trained. Either we attempt to base projections on the needs of the economy, or we observe the way in which adjustments are made, particularly as regards pay and the placement of young people after their training.

The work-force approach

Before any theories about the relation between education and economy were even developed, practicians were facing the problem of adjusting the education system to the 'needs' of the economy. The 'manpower approach' was developed in the socialist countries, and first of all in the USSR. It consisted of setting economic projections concerning employment and its distribution, occupation by occupation, over a given time-scale (demand for workers) against projections concerning the evolution of the active population likely to be in such employment, broken down by qualifications and including estimates of the output of graduates (supply) or human resources.

Around the 1960s, this approach was re-adopted and further elaborated by OECD, which applied it in its Project for the Mediterranean Region and Latin America (Argentina, Peru), and by European countries such as France, where a form of indicative planning was being practised (Commissariat Général du Plan, 1978). It was also put into practice by a large number of developing countries, which were anxious to train the skilled work-force needed to carry out their ambitious development plans and also to replace the expatriates who had left as a result of decolonization. They were encouraged in this by the 'human resource' theorists, who attached great importance to the role of education in development and who believed it necessary to build up a greater reserve of workers in order to respond to the needs of the economy (Hargison and Myers, quoted by Foster, 1992).

Although very widely practised, this approach was heavily criticized and is today widely condemned. First of all, in its simplified form, it does not take into account the fact that a large percentage of jobs are filled through job mobility, accounting for which poses some difficult problems. Economists such as M. Blaug and G. Psacharopoulos base most of their criticism of this approach on its absence of theoretical

foundation, its inflexibility, and especially on the fact that it does not take into account either the cost factor or the real conditions of adjustment on the labour market, particularly the level of earnings. In France, the National Institute of Statistics (INSEE) abandoned this method in the mid-1970s, mostly as a result of the elaboration of the notion of skill (Commissariat Général du Plan, 1978; Tanguy, 1986), and following the realization that there exist no objective needs in terms of training, but rather an interaction between supply and demand which determines the levels of adjustment (an aspect also highlighted by Easton and Klees, 1990). As has been seen above, it is the specific recruitment requirements of employers and the operation of the labour market that govern the transition from demand for qualifications to specific job offers for young people beginning work (Blondel, 1992).

The assessment of past experiments is often very harsh, particularly in the case of developing countries, which often do not have sufficient basic information and tend to overestimate the rate of economic growth and therefore their needs in terms of training. Besides this, considering that work-force projections are unable to estimate the 'need' for workers with primary education and fail to account for the cost factor, Blaug (1974) criticizes them for leading invariably to the allocation of the majority of the budget to the development of secondary and higher education (see also Psacharopoulos, 1991). However, if we look at other examples (Bertrand, 1992*a*), this criticism does not seem generally applicable.

It is interesting to note that, despite these criticisms and developments, the Bureau of Labor Statistics (BLS) of the United States continues to allocate considerable resources to periodical long-term projections concerning employment and its structure, occupation by occupation, at an extremely detailed level (US Department of Labor, 1992). The results are not systematically compared with training prospects so there exists no procedure for aligning training and employment, but the analyses of occupations are compared with data concerning levels of education and the results are used in the publication of an *Occupational Outlook Handbook*, which plays an important role in guiding individuals and training organizations. This is not so much planning as information for those operating in a market system. Periodically evaluating its projections, the BLS considers that they have proved reliable in the main and that criticisms of them bear mainly on the degree of detail (Freyssinet, 1991).

Other industrialized countries continue to make projections. The

Institute of Employment Research in the United Kingdom, for example, produces balances revealing shortages and surpluses by main levels of qualification, thus highlighting trends and the areas in which market adjustments and the efforts of the public authorities ought to be concentrated. In Germany, the Institut für Arbeitsmarkt und Berufsforschung (IAB) and other organizations also produce projections concerning occupational profiles. The use of these studies for the guidance of education systems is highly variable depending on the countries concerned; it is most frequently indirect (Freyssinet, 1991; Bertrand, 1992*a*).

Finally, in France, less than ten years after the official organization (INSEE) abandoned quantitative projections of the link between education and employment, the Ministry of Education's co-ordinating committee (the High Committee on Education and Economy) asked another organization to make projections of the main balances by level, in order to throw light on long-term courses of action (Blondel, 1992). Although the results of this work have been questioned, they have none the less played a role in the debates about raising the school-leaving age. There is always a demand for this type of projection, particularly at the regional level, with the partial decentralization of educational responsibilities. But the present trend is more towards the development of wider and less quantitative projections based on scenarios. In particular, this trend has become apparent through the development of prospective study contracts for sectoral studies on the evolution of employment, skills and training. These studies aim above all to develop dialogue between social partners as a way of sharing the information, problems and development possibilities of their sectors (Ministère du Travail, 1993).

It is remarkable that, despite the sternest criticism, the work-force approach, even in its simplistic form, continues to be practised and considered useful in very different contexts, in which its scope limitations and the way it is applied cannot be judged. A fair evaluation of this approach should first of all take into account the different contexts within which it has been applied. The method was devised at a time when there was a shortage of skilled labour and a deliberate drive was being made for rapid growth, and it formed part of a global plan. Its application seems much less justified in a context of poor growth, high unemployment and limited government intervention, in which adjustments are principally made through job mobility and by market forces.

Developing countries with large populations and exposed to the

risk of massive imbalances present a different problem. An approach of this type would be more justifiable here if it could be based on solid data and lead to effective decisions on the path to be followed, but this is not usually the case (Bertrand, 1992*a*; Van Adams et al., 1992). Finally, the work-force approach in its most old-fashioned form, which aims at a mechanical alignment of the training and employment of skilled workers (and would not be defended by any experts today), should be distinguished from the more sophisticated approaches which attempt a global and prospective analysis of the main socio-demographic and economic balances (Timar, 1983).

The analysis of performance as the foundation
for a definition of educational priorities

As shown above, a number of economists, particularly from the English-speaking tradition, recommend the use of the rate-of-return analysis inspired by the theory of human capital. According to Psacharopoulos and Woodhall (1988), about fifty countries had been studied in this way by the end of the 1980s. This enabled a number of general conclusions to be drawn:

→ educational performance seemed to be better for individuals than for the community as a whole (which is to be expected, in so far as the state assumes a large percentage of the costs of education);

→ primary education seems to perform better than the other levels, both for individuals and the community;

→ returns on education seem in general to be higher than 10 per cent, which is the rate above which capital investments are considered profitable. In other words, investment in education seems to be at least as profitable as other forms of material investment;

→ on average, returns on education seem to be better in the less-advanced countries than in the industrialized countries.

The promoters of these studies consider that the results are sufficiently conclusive to serve as a guide when deciding on priorities and to contribute to the definition of educational policies. The question, however, is whether these results are discredited by the criticism of the theories on which they are based. We are inclined to believe that this type of measurement cannot pretend to any great degree of precision, but that it may provide a useful idea of scale and throw light on the debate about the general line to be followed; the same is also true of the previous approach and indeed, the two approaches may be complementary.

The use of follow-up studies of school leavers

Simultaneously with the realization of the uncertainties of projection came evidence of the need for better knowledge of the conditions currently governing the integration of graduates into the labour market. It was thought that, rather than referring to an increasingly uncertain future, it would be more advisable first of all to take the present context into account (and particularly the need for correcting the imbalances noted) when seeking to decide on the direction the education system should take. This is what led to the organization of surveys of school leavers, primarily to see if they had found a job and, if so, to what extent it corresponded with the training they had received.

The most ambitious and systematic action in this field has without doubt been undertaken in France under the responsibility of the Centre for Studies and Research on Occupations and Qualifications (CEREQ) as a result of which, from the mid-1970s, a national 'observatory' of those starting work was gradually established. It has the singularity of being permanent, providing information not only on the situation immediately at the end of schooling but also several years later (Affichard and Gensbittel, 1984). This system has contributed in particular to revealing the complexity and length of the process of entering the world of work, which leads one to be cautious when interpreting the findings of surveys for the guidance of the education system.

Similar systems, but with rather different objectives and methods, also exist in Germany and the United Kingdom (OECD, 1993*b*, concerning university graduates). The need for a better understanding of the future of young school leavers is most pressing in the developing countries, however, considering the serious imbalances observed there, and particularly the growth of graduate unemployment (see below). These are also the countries, however, where the identification and observation of this segment of the population are the most difficult in practice (Psacharopoulos and Woodhall, 1988).

In point of fact, many follow-up surveys have been undertaken in different developing countries, first of all with the collaboration of the International Institute of Educational Planning (IIEP), concerning higher education (Sanyal, 1987), and then with the support of the World Bank, which encourages governments to carry out more of these surveys. Such surveys not only aim to gather factual data on the employment situation and education of young people, but also to examine their opinions in the light of various possible options.

However, 'a large proportion of the planned studies were not carried out or were left unfinished. The problem is perhaps that the objectives, methodology and use of these surveys have not been properly understood' (Psacharopoulos and Woodhall, 1988).

To conclude this summary, it should be noted that the World Bank today recommends that work-force projections should be abandoned and replaced by the study of signals from the labour market, which is roughly equivalent to combining the second and third approaches (performance and earnings, follow-up) described above (Van Adams et al., 1992). 'By using the information on placement and unemployment rates by level of competence, the economic viability of different levels of formation, job offers, and employers' estimations of their needs in terms of manpower, planners may identify those jobs whose openings stand a chance of increasing in the medium term' (World Bank, 1992).

We should point out once again that the choice of methods should take context and feasibility fully into account, i.e. the means available for their implementation (data and capacities) on the one hand, and the political ability to draw conclusions from them on the other. If the data are too unreliable, capacities too scarce, and political power too weak to take unpopular decisions, the implementation of apparently scientific methods run the risk of being no more than a sham (Bertrand, 1992*a*).

The chances of effectively carrying out policies designed to match education more accurately to employment prospects are reduced even further, as Tedesco points out in his chapter (see page 79), by the fact that adjustments to the education system take such a long time and are often at the mercy of political events, since in many countries constant changes of government produce discontinuities in policy. Furthermore, pressures from some sections of society may hold back the necessary adjustments (e.g. when the automatic provision of grants to students does not respond to economic necessity, and represents a large item in the budget).

Development of education systems and policies in relation to employment

Are education systems reacting, and how, to the development of employment and skills? At first sight, the problem arises in different ways according to the types of education and country.

The problem of adaptation most obviously affects vocational education. As far as OECD member countries are concerned, the

studies currently being conducted by this organization on the 'new role of technical education and vocational training' (VOTEC) are providing pointers to recent trends, which can be summed up as follows:

→ an increase in the number of students on vocational courses, and their continuation beyond the secondary level, particularly in order to train an increasing number of technical specialists;

→ a search for flexibility and a greater capacity for response on the part of the training system. This may be sought by reducing the degree of specialization and broadening the scope of training to make it more easily transferable and less specifically oriented towards a particular job. It may also concern the courses taken by students (breaking down barriers between courses) and management (a trend towards decentralization);

→ a *rapprochement* between school and business, by increasing the participation of employers' representatives in deciding on options, the development of partnerships, and the contribution of firms to the training itself (see the final section of this paper);

→ a considerable increase in continuing training, which relieves the basic education system of the need to supply 'finished products ready for employment' (Blondel, 1992).

This analysis raises several questions. First of all, is adaptation to new economic needs as far-reaching as official declarations seem to indicate, seeing that these needs are difficult to identify and that the development of education systems is still, despite everything, strongly influenced by social demand and by the systems' own momentum, which limits the impact of outside influences. Secondly, we might ask ourselves whether vocational training, principally devised to teach the techniques and skills needed in industry, is adapted to training for employment in the tertiary sector, which demands a more general form of training as well as elements more specific to each company, with emphasis placed more on attitudes (or behavioural skills – Bertrand, 1993). There also remains the question of principle, raised earlier, of knowing to what extent adaptation must be a one-way affair, training being adapted to the economic system, and not also the reverse.

The problem of the role of vocational training is even more marked, although in a very different way, in the East European and developing countries. In the former case, vocational training was highly developed, particularly the training of skilled industrial workers, but it was mainly supported by the major industries which were the most affected by the crisis and which tended to close the schools if they did not

themselves close down first. Besides this, as the economic future of these countries is uncertain, it is particularly difficult to say what kinds of jobs vocational training should be directed towards. A prolonged period of transition is no doubt inevitable (Grootings, 1993; OECD, 1992).

The problem is different again in the developing countries, confronted both by the weakness of the modern economy, and therefore the narrowness of the labour market, and by the insufficient number of companies capable of supporting a training scheme. P. Foster, who distinguished himself by what has become a classic article on the vocational school fallacy in developing countries, recently resumed his critical analysis in *Prospects* (1992), referring to the new lines of approach of the World Bank.

The World Bank is also mentioned by Middleton et al. (1993) and the other participants in a seminar organized in Asia (Technical Vocational Education and Training, 1990), who reviewed the basic problems and national experiences. In particular, they laid stress on the role of informal and private training, and noted examples where formal training was attempting to respond to the demands of adult workers, including those in the informal or rural sectors. On the other hand, they stressed the failure of attempts to anticipate demand in the hope of stimulating growth by an offer of skilled personnel, or to reduce unemployment among young people in the absence of job-creating policies, or again to dissuade young people from studying when vocational education does not propose attractive openings. The possibilities and limits of learning for informal employment were also reviewed.

Innovative experiments by several Asian countries were reviewed at a meeting organized by UNESCO's Regional Office in Bangkok. These experiments aimed to provide complementary training to young people, particularly if disadvantaged, in order to give them useful skills and help them become independent (APEID, 1990). Other experiments designed to provide training better adapted to circumstances, involving a link with employment and follow-up and support for students after the conclusion of their training, have been noted in Africa and the Caribbean (Frost, 1991).

Higher education, coming last in the line, cannot afford to ignore the world of employment either. In fact, in Central and East European countries, it was essentially concerned with the training of engineers for the traditional industries. This is creating a problem for these countries today, not only because of the crisis affecting these industries,

but also because everywhere else the aim of this type of education is considered to be wider and is further removed from the idea of matching training and employment.

Even from the point of view of the development of skills, it is not easy to decide which way higher education ought to go. It is clear that the modern economy demands a greater proportion of highly qualified personnel, but it is difficult to say to what extent. Along with other American authors, Levin and Rumberger (1989) speak readily of over-education, stemming from a more rapid increase in the number of university graduates than offers of employment. The European trend towards extended study, for example, is certainly caused more by social demand than by the needs of the economy and will probably lead to frustration among young people, who will not always be able to find the high-level employment that they expect. These problems are cautiously examined in OECD's latest report, which also looks at how people pass from training to employment (OECD, 1993b). See also the surveys carried out in a more varied sample of countries by IIEP (Sanyal, 1987).

In the 1960s and early 1970s, the problem of graduate unemployment became a matter of serious concern for the developing countries and was the object of numerous studies which referred to the theories mentioned above (Little, 1986). In an article on universities and development in Africa (in Caillods, 1989), M. Diambomba considers that too close a link with employment is one of the reasons which prevented African universities from fulfilling their traditional role. He particularly mentions overestimation of labour needs in the 1960s, particularly in the public sector (which accounts for almost 90 per cent of the jobs at this level). But he adds that the pressure of social demand was also responsible for the over-rapid growth in the number of students, while the distribution of students by type of course did not keep pace with developments in the labour market. He also recalls the public authorities' self-imposed obligation to provide employment for all graduates from the secondary level on.

Expansion of higher education with no relation to job openings, and the resulting graduate unemployment, is the main cause of the brain drain which affects many of the developing countries, constituting a serious waste of resources. Rwomire (1992) stresses the fact that

the development of education has simply given rise to the replacement of a poorly-educated work force by one with a higher level of education. The number of jobs has not increased as quickly as the number of graduates, and therefore the higher level of instruction has been of no benefit to the economy.

As the demand for education remains strong, a large portion of public funds is allotted to this type of education, whereas the money would better be spent creating jobs for the disadvantaged. But this is not done, because the political weight of the disadvantaged is inferior to that of the middle and upper classes.

The development of skills and the new socio-economic context are naturally affecting the recurrent debate concerning the 'vocationalization' of higher education. In an issue of the *European Journal of Education* on this topic, Neave (1992) notes in particular the role of market ideology in the options chosen by young people and in the structuring of this level of education (the development of business schools). In the developing countries, criticism has often been expressed about the imbalance in favour of arts subjects, but training greater numbers of scientific and technical personnel would not be enough to develop the economy. It should be noted that the change of priorities has been efficiently carried through in the newly industrialized countries of South-East Asia, as this was linked to the development of a modern economy (Singh, 1991).

General education is also affected by developments in employment and skills, although in a more indirect way. This is true first of all on the quantitative level. The trend towards a higher level of skills and the observation that the level of unemployment is generally lower among the more educated, particularly as concerns the long-term unemployed in industrial countries (OECD, 1993b), have been arguments in favour of a rise in the general standard of education. The same questions as for higher education can be asked in this connection: the relatively able situation of the better educated may be more the result of their higher place in the queue for jobs than the objective needs of the economy.

In Europe, as in the United States, the main problem facing general education today is not raising the level of education, but helping those who are weakest, given the increase in the number of people at risk because of the diminishing number of low-skill jobs available to them. This is why Levin and Rumberger (1989) set the under-education of these people against the over-education of the upper levels. This imbalance, now becoming evident in the industrialized countries, is much more marked in most of the developing countries, where a large part of the education budget is spent on secondary and higher education, often leading to unemployment, while basic education is far from being generally available. Raizen (1991) also stresses the widening gap between the aims and results of traditional education, a phenomenon which is particularly prejudicial to some groups.

On the qualitative level, the problem of vocational content has also arisen in secondary education, particularly in the developing countries, with the hope of reducing unemployment among those completing general education. Experiments in this direction were inconclusive since the problem was the lack of jobs in the modern sector. To solve the problem it was not sufficient to train young people for a job if in any event there were no openings. The only result was the raising of costs.

The brief remarks made above about the nature of the skills required by the modern economy (notably concerning behaviour) suggest that their development concerns general education as much as, if not more than, vocational education. It could be asked whether it is not here that the problem first arises of the adaptation of education systems, which traditionally are not very good at encouraging the development of the adaptability, creativity and team spirit that the most successful businesses require today. This is particularly true of the countries of East and Central Europe, whose transition to a market economy involves changes in behaviour even more than changes in the structure of courses and curriculum content (Grootings, 1993).

For many reformers and in many policies followed by a number of developing countries, particularly in Africa, the ruralization of education could be a way of fighting both the rural exodus and unemployment, by encouraging young people to learn skills useful to them in a slightly improved traditional environment, and by dissuading them from going on to further study. Too often, however, particularly in French-speaking Africa, these policies have been a failure, for two simple reasons: the teachers were not trained to apply them; and the main motivation of families in sending their children to school is precisely to allow them to escape from the traditional environment and have a better job and a better lifestyle. 'Primary school has become, not the place where the student receives an education enabling him to lead a useful life, but the place where he may grab an exit visa from rural society' (Dore, 1982; also Carnoy, 1977; Psacharopoulos, 1990).

As has already been noted, the development of *continuing training* is mentioned by the majority of the OECD countries and may be considered as an answer to the constant and mostly unpredictable development of skills and training needs and to the fact that it is no longer possible for initial training to prepare workers for the whole of their lives. Similarly, the Commission of the European Communities has launched large-scale programmes to promote its development

(FORCE). In the case of the Central and East European countries, demand is said to have mushroomed (Bélanger, 1991). As a response to economic needs, continuing training is heavily slanted towards employment, on the initiative either of companies, or of government programmes concerned with fighting unemployment (Atchoarena, 1992).

In this sense, it can be distinguished from *lifelong education*, which aims more generally at personal development and not just at vocational objectives. Where lifelong education is concerned, the absence of any real policy and the peripheral place occupied by adults in institutions and even ministries has been condemned. The same author notes that the theoretical model of lifelong education (preparation for working life, the alternation of jobs and training, and retirement/leisure) is not followed in reality because of the long length of time spent in work, together with insecure jobs and interruptions in the periods of work (Bélanger, 1991). Another recent study gives a more positive view of the broadening of the concept of lifelong education in a number of industrialized countries (Atchoarena, 1992).

The role played by firms in this development of continuing training is that much more important since the most successful firms realize that it can play a strategic role in helping workers to adapt to new products, technologies and methods of organizing work. This leads to greater co-ordination between firms and the training system, and also between training and the various elements of employment management (classification, careers).

Against this background of increasing co-ordination, one may wonder whether the distinction between lifelong education and continuing training is really valid, since economic demand is tending to give increasing preference to basic qualifications and to behaviour as opposed to knowledge and specific skills. Where are the limits, and how should responsibilities be redefined from this point of view? The question also arises with programmes for the long-term unemployed who have little chance of finding work, where the main concern is with developing their communication skills and spirit of enterprise rather than with teaching them techniques (Atchoarena, 1992).

Interaction between education and productive work

In 1982, the International Bureau of Education (IBE) published an issue of its bulletin which was given over to the interaction between education and productive work, following a Recommendation drawn up on this subject by it in 1980 (Pain, 1982). It proposes a typology

of four types of interaction (which are adopted below with a few changes):

➝ school curricula and productive work are parallel and separate activities;

➝ school curricula are subordinate to productive work, and are drawn up in accordance with the skills to be developed;

➝ productive work is subordinate to school curricula and responds to the aims of education;

➝ school curricula and work are integrated.

IBE also notes that these approaches may be a response to very different concerns – economic, social and ideological as well as educational. The issue in question contains an assessment of the publications dealing with this question. More recently, von Borstel (1992), after stressing the educational potential of an association between work and study, examined the conditions for the success of a form of education that included productive work, while the book by Boeren and Epskamp (1990) includes a review of various approaches adopted by a number of countries. A specialized journal, *Education with Production,* published regularly in Botswana provides reports of experiments, particularly in Africa (the June 1991 issue contains, *inter alia*, a report of a workshop on this subject held in Nairobi in June 1991).

Productive work and education carried out in parallel

Some very contrasting illustrations of this situation can be found. The practice of doing paid work while also studying has been examined by OECD with regard to the member countries of that organization (*Employment Prospects*, 1988). Statistics suggest that such students generally have an advantage compared with others, perhaps because this approach is a better way of fitting into working life and learning more about the labour market. Interpreting this situation is nevertheless difficult. In the United States, where this practice is more frequent than elsewhere, some people wonder whether it might not be preferable for students either to concentrate on their studies in order to get better results, or else to link their activity with their studies so that it takes on some educational value (contribution by the United States to OECD's VOTEC programme).

A second instance is that of someone who works, preferably at a manual job, at the same time as studying, but this is not done for money but for ideological reasons (to create a new human condition or a new society). Various examples of this were observed in the socialist countries, where the recent trend was towards reducing the

importance of manual labour in favour of more educational activities. Some rural schools in Latin America also practise productive work, considering that it is educational in itself, even if unconnected to school work (Boeren and Epskamp, 1990).

Much more frequent is the case of children who, in the developing countries, are obliged to take paid work because of lack of resources. Von Borstel quotes examples of job opportunities being offered to young people while they continued going to school, which enabled them to avoid leaving school early. In many cases, on the contrary, the need to work can prevent children from attending school. In 1982, it was estimated that between 50 million and 200 million children were holding jobs (Pain, 1982). According to recent observations in Africa, because of the economic crisis 'strikes and the closing of schools have put tens of thousands of children on the "informal" job market' (Deblé, 1993).

A final case, in the developing countries, is when productive work provides a response to economic necessity. The resulting produce can be sold or distributed to students (Boeren and Epskamp, 1990). Von Borstel (1992) considers that this is an efficient method of dealing with the budgetary restrictions which are felt in all countries.

Education subordinated to productive work

Pain's typology mentions school curricula, but the chief focus of interest is the training and further training of workers in employment. The main point of reference here is the Japanese experience, which has been the subject of many studies. It particularly concerns workers in major industrial firms and takes place on the job. It is especially difficult to analyse, since job and training overlap so closely. Its success seems linked to a particular context which includes work-force management practices (stability encourages companies to invest in training), and pressure encouraging the employees to seek parallel training. It should be noted that the growth of quality circles, encouraging exchanges of information and giving wage-earners an opportunity to express their opinions, has been seen as part of the educational process.

The international study soon to be published by CEDEFOP should throw an interesting light on the differences between the policies pursued by European firms. They now share an increasing interest in continuing training, seen as an essential factor in productivity and competitiveness through the improvements it brings about in quality and adaptability.

Productive work as a part of the educational process

The dividing line between this situation and the first is not always clear. Psacharopoulos (1990) made an assessment of several examples of participation in production and the introduction of manual work in schools in different African countries because the activities were not highly thought of by the families and the teachers lacked motivation and the necessary qualifications.

Boeren and Epskamp (1990) describe a number of experiments, most of them in Latin America, of farm-schools and training institutions in which students take part in productive activity, which may or may not be profitable, and are linked with educational activities in varying degrees. They analyse the conditions for the success of these experiments, which they see as training for the teachers and management staff, community participation, a concern for economic viability, and greater integration of productive and educational activity.

Here we are coming close to the most characteristic form of this third type of relationship between work and training – 'sandwich' training, which has been arousing much interest in different countries over the last few years. It was the subject of an International Seminar organized by OECD in April 1994, which provided an opportunity for member countries to compare their experiences and policies. There are several different methods.

The most common form is the apprenticeship system, which has been and still is employed in very many countries, in both traditional and industrial societies. In the former, S. Raizen draws a distinction in educational terms between learning based on the observation and imitation of more experienced workers following traditional methods and the teaching of abstract knowledge as in traditional education: the former is a way of life, can show immediate results, concentrates on doing rather than talking and implicitly involves an evaluation since the results are clear for all to see (Raizen, 1991). The difficulty lies in knowing to what extent this kind of learning can contribute to modernization or include an academic element when the two systems are based on opposing principles from the point of view of social and economic status even more than of their educational standing.

In industrialized countries, apprenticeship is usually associated with the traditional occupations of skilled workers, particularly in such areas as the building industry. In the developing countries, it concerns traditional crafts and it is important to establish to what extent it could be modernized in order to help these occupations adapt to new circumstances.

The apprenticeship training generally pointed to as an example today is the one provided in the Germanic countries. It usually involves an alternation between a school providing theoretical instruction (for one day a week or more, or set periods) and a company (but sometimes too in specially designed workshops, when companies are unable to provide a sufficient range of activities) in which practical skills are acquired under real production conditions. It is the norm for the majority of young people; it is accessible from several levels and can lead to higher education. The certificates awarded are recognized on the labour market (cf. articles by Drexel and others in *Formation Emploi,* 1993).

Many countries would like to follow this model, but it cannot easily be transferred to other contexts since it implies a consensus between three partners (government, business and labour representatives); heavy investment by the companies in order to provide places and the necessary resources for the follow-up of apprentices; a structured programme and competent and accessible staff. When these conditions are met, the system offers advantages on three levels: for the apprentices, the possibility of familiarizing themselves with the working world and with a trade that facilitates their entry into working life; for the company, the means of selecting its personnel; and on the educational level, complementarity between theoretical and practical learning. As far as possible, these must be closely linked, but this may not always be the case.

As has already been mentioned, other OECD countries are seeking to integrate work experience into vocational-training curricula. Most of the time, students retain their student status and their training remains the responsibility of the school, though the reverse is true in the German system.

Another form of 'sandwich' training has been developed with the courses set up for disadvantaged and unemployed young people (in France, on the initiative of B. Schwartz). These courses aim more at integration into society and the world of employment than at providing remedial teaching. Relatively short periods in companies are generally not enough to provide genuine educational content, but they are an important part of socialization (coming up against the restrictions of social and working life) and finding one's way (discovery of trades).

Finally, a form of organization whose development is in full swing is that of partnerships between schools or universities and businesses, for both the devising and implementation of training programmes (for example in the banking sector).

Work integrated with schooling

The introduction of practical work into school as part of education is an ancient and universal practice. It relates to a slightly different approach from the one that concerns us here, and we do not feel it necessary to expand on this point.

Final remarks

This very brief overview of a very vast field, concerning which only a part of the available literature could be reviewed, enables us to raise a few questions which can be expressed in the form of contradictions or contrasts.

From the point of view of the relations between education, employment and the needs of the economy, this report may arouse contradictory impressions. On the one hand, it is a fair conclusion that most education systems are insufficiently responsive to the economic environment and slow to adapt. Increasing their responsiveness and their flexibility can therefore be seen as a necessity. Those responsible for education often speak of this necessity, but this does not automatically lead to effective action because education systems, particularly those which are most institutionalized, have a momentum of their own and obey other obligations.

On the other hand, however, all studies show that it is difficult to speak of objective economic needs, that the evaluation of these economic needs is random and approximate, that perhaps they concern basic education more than specific training, and finally, that since the traditional forms of work are being increasingly challenged, it is less desirable than ever to direct education systems essentially in accordance with them. This view might lead to a questioning of the role of a vocational training system that could be too rigid and too costly, but it should not dissuade education systems and establishments from seeking closer integration with their economic environment, nor give any encouragement to their tendency to isolationism. Nor should we relinquish the search for some sort of balance between educational development, on the one hand, and employment and the economy, on the other, even if this balance cannot result from any mechanical adjustment.

The most obvious conclusion has been stated in the contribution by C. Pair (see page 231): in circumstances where the future is uncertain the best way of preparing young people for employment is to encourage adaptability. It may also be the case that the increasing co-ordination between education and work is not only (and perhaps not mainly) a

question of adaptation of courses and contents, but at least as much one of familiarization with the world of productive work and the mental attitudes and behaviour that it involves. Rather than seeking to adapt education to the world of work, which is perhaps not possible and not necessarily desirable, it would probably be more useful to explore the different forms of association and partnership and the system of alternating periods of work and study.

The problem of adaptation leads to another contrast, between two cultures and between two methods. On the one hand is the way of proceeding based on planning, technology and, in general, on strong centralization. On the other hand is the way which relies on the market and on decentralized, often private, initiatives. The first method, which was very common thirty years ago, is out-dated today and the only thing that concerns it now is adapting to the market. We need to be aware of the limits of the second approach, however. The market has a poor understanding of its own needs and often has a narrow, short-term and purely local view of them.

In any case, some form of national regulation of the education system is necessary in order to allow in a global way for a whole series of demographic, economic and social considerations. This implies a strategic approach which may impose some difficult choices, often of a political nature; an approach founded more on future studies than on forecasts and which is concerned less with the product of the planning (a document) than with the process itself, which in turn implies co-ordination between all the different partners at all levels; and a global approach aiming at integrated development.

Lack of education may be a hindrance to development, but educational expansion which is not part of a real process of development can be a source of frustration and expensive waste. Insufficient integration between educational and development policies has already been condemned by Fay Chung (1993). The problem arises at the local as well as at the national level and has an effect on the success of all attempts at improving the adaptation of education to the environment.

If economic needs are too uncertain and job prospects are too unpredictable, should we trust social demand instead? This is in fact what most education systems do, often using the needs of the economy as a cover. As we have pointed out, however, social demand emanates above all from the privileged classes and chiefly concerns the highest and most expensive forms of education. In satisfying this demand, we are in danger of sacrificing basic education, which could in the long term provide a response to economic as well as to social needs.

A further contrast could be made between education systems and world regions. As far as the systems are concerned, it is significant that the most economically successful countries have education systems and, above all, vocational training systems that differ widely. The obvious conclusion is that there is no ideal system and that what is important is the way these systems actually work and the degree to which they match the institutional and cultural environment and national traditions.

In this connection, another contrast visible throughout this report concerns geographical areas. In education and in economic development, the gap between the poorest and the richest countries has only worsened, as Chung's paper points out. The latest reports on the situation in a number of African countries show a qualitative as well as a quantitative decline in the standard and extent of schooling. In this context, traditional studies based on elaborate methods may seem derisory and beside the point.

As Chung's paper also points out, in many developing countries, the majority of the population cannot get regular jobs in the modern sector and a large percentage are condemned to remain in a state of long-term underemployment or even unemployment. General as well as vocational education thus seems increasingly out of touch with reality.

What is new today is that this type of problem is also beginning to appear in a number of advanced industrial countries, although in different terms. In many of these countries, unemployment and under-employment are growing and are tending to become permanent among certain sections of the population. This is going hand in hand with increased social exclusion and a re-emergence of the parallel economy. The forms of employment are diversifying and are often moving away from the traditional notion of stable, paid, full-time employment.

At the same time and in the same countries (and here we find the opposite situation from the one in developing countries), continual progress in terms of productivity will probably lead to a substantial decrease in the time devoted to paid work. Marx considered that the time gained should be dedicated to similar but superior activities, of a scientific or artistic nature. Continuing this line of thought, Hanna Arendt reminded us that the desire for freedom from work is as old as history, but that modern society has glorified work. Thus 'this wish is now coming true, just as in fairy tales, but at a time when it can do no more than lead to confusion. A whole society of workers is to be liberated from the chains of work, and this society no longer knows anything about the higher and more fruitful activities for which liberty

would be worth acquiring' (*The Condition of Modern Man*). This subject has also been discussed by Gorz (1988).

Whether we are concerned with the many people still living in traditional societies, or those rejected by or benefiting from advanced industrial society, the problem of the adaptation of education systems to a situation other than that of conventional stable employment in a modern economy arises, although in different terms. Rather than identifying work with traditional employment, more consideration must be given to the needs of people, who must be trained for a broad range of activities, whether utilitarian, cultural or leisure, and in the domestic or social spheres. Perret and Roustang (1993), after commenting on the difficult situation facing many French people who are attempting to gain access to the labour market, suggest other ways, such as social integration by means of useful work outside traditional forms of employment and informal and voluntary activities.

This problem cannot be solved just by changing the curricula within the framework of school alone. Once again, it can only be approached in a global fashion and from the point of view of lifelong education.

In this brief review there have been several references to attempts to deal with this problem (Chung's paper also refers to this), notably at a local level and in a number of developing countries. Given the vast range of the subject, we have referred mostly to studies of a general character, avoiding specific national experiments. The fact that there often exist contradictory evaluations of these experiments demonstrates the need for more objective and deeper evaluations, which would require perspective and comparison, in turn demanding time and resources which are not available here. Nevertheless, we must recommend that greater stress be placed on evaluations of this type concerning innovative experiments which have been judged promising, particularly in the developing countries. In the case of the industrialized countries the discussion has only just begun, so that in this field, everything still remains to be accomplished.

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Effects of educational level on fertility and child health/mortality

Mouna L. Samman

From the large amount of research accumulated to date, it may be seen that the impact of female education on fertility, health and child mortality is stronger than either that of male education or, in general, any other socio-economic factor.

Education has the potential to both increase fertility and to reduce it; the strength of these opposing effects varies considerably, depending on the cultural and development contexts. In most societies, there is a threshold of education beyond which reductions in fertility are generated: most often at the level of some secondary schooling or after approximately seven years of education. Moreover, a country needs to achieve a particular level of development before a negative effect of education can be observed on fertility.

When economic realities for women become more secure and their relative power in household decision-making more comprehensive, the effect of education, through a lower desired family size and increased contraception, becomes important for fertility. The stage at which this occurs depends largely on the cultural context and is particularly conditioned by the position that women occupy in the traditional kinship structure of a society.

From the policy point of view, if basic education is currently considered as the minimum level required for all in order to attain any sustainable strategy addressing population concerns, higher levels of education are in fact needed for girls to change their orientation towards reproductive and family life.

As far as population-related contents for school curricula and their

effects on demographic behaviour are concerned, much further research is required to assess the impact[1] obtained, in order that the necessary political choices may be made.

During the last twenty years much attention has been focused on studying the effects of education on fertility and mortality, within a more general theme of relationships between education, social change and development. Regardless of the approach, the considerable research accumulated to date shows that, on balance, the impact of female education on fertility is stronger than either that of male education or other household socio-economic characteristics. In addition, female education is more closely related to a child's chance of survival than any other socio-economic factor, as the mother is the person most intimately concerned with child welfare (see Table 1). It seems that education sets off important changes in women's situations in ways which in turn impinge directly or indirectly on fertility and mortality: a source of knowledge and means of exposure to modern life, education is also a tool to enhance women's opportunities in the paid employment sector. It represents an important factor in women's empowerment, enabling them to acquire more autonomy in decision-making and greater control over material resources. This explains why most of the studies concerning relationships between education and demographic

1. Within the framework of the World Health Organization's Global Programme on AIDS, a survey was carried out on the effects of introducing sex education in schools. The results show the impact of this education on the sexual behaviour of the target group, revealing that there is no evidence that this education encourages early sex experimentation but, on the contrary, it leads young people to delay sexual activity and to practise safer sex when they are sexually active (mutual monogamy between uninfected partners, non-penetrative sex and sexual intercourse with condoms). The study also observed that school programmes were more effective when given before young people became sexually active and when they emphasized skills and social norms rather than knowledge. (A. Grunseit and S. Kippax, *Effects of Sex Education on Young People's Sexual Behavior*, Geneva, WHO, 1993.)

From a comparative review of the impact of population education programmes, implemented by UNESCO in ten countries, an evident evolution in the opinions and attitudes of the target group was observed. The students that followed population education sessions at school were, for example, more conscious of population, social and environmental problems and their interrelationships. They felt more concerned by family planning and more in favour of mastering population growth. They also proved to have a more balanced vision of women's role and status. As far as the changes in their demographic behaviour are concerned, it is difficult to evalidate them in the short term.

Table 1. Evolution of some key indicators

Region	Estimated female enrolment ratios 6–23 age group[1]		Infant mortality per 1,000 live births[2]		Number of births per woman[2]		Percentage of couples using contraceptive methods[3]
	1975	1990	1975–80	1985–90	1975–80	1985–90	1987
Africa	25.6	34.8	126	103	6.5	6.2	17
Latin America	52.9	63.3	70	54	4.4	3.4	57
North America	62.5	70.0	14	10	1.9	1.8	–
Asia	38.7	42.4	91	72	4.1	3.5	53
Europe	62.7	67.9	19	13	1.9	1.7	–
More developed regions	66.8	72.0	19	15	2.0	1.9	71
Less developed regions	37.6	42.8	97	78	4.5	3.9	48

1. *UNESCO Statistical Yearbook,* 1991.
2. United Nations, *World Population Prospects,* 1990.
3. Refers to couples with wives of reproductive age. From the United Nations Secretariat paper, *Population and Women: A Review of Issues and Trends,* 1992.

behaviour are primarily concentrated on female education, which is being considered more and more as an essential component of fertility and mortality analysis.

It should be noted, however, that education is measured by *length of attendance at school.* Information on relationships with other aspects of schooling, such as intensity, quality, content and style of instruction, that would be valuable for studying the effects of education on demographic behaviour are very rare. Some researchers argue that it is predominantly the *fact* of education which is important. Others ascertain that the *content of the school curriculum* (particularly when focusing on issues related to population, health and reproductive life), the organization of instruction and the social process of learning are also of utmost importance.

Relationship between women's education and fertility

General considerations

Although it is widely argued that the enhancement of women's education is critical for fertility reduction, the evidence for this effect is neither as general nor as strong as is often implied. Education does not automatically reduce fertility in all circumstances and the processes through which this occurs are quite diverse. Moreover, there are even signs of the start of a demographic transition process, in which fertility is declining even in a poor illiterate population and without any noticeable change in the status of women, possibly because of the insecurity they feel, the growing economic burden and the social difficulties caused by having a large family. Nevertheless, if the decline in fertility is to be lasting, living conditions must be improved.

Current evidence would suggest two major points of interest. First, in the early stages of development, a small amount of education (lower or upper primary) can increase, or at best have a negligible negative effect on, fertility. In other words, a country needs to achieve a particular level of development before a negative effect of education can be observed on fertility. Of the thirty-five World Fertility Survey[2] (WFS) countries classified by level of development, for example, inverse relationships between education and fertility were observed in the majority (twelve out of nineteen) of the more developed countries, compared with only two out of sixteen of the less developed. Even within countries, better developed regions and urban areas are systematically more likely to report inverse relationships than are lesser developed or rural areas. Another study, in Nigeria, reports a positive association between maternal education and fertility in the less developed northern region and an inverse relationship (after primary schooling) in the more developed south.

Second, in most societies, there is a threshold of education beyond which differentials in fertility are generated, most often at the level of some secondary schooling or about seven to eight years of education. This pattern is evident in diverse settings from surveys in Pakistan, Java and Bali, and even in the more developed countries of the developing world, for example Colombia, Mexico, Peru and Sri Lanka.

2. The World Fertility Survey (WFS) for the 1970s and the Demographic and Health Surveys (DHS) for the 1980s and 1990s provide comparable data from more than forty developing countries.

Intervening proximate determinants of fertility

Education affects the supply of children in at least three quite unintentional ways, that is, as a result of changes in behaviour which were not deliberately undertaken to affect fertility.

First, education delays entry into marriage, thus shortening the overall length of time during which a woman is exposed to the risk of pregnancy. Results from thirty-eight WFS countries suggest that the mean age at marriage is almost four years higher among women with at least seven years of schooling as compared to uneducated women. However, education does not necessarily change attitudes towards marriage; for example, studies of young Indian women indicate highly traditional attitudes towards marriage, even among educated women.

Second, there is a decline in the duration and intensity of breast-feeding among more educated women; and traditional postpartum abstinence taboos are less likely to be observed among them. According to WFS, the Demographic and Health Survey (DHS) and other surveys concerning breast-feeding duration, differences between the least and most educated women averaged 7.5 months and ranged from 2 to 15 months in the 1970s. Ten years later, differences concerning the same countries still existed, but had slightly narrowed. Concerning postpartum abstinence, a study in urban Nigeria reported that the average duration declined from 22.5 months, among uneducated women, to 7.6 months among post-secondary-school educated women. Prolonged breast-feeding and postpartum abstinence have been two mechanisms which have traditionally kept fertility relatively low in many regions of the developing world. Education, and the exposure to the outside world that accompanies it, has frequently been observed to erode these mechanisms, resulting in an increase in fertility.

Finally, education is associated with lower infant and child mortality. Child mortality declines and improved child survival both have a mechanical and behavioural effect on fertility. Mechanically, especially in breast-feeding societies, improved infant mortality implies longer birth intervals and therefore a slower pace of childbearing. However, deliberate modifications of behaviour arise from one's own child mortality experience and one's perceptions of the likelihood of child death: there can be a tendency to replace dead children or produce more than the desired number of children to ensure a buffer in case of mortality. Improved child survival, which accompanies education, would lead to lower fertility.

To summarize, the inadvertent effects of maternal education on

fertility are both positive (through diminished breast-feeding and postpartum abstinence and possible higher fecundity) and negative (through improved child survival and more particularly through increased age at marriage). The strengths of these effects vary with cultural contexts and levels of education. On balance, when fertility-enhancing effects of education through reduced breast-feeding and abstinence are not sufficiently offset by fertility-reducing effects (such as increased marital age, reduced child mortality and increased contraception), fertility undoubtedly increases. This, in turn, explains the increased fertility of women with little education mentioned earlier.

Determinants underlying parental demand for children

In general, in all societies, whatever their type of development, fertility rates have as their rationale the value systems in force, and family size desires are dictated by a variety of motives. All of these are felt, undoubtedly, by women and men; some however are felt more intensely by women. The developing world exhibits considerable variation in the number of children desired. Desired family size is highest in sub-Saharan Africa (six to nine), followed by West Asia (five to six), North Africa (four to five), East and South Asia and Latin America (three to five) – roughly following the pattern of regional differences in educational attainment.

Important motives underlying desired family size include the strength of the son preference; few regions in the developing world value their daughters as much as they value their sons. Only ten out of thirty-eight WFS countries display an equal sex preference or preference for daughters over sons, and eight of these are in Latin America and the Caribbean. Very strong preference is observed in Chinese cultures and in South Asia where sons represent between three-fifths and three-quarters of total desired family size. The evidence is that cultural preference for sons is eroded only after a relatively high level of education has been achieved. A national survey in India (1990) found that in women who had not attained a certain level of secondary education, family-size preference overwhelmingly favoured sons. How rapidly education diminishes the preference for sons depends to a large extent on the underlying kinship structure, and the costs and values attached to children of each sex.

Another motive underlying desired family size concerns the extent of women's dependence on reproduction for social acceptance (children as a source of prestige) and on children (or sons) for economic security. In societies as diverse as sub-Saharan Africa, and East, South-East and

South Asia, fertility is a means to legitimizing a woman's position in her marital family. Childlessness is deeply feared and is sufficient justification for taking on a second wife or for desertion. The speed with which educated women will change their reliance on children is closely linked with their autonomy and access to family resources. Where education grants women increased self-reliance (the relationship between women's work and fertility, particularly outside the family circle and home, is well established) or leads them to prefer more labour-intensive child-rearing practices, we might expect its effect on desired fertility to be quite strong. However, if educated women derive autonomy in limited spheres such as deciding on the duration of postpartum abstinence, child health-care and so on, even educated women with some autonomy cannot be expected to reduce their reliance on children easily and the effect on desired family size may not be as strong.

Women's education and fertility regulation

There is ample evidence of the link between education and contraceptive knowledge/approval and fertility. For example, the results of some fifteen DHS (in sub-Saharan Africa, North Africa, Asia and Latin America) indicate a systematic increase in knowledge of modern contraceptive methods through education. Education is also positively related to contraceptive prevalence. For example, the gap between uneducated women and highly educated women ranges from approximately 20 per cent in Colombia and the Dominican Republic to over 40 per cent in Bolivia, Ecuador, Guatemala, Mexico and Peru. Moreover, even a few years of education make a difference on the condition that family planning programmes exist, directed towards the least educated women.

In this context, one should notice the fertility fall among a growing number of very poor and uneducated women due to malthusian practices, as a result of intensive information campaigns, the large-scale availability of contraception and the development of family-planning services.

The different stages of transition

Studies have shown that, at early stages of development, the primary effect of education is through inadvertent fertility-enhancing factors; thereafter through delayed marriage, an inadvertent but fertility-depressing factor; this effect does gradually weaken and is probably overtaken by the effects through deliberate demand-related factors.

Table 2. Total fertility rate (TFR), mean desired family size and contraceptive prevalence, according to women's years of education

	TFR[1]					Mean desired family size[2]						Contraceptive prevalence[3]					
	Total	0	1–3	4–6	7–9	10+	Total	0	1–3	4–6	7–9	10+	Total	0	1–3	4–6	7–9	10+
Bolivia	5.1	6.2	6.4	5.3	4.2	2.8	2.8	2.6	2.6	2.9	2.8	3.0	30	12	23	31	43	53
Brazil	3.7	6.7	5.2	3.4	2.8	2.2	3.0	3.0	3.1	2.9	2.9	2.9	66	47	59	71	76	73
Colombia	3.3	5.6	4.5	3.6	2.5	1.8	3.0	3.2	3.1	3.0	2.9	2.9	65	53	61	65	73	73
Dominican Republic	3.8	5.8	5.0	4.4	3.5	2.6	3.6	3.6	3.7	3.5	3.5	3.5	50	38	47	51	49	57
Ecuador	4.3	6.4	6.3	4.7	3.5	2.6	3.2	3.4	3.4	3.3	3.0	3.1	44	18	37	43	50	61
El Salvador	4.4	6.0	5.2	3.9	3.5	2.5	3.9	4.3	4.0	3.5	3.3	3.3	47	37	42	55	51	64
Guatemala	5.6	6.9	5.6	4.2	2.8	2.7	4.2	4.6	4.0	3.5	3.7	3.4	23	10	24	42	60	60
Mexico	4.1	6.4	6.3	4.0	2.7	2.4	3.3	4.0	3.4	3.2	3.0	2.9	53	25	44	58	70	69
Peru	4.5	7.4	6.1	4.6	3.7	2.5	2.9	3.0	3.1	2.8	2.8	2.8	46	19	33	46	60	67

1. TFR based on the five-year period prior to the survey. TFR refers to ages 15–49 (15–44 in Brazil and Guatemala).
2. Desired family size is adjusted by a woman's age and number of living children.
3. Based on currently married women.
Source: DHS standard recode tapes.

It is when economic realities for women become more secure, and their relative power in household decision-making becomes more comprehensive, that the effects of education – through a lower desired family size and increased contraception – become important for fertility. The stage at which this occurs depends largely on the cultural context or the traditional situation of women in respect to economic and other forms of self-reliance. There is a suggestion that variations in the pace of educational expansion and resulting changes in reproductive attitudes and behaviours may both be conditioned by the position that women occupy in the traditional kinship structure of a society.

Where the pre-existing situation grants women autonomy over family decisions and economics, as in parts of Latin America for example, even a little education may have a dampening effect on fertility (see Table 2). Where the traditional kinship structure assigns little independence to women, as in South Asia and to a lesser extent, sub-Saharan Africa, high levels of education may be necessary to affect family size preferences and contraception.

Maternal education, child health and mortality

The effect of women's education on child nutritional/health conditions and mortality was found to be probably its most pervasive and consistently observed effect; here, the linkage is more direct and the process through which it functions is less complex than for education and fertility. Educated women tend to be less fatalistic about illness. They are more aware of nutrition and more knowledgeable when it comes to health practices. They also have more concern for hygiene. For example, in rural India, it was found that the mother's education is an important determinant of utilization of medical services, especially medical attendance at delivery and vaccination of infants. A Jordanian study showed that maternal literacy is associated with better personal hygiene and a Mexican study observed that regular hand-washing was far more common among educated mothers than others. Analysis concluded, however, that it is hard to measure the exact magnitude of the relations between maternal education and child health/mortality and to estimate its actual effect. Another confounding fact is that families who usually seek health-care are also those who tend to invest in education, and the two effects cannot be separated. Moreover, the rapid decline in overall childhood mortality that characterized the twenty-year period from the 1960s to the 1980s cannot, apparently, be traced primarily to changes in the proportion of women who have achieved moderate and higher levels of education; improved urban

structures and better health-care systems have also contributed to mortality gains. Data from Colombia have shown that the effect of education on child health becomes less important when access to public health facilities improves and is widely available.

Recent in-depth studies covering countries with various mortality conditions and stages of development have concluded that even a small amount of education affects child mortality levels. A recent review of data from earlier comparative studies concluded that each additional year of maternal education is associated with a decline of 7 to 9 per cent in child mortality. From the recent DHS, we have evidence that child mortality declines are perceptible from primary school onwards; the positive effect is stronger at 1 to 4 years of age than during the first year of life.

To the positive effects of maternal education on the level of infant and juvenile mortality, we should add the impact of the educational attainment of the mothers on maternal mortality at the time of delivery: five years of education are associated with a decline of 10 deaths per 1,000 child births. In the same way, maternal education contributes to the reduction of the prevalence of AIDS.

It has been observed that education may also reduce spontaneous foetal deaths by improving nutrition and maternal health. A study undertaken in Hungary showed that foetuses having the least chance of survival were those whose mothers had not completed the first eight grades of general schooling. Furthermore, higher educational attainment generally leads to more comfortable working conditions for the pregnant woman, which is not negligible from the point of view of foetal development. It is evident from the Hungarian study, for example, that the development of foetuses was harmed by the fact of mothers working night shifts. The educational attainment of the mothers appears to have the greatest impact on number of babies born with low birth-weight. However, in the case of low birth-weight due to poor nutrition, economic status proved to be almost as important as education as a determinant of growth.

Another fundamental set of questions relates to the role of health services as an intervening variable between maternal health and child mortality. In this context, there is considerable evidence that maternal education promotes the utilization of existing health services and facilities by increasing women's awareness of beneficial hygienic and nutritional practices and knowledge about health and diseases, by encouraging them to participate more effectively in household decision-making and by enhancing their ability to interact with extrafamilial institutions.

Health benefits have been calculated in terms of financial benefits for the society as a whole. According to data relating to India and Kenya, it was found that the cost of schooling of 1,000 girls is less than the cost of sanitary systems to obtain the same results in terms of reduction of mortality and fertility. For example, in India, the schooling of an additional 1,000 girls would avoid 2 maternal deaths, 43 deaths of children under 5 years and 300 births. The cost of such a result would come to US$32,000 through educational means and US$110,000 through sanitary services and family planning. We can conclude that the education of mothers is a more beneficial investment in terms of health than the improvement of the sanitary sector in itself.

Conclusions

The fact that schooling has a powerful and pervasive effect on reproductive behaviour, health and mortality is undisputed. In this framework, basic education for all is a prerequisite and the minimum level to be attained by any sustainable strategy addressing population concerns. The accumulated evidence provides a compelling rationale for advocating increased investment in education and the elimination of institutional and cultural barriers to women's access to schooling. From a policy point of view, it is also important to note that a higher level of education is still needed to change girls' orientation towards life and, more specifically, towards reproductive family life. It is therefore necessary to envisage expanding the opportunities for secondary education and training, especially for girls.

As far as the quality and special content of education and its effects on demographic behaviour are concerned, much more research is required in order to better understand the mechanisms involved and the impact obtained, so that the appropriate political choices may be made.

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Diverse aspects
of the education process

Basic education
in the twenty-first century
Victor M. Ordoñez

Introduction

On the threshold of the twenty-first century, the world is witnessing major changes in the coverage, structure and, indeed, the very conception of what constitutes basic education. These changes have been marked and, to a lesser extent, brought about by a number of recent landmark events focusing on basic education: International Literacy Year 1990, the World Conference on Education for All, the World Summit for Children and the Education for All Summit of the Nine High-Population Countries. Indeed, the holding of these events is evidence of a gradual but fundamental change in the manner in which education is perceived in relation to economic development. Once seen as an item of consumption, education is now recognized as an investment in the most essential factor of production: human competence. The importance of basic education has also been given fresh impulse by the growing attention being given to social development by the United Nations system. Recent major United Nations conferences have examined different aspects of social development and sought to influence national opinion and policies in regard to them: for example, the International Conference on Population and Development in Cairo, the World Summit for Social Development in Copenhagen and the Fourth World Conference on Women in Beijing. Education is the key to progress in all of these areas. Hence, to the arguments for education as a basic human right must be added that in favour of it as an indispensable means for social and economic development.

On the national level, these changes are a result of an increasingly evident commitment and political will on the part of governments, and increasing involvements of agencies, non-governmental organizations, media and other partners in the Education for All alliance.

These emerging changes will address both the need to expand access to education to the millions who still have no educational opportunities, and to improve the quality, relevance and usefulness of the education actually received by those who have some access.

Expanding access to basic education

The record of the twentieth century in expanding educational opportunities is both a source of pride and of shame. For much of the world, the concept of obligatory and free public schooling began in this century. Indeed, for most of the developing world, mass education began in earnest only after the achievement of independence in the decades following the Second World War. Since 1960, enrolment in the world's schools has doubled, growing from an estimated 250 million children in 1960 to approximately 500 million today. As a result, these enormous educational efforts have almost tripled the number of *literate* adults in the world's population from 1,002 million in 1960 to over 2,700 million today. This is a profound and fundamental change that will have far-reaching consequences in all areas of human endeavour.

And yet, there are still more than 900 million adult *illiterates* in the world today. It is an outrage to the human conscience that one out of five men and two out of five women in this world will enter the twenty-first century deprived of the most essential skills – the ability to read, write and calculate – for effective participation in the modern world. In the poorer regions of the globe, the harsh reality has been that the great efforts towards expanding education systems have not been able to keep up with galloping rates of population growth.

The next century will see nations and societies giving special attention to providing some form of education for all. They will learn from the experience of the past that reaching the unreached does not merely mean expanding existing education systems. They will recognize that groups or parts of society left unserved are precisely those who find existing delivery systems unsuitable to their needs, life patterns and aspirations. Educators will, therefore, devise and design new models and delivery systems especially tailored to the subgroups they are intended to serve. This is true whether the unreached are the few

(e.g. minority groups, nomads, etc.) or the many, as in some societies, even a majority of children and adults.

In countries – mostly in sub-Saharan Africa and South Asia – where literacy rates and school-enrolment rates are around 50 per cent or lower, education systems adapted from the North will have to be seriously studied and, quite possibly, overhauled. Limited resources, constraints arising from structural adjustments and lack of traditionally trained teachers may mean that major segments of society will continue to be unserved and unharnessed for development, if countries insist on pursuing an educational delivery paradigm that is neither affordable nor relevant to the economy and society. In one African country, for example, a recently installed government has chosen to replace traditional primary schools with community learning centres as the key educational institution in the village. These quasi-autonomous community learning centres serve simultaneously as day-care centres for young children; literacy and skills development centres for adults, using peer teaching and learning methods; and as the venue for educating children, using community parents as well as trained learning facilitators to identify learning needs and effective ways of meeting them within the context of the community.

Even in countries where literacy and schooling are almost universal, there continue to be pockets and parts of the population that remain under-served. Ethnic and religious minority groups, remote island and mountain populations, nomadic tribes, immigrant populations, short- or long-term refugee settlements, street and working children are but a few of the many diverse groups that require specially designed educational delivery systems. In the next century, nations will become increasingly aware of the need to make education truly universal – if only for the sake of keeping the social fabric intact – and the need to take innovative measures and even to face higher per capita costs in order to do so. Effective projects for specific groups launched in the 1990s will, in many cases, be the sources of inspiration to which educators will turn in the twenty-first century in designing larger-scale national programmes.

Perhaps the most glaring shortcoming of present educational practice is the intolerable disparity of educational opportunity between men and women. In some nations the differences are especially striking, but as a recent United Nations Development Programme report points out, there is no nation on earth in which women are treated as favourably as men, and this is true in education as in other fields. Unless there is a dramatic change in the prevailing trends, three regions

of the world will enter the twenty-first century with half of their women still illiterate and with a gap of more than 20 per cent between the literacy rates of women and those of men: sub-Saharan Africa (30 per cent compared with 50 per cent), South Asia (34 against 59 per cent) and the Arab States (27 against 49 per cent). Fortunately, the 1990s have witnessed a fundamental change in both declared policy and national resolve to close the gender gap. Strengthened political resolve in the capital has not as yet, however, filtered down to villages and communities, and brought about the needed changes. The task of the twenty-first century will be to translate honourable intentions into an acceptable reality.

Children with special needs are a subgroup that has traditionally been discriminated against. Important research findings inform us that up to three or four children in the average classroom, the world over are apt to have special learning needs due to hearing or visual impairments or other reasons. These are not dramatic enough to warrant education in specialized institutions, but their problems are often misjudged by poorly trained teachers and interpreted as reflecting a lack of motivation or ability. In many cases, such children are judged unfit for schooling. Reorienting schools and teacher-training institutions in order that special needs may be recognized and handled would save an estimated 10 per cent of the population from being misjudged and miseducated or, as all too often happens, denied the benefits of an education. Recognition of the need for education to be tailored to the child – and not the other way around – will result in a fundamental reorientation of schooling in the next century. In the ideal school of the next century, each child with his or her special gifts and limitations should thus be offered a tailor-made programme that can maximize his or her learning potential and capacity to contribute to society as an adult.

Reshaping the content and process of basic education

While attending to the minority who still have no access to education, the nations of the world will not neglect the majority who do have some access, but whose needs are not fully met or whose potential is not being fully realized by this available education. There is a current preoccupation with improving the quality of education systems that already exist, but the next century will almost certainly look beyond issues of quality improvement to question the relevance of the very structure, content and process of the educational endeavour.

To be sure, education ministries in the next century will continue

to concern themselves with the essential means to improve the quality of education: first and foremost, the improvement of the teachers and other education workers, both by in-service and pre-service training as well by bettering the status, conditions and remuneration of teachers; then also regular curriculum revision, greater provision of textbooks and other learning materials, more reliable measurement of learning achievement, improving the conditions of learning (school buildings and furniture, parent/community support, etc.). But already there is a growing sense that the next century will have to look more at effectiveness rather than efficiency, at doing the right things rather than doing things right, at making better things rather than making things better.

All this implies an effort in the next century to come to grips with the persistent malaise of education systems that produce graduates who cannot find jobs, that develop students who do not return to their communities or even their countries because of the alienating experience within a transplanted education system, that perpetuate traditional academic disciplines over thematic studies that truly meet the needs of society, the community and the individual.

Countries that have already started to fundamentally re-examine the premises of their education systems – and which may well be the trailblazers that others will follow in the next century – seem to have focused on community involvement at the grass-roots level as the key to reform. The alienation and irrelevance of centrally governed systems stem precisely from communities and learners being at the passive receiving end of an educational process whose content and pedagogy are predetermined without their involvement, input or commitment. Returning ownership and control of this process naturally leads to a re-examination of content and process in the light of their usefulness, whether for employment and productivity, for health, environment and other life skills, or for personal development. The boundaries and accompanying stigmas associated with formal, non-formal and adult education fade and eventually become meaningless. Education becomes a lifelong process, preparing individuals for lifestyles and even career changes that are inevitable in a rapidly changing world. An atmosphere transforming a community into a mutually teaching/learning community is thus engendered and sustained. Family responsibility for the care of their children will be supported rather than undermined; as a result, children in the first years before schooling will receive early care more systematically than ever before. Communities would first call upon their own material and human resources where possible

and, complemented by a judicious interaction with the outside only at strategic times and for strategic purposes, would thus avoid unhealthy dependence on outside resources and initiatives. This fits in well with a global trend towards subsidiarity and decentralization of governance, especially in larger countries.

This is not to say that a community-driven education should lead to narrow parochialism. The next century will naturally demand of communities themselves an openness to new knowledge and new modes of transmitting that knowledge, with greater need for scientific/ technological literacy and greater use of media and other forms of distance education. There would inevitably be engendered a sense of belonging to both the local and the global community.

Thus curricula will gradually be structured by theme issues and life skills more than by traditional subject areas; pedagogy will assume a more discovery/participatory learning mode to replace the autocratic one-way transmission of 'knowledge' by the teacher/expert (so inimical to the professed goal of education to teach democracy, tolerance and interaction with peers); teachers will find themselves with redefined roles and the requirements for these new roles may well be different from the credential-heavy and discipline-biased requirements of today.

A particular case as regards curricular content could be mentioned: the more thoughtful educationists are correctly pointing out that while education systems around the world have progressed in the technologies of imparting literacy and numeracy skills, they have not made much progress in the technologies for imparting the third major area, that encompassing life skills, social skills or values skills. While the twentieth century has produced a generation of experts in computers and the knowledge explosion, this generation is far from being proficient, much less expert, in the values and life skills of peace, tolerance and respect for diversity, and the ethical foundations upon which such skills and knowledge must be based. It has been said that the failure of educators in this century is not the failure to teach science, language or mathematics, but the failure to teach humankind to live together in peace and to harness the potentials in individuals and societies for full and equitable development. While tomes are written on the teaching of the traditional disciplines, little is known about how to generate a school atmosphere in which the more fundamental values in life are 'caught' rather than 'taught'. Many young adults faced with conflict in a multi-ethnic society may well have turned to violence by default, as the schooling of their childhood years had given them no opportunity to handle dialogue and diversity

of opinion, where the role models at school were teachers of absolute power and one-way communication, where repression and rigid uniformity rather than democratic openness constituted the prevailing atmosphere.

Conclusions

While the exact new shape of the reform will be radically different from country to country, it is safe to say that in most cases the direction of change will be away from the traditional structures as we know them. It must be stated that this reform will be largely dependent on the recasting of a new economic order in the countries themselves, so that resources needed for these reforms can be rechannelled from other uses or misuses. Significantly, a new economic order in the countries of the developing world will in turn depend on the willingness of the rest of the global community to fundamentally reshape a new international economic order, based on new premises regarding the distribution of the world's resources and global income.

While all this goes well beyond the province of basic education, it is paradoxically only upon the basis of a new paradigm of basic education that we can plant in the minds and hearts of future generations the capability and, more importantly, the resolve and commitment to bring about the fundamental change that will be so essential to human progress and well-being in the twenty-first century.

Educational quality and effective schooling

Ken Gannicott and
David Throsby

During the 1960s, the recognition that public expenditure on education was not a form of social welfare or consumption expenditure but a hard-headed investment crucial to economic growth caused something of a revolution among educational planners and policy-makers. The desirability of such investment was interpreted in these early days in both developed and developing countries as indicating the need for expansion of educational facilities to allow for increases in enrolments. The Organisation for Economic Co-operation and Development (OECD) countries were experiencing rapid economic growth at that time, and investment in educational expansion held out the prospects of continued economic benefits. In the developing world, the countries of Africa and Asia gave high priority to the expansion of schooling as they moved out of colonial rule and away from reliance on expatriate skills.

During the 1970s and 1980s, however, many governments became aware that the rapid expansion of enrolments during the 1960s and early 1970s may have been achieved at the expense of lowered educational standards. At the same time, tightened budgetary constraints also forced governments in many countries (both developed and developing) to reassess spending priorities; it became apparent that continuing uncontrolled quantitative expansion of enrolments might not be the most effective means of achieving desired educational goals in times of increasing fiscal restraint. As a result, researchers and policy-makers shifted away from an emphasis on quantitative issues and began to pay attention to educational quality and its effect on learning outcomes. The concept of educational quality in this context

refers to such features as the training and standards of teachers, the supply and quality of teaching materials such as textbooks, the standards of school buildings and facilities, the health, nutritional status and prior learning of students themselves, and the nature and efficiency of educational administration and infrastructure.

Expansion of the quantity of schooling and enhancement of quality can be seen as directed ultimately towards a similar goal, the improvement of educational outcomes for the relevant age groups in the population. Yet both quantitative and qualitative investment projects in the education sector compete for the same limited public investment funds. It follows that, from a public policy point of view, there is likely to be a trade-off between quantitative expansion and qualitative improvement. In order to provide information on which sound policy-making can be based, it will be important to identify the educational and economic returns to investment in both quantity and quality, and to understand the interactions between them. In this way overall strategies can be formulated and assessed which will provide an appropriate balance between these two avenues for achieving national objectives for educational development.

The link between quality and performance: what does research show?

There is now a wide range of evidence on the effects on educational outcomes of investment in improving school quality. Much of this work has originated in the United States where the basic link between quality and performance has been clearly established. But it has turned out that the results of this research are relevant to developing countries as well. A series of studies carried out during the 1980s in a number of low- and middle-income countries, including Egypt, Brazil, Chile and Mexico, found that attention to school quality yields substantial pay-off in terms of children's cognitive skills, their school achievement levels and their ultimate success in the labour market. Furthermore, it has been found that generally these effects are more pronounced in developing than in developed countries. The results of one cross-country comparison are typical: Heyneman and Loxley (1983) measured the effects of primary-school quality on academic achievement in twenty-nine countries and found that the proportion of explained test-score variation attributable to school quality was lowest in countries such as Sweden, Japan, Australia and the United States, but was two to three times higher in countries such as Botswana, India, Thailand, Bolivia, Colombia and El Salvador.

The reasons for the disparity between countries at different stages of development are clear: when existing quality levels are low, as they are in most developing countries, the impact of quality improvements on student achievement at the margin are far more marked than when quality levels are already quite high. This developed/developing country disparity has an economic as well as an educational dimension. Studies that have measured the social rate of return to investment in various educational strategies over the last twenty years have shown not just that society's marginal rate of return to investment in school quality is at least as large as its return on additional years of schooling, but also that there are diminishing returns to expenditure per student. In other words, the expenditure on quality yields high results when expenditure per student is low, but diminishes quite sharply as expenditures are increased. The implication is that the benefit from increased expenditure on educational quality in developing countries is likely to be quite substantial, given their generally low current levels of expenditure per student; on the other hand, in developed countries, simply spending more money on school quality may not necessarily lead to improvements in school quality that will be worth the costs. In these latter countries, an alternative approach to the problems of school quality will be necessary.

What factors affect quality?

So far we have referred to 'educational quality' as if it were a single homogeneous entity. In fact, it comprises a complex bundle of factors whose individual importance may vary substantially from place to place and from time to time. Let us examine the principal factors affecting school quality, drawing distinctions as necessary between the situations in low- and high-income countries. We consider five major dimensions of quality: the level of training of teachers, class size, instructional materials, the language of instruction and curriculum reform. Since there is so much variation in the importance of each of these aspects in different cases, the order of their priority will vary widely between countries and the order in which we treat them here is of no significance.

Teacher quality

There is a stark contrast between the levels of teacher quality in the developing and developed world. It follows that policies to deal with problems of teacher quality are likely to differ between poor and rich countries.

In most developing countries, primary-level teachers are in principle

required to have some elementary teacher training plus at least junior secondary education behind them, with correspondingly higher requirements for teachers at secondary level. In practice, however, shortages of trained teachers are so widespread that underqualified persons are frequently employed as teachers, especially at the primary level where specialized knowledge is less needed, and in remote locations where teachers with qualifications are particularly scarce. In some extreme cases when budget limitations become acute, underqualified teachers may in fact be preferred, since the costs of employing them will be lower in conditions where teachers' pay scales are geared to formal qualification levels.

While there is overwhelming evidence that the quality of teachers is important, however, it must not be supposed that there is therefore a strong case for long periods of pre-service teacher training. No consistent relationship has been found to exist between levels of pre-service pedagogical training of primary-level teachers and actual teaching practices in the schools. In many developing countries an emphasis on in-service training has been found to be preferable to the more expensive traditional pre-service modes of teacher training. Such in-service education may take many forms, including short-term residency programmes, continuous within-school programmes and distance education by correspondence and/or radio. It has the advantage that it can be tailored to suit the local conditions in which the teachers are working.

In developed countries, on the other hand, the standards of qualifications among teachers are generally high. In all OECD countries the educational qualifications of teachers have risen strongly in recent years. In part this simply reflects the general expansion in tertiary enrolments since the 1960s, but it is also a function of specific policies to upgrade the educational background of teachers. Teachers' colleges offering two- or three-year diplomas are giving way in many countries to programmes built around a three- or four-year Bachelor's degree together with a specialist qualification in teacher training, and often with a postgraduate qualification.

There is no evidence that this improvement in the qualifications of teachers has led to any increase in the effectiveness of teaching and learning. Reviewing over 100 studies which had measured the effect of teacher education, Hanushek (1986) found in his study that barely 10 per cent of studies had revealed a statistically significant relationship, and these were evenly split between positive and negative effects on learning outcomes.

Similarly, there is no strong evidence that the length of teacher experience is important. While finding some positive relationship, Hanushek described as 'hardly overwhelming' the evidence in favour of the argument that teacher experience is a powerful factor in teaching. This judgement has been corroborated by more recent studies such as one by Chubb and Moe (1990) who found that the experience of a school's teaching staff is unrelated to the achievement of its students; in their sample of schools, they found that the average proportion of teachers with substantial experience on the staff was much the same for academically unsuccessful as for successful schools.

Thus, in most industrialized countries, spending more money on teacher training on its own is unlikely to be of benefit in improving educational outcomes for students.

Class size

One of the longest-running debates in education concerns the role of class size. It is a matter of considerable policy importance because, given the high proportion of educational recurrent costs absorbed by teachers' salaries, even a small change in teacher/pupil ratios has a large impact on funding requirements. Campaigns to reduce class size have figured prominently in the activities of teachers' unions, and there has been considerable popular support for smaller classes, no doubt on the assumption that better educational outcomes would result. The research literature is immense and, despite inevitable differences between individual studies, the overall conclusion is that for a wide range of class size, smaller classes make virtually no difference to learning outcomes in either developing or developed countries.

Lafleur et al. (1974) tabulated 130 different studies across a range of countries and concluded that there is no learning advantage in small classes, although teacher satisfaction was greater in smaller classes. Glass et al. (1982) summarized the results of 77 studies and found that, within the range of 20 to 40 students per class, only slight gains in learning were made as class size fell. Only if class size fell below 15 students were there considerable gains in learning. Hanushek (1986) reviewed 112 studies of class size, and found that only 23 had produced statistically significant results. More strikingly, of these 23, the majority (14) displayed a statistically significant negative relationship; that is, in these cases learning outcomes were actually better in larger classes.

It must be stressed that these conclusions relate to class sizes within the range commonly experienced in most countries. It is certainly true that in very small classes (ten to fifteen students) learning can

be significantly enhanced, through attention to the needs of students individually, just as in very large classes (say seventy or more) discipline and monitoring of progress breaks down to the detriment of the learning process. Nevertheless, it is apparent that, despite frequent assertions to the contrary, class size will not matter much for pupil achievement, provided the size of class falls within the range of about twenty-five to fifty students.

Furthermore, reductions in class size are costly. To illustrate, in a school of 600 pupils and an average class size of 30, reducing class size to 25 would be expected to add about 20 per cent to recurrent costs, and would probably require additional capital expenditure as well. It is quite clear that, if the aim is to improve school quality, these resources could be better deployed in avenues other than reduction in class size.

Instructional materials

Teaching materials consist of textbooks, student guides, maps, blackboards, chalk and other teaching equipment, pens, pencils, paper and so on. Of these the most important is the textbook. The evidence on the importance of textbooks and other instructional materials for the learning of students is overwhelming. Yet, despite their manifest importance, instructional materials are often the most neglected input into the educational process, especially at the primary level. This is a particular problem in developing countries where in many cases students either lack textbooks altogether or are required to share textbooks with other students. Furthermore, the quality of those books that are available is frequently poor, in respect of both their physical and their instructional characteristics.

The importance of teaching materials indicates that the return at the margin to increased supply and improved quality of materials, especially textbooks, is likely to be high, particularly when levels of current provision are low. Yet in the recurrent education budgets of many developing countries, where these conditions typically obtain, little is left for the purchase of instructional materials, even in good times, once the salary bill for teachers is met. The problem is exacerbated in hard times, since, when public budgets are squeezed, instructional materials and basic teaching supplies are often the first and easiest items to cut. Accordingly, the provision of instructional materials has been an important focus of efforts to raise school quality in the developing world. Attention has been paid mostly to textbooks, their purchase, local production and/or distribution. At the primary-school level, these efforts have been targeted at reducing the

student : textbook ratio from levels of around 10 :1, 20 :1 or more, to a level of around 2 :1.

In recent times, the nature of the educational process has begun to be radically changed through the introduction of computers. Traditional modes of both teaching and learning are being transformed. Instructional materials such as blackboards, chalk, study guides, etc. are being replaced with computer-based methods of teaching. Textbooks are giving way to interactive multimedia packages on CD-ROM. Many of these developments are still in their infancy. So far, they have been tried out mainly in school environments in advanced countries, but computers have already begun to have an impact in some developing countries as well.

Such advances in educational technology cannot be seen simply as the introduction of new hardware into schools; rather, their successful application requires extensive software development, retraining of teachers and a fundamental reorientation in the way educational services are provided. If properly handled, their adoption is likely to have a major positive impact on the quality of education in schools throughout the world, though a full analysis of their benefits and costs in economic terms remains to be undertaken.

Language of instruction

In many countries, the language used for instruction in schools is no mere technical issue to be decided on purely pedagogical criteria, but is a matter of high political and social importance. In several parts of Europe and North America, there is debate about the appropriate language or languages as the primary means of instruction in schools. In some countries, issues are raised concerning the rights of ethnic minorities to instruction in a language other than the national one of the country in which they reside. Many developing countries with a colonial past have seen their national language as a tool for building national unity among a linguistically diverse population. Some such countries, in Africa, Asia and the South Pacific, have reacted to this problem by adopting the language of the ex-colonial government as at least one of the national languages, and using it as the official medium of instruction in schools, sometimes from the earliest grades of primary school. While the wider arguments are understood, the problem from the purely educational point of view is that the national language in such situations may be spoken as the first language by no more than a small proportion of the population.

Research carried out during the 1960s and 1970s provided no

single answer to the question of the best language to choose for primary-school instruction. More recently, the view appears to have hardened that instruction in the national language in primary school, when that language differs from the first language, is detrimental to student performance. It is argued that in such circumstances, much primary schooling is taken up teaching the language in which lessons will be given, before the lessons themselves can be taught at a satisfactory standard. Current research suggests that, first, good speaking and writing skills in a second language are better achieved when there is a strong foundation in the first language; second, conversational skill in a second language comes earlier than ability to use that language for academic learning; and third, academic knowledge learned in the local vernacular or dialect is readily transferable and does not have to be relearned in the national language.

Curriculum reform

The curriculum is a vital element in determining the quality of education received by schoolchildren. In some countries efforts have been made to standardize and co-ordinate school curricula in order to deliver a more recognizable and assured quality of education across a wide diversity of schools. In developing countries, the debate about the curriculum has been centred on the relative need for 'vocational' and 'academic' education, especially once basic skills of literacy and numeracy have been acquired. Curriculum reform has involved the introduction of technical and vocational elements into secondary-school curricula in the hope of improving the employability of school leavers and making education more relevant to local needs. However, efforts to diversify school curricula in this way have largely proved unsuccessful.

The debate about curriculum reform is extensive, but there are two main reasons for the failure of curriculum reform in developing countries to have the hoped-for results. First, schools have only a limited ability to shape pupils' attitudes to the jobs they want to do. What really matters is the structure of incentives in the wider economic system; occupational aspirations are determined by the individual's perception of opportunities as well as his or her innate preferences. Second, it has come to be realized that the formal school system is an inhospitable venue for occupational training. School-based vocational training is neither as effective nor as cheap as that carried out on the job or in specialized training centres. Schools are institutions for imparting general skills such as reading, writing, mathematics and

scientific understanding, for teaching widely applicable skills such as bookkeeping and typing, and for inculcating general occupational skills such as attitudes to work, punctuality and discipline. It has been recognized for some time that specific vocational skills are better developed in an environment more closely related to the eventual work-place.

Effective schools

The issue of 'school effectiveness' has stirred considerable controversy among educational researchers, planners and policy-makers in recent years. It has been argued that emphasis on educational inputs such as class size or teachers' salaries overlooks the more intangible aspects of school quality that are of vital importance, such as school ethos, the commitment of teachers or the support of parents. The effective school literature, as it has come to be called, has used small-scale case studies of individual schools or classrooms to tap these intangible aspects of student achievement. A very large literature, drawn from investigations in both American and European schools, has produced findings inevitably diverse in detail but consistent enough to compile a clear picture of the characteristics of an effective school, summarized as follows. An effective school is characterized by: a safe and orderly climate, with discipline based on clear rules enforced fairly and consistently; emphasis on student acquisition of central learning skills, with curriculum organization used to achieve agreement on goals; frequent evaluation and monitoring of students' performance; strong leadership, both instructional and administrative, by the principal and senior staff; a strong sense of community, with teacher commitment to the school and active teacher involvement in decision-making; clear goals and high expectations of student achievement, with schoolwide recognition of academic success; effective use of time, with few disruptions or time devoted to non-academic activities; and parents informed about, and supportive of, school goals and student re-sponsibilities, especially with regard to homework.

While this research has been influential, it has also come under strong methodological criticism, especially because the question has been approached almost exclusively in terms of what the *producers* regard as effectiveness, rather than from the *consumers'* perspective. Nevertheless, it has come to be accepted that the effective schools literature has provided a genuine contribution to the debate about school quality, and some recent work bringing both quantitative and qualitative variables into the ambit of rigorous statistical testing has

confirmed the vital importance for school effectiveness of qualitative measures such as those listed above.

The dimensions of school effectiveness noted above are clearly related to issues of management and administration in education systems and in schools themselves. The quality of educational management and administration may seem to be so far removed from day-to-day classroom teaching that it would have little effect on educational quality. There is reason to believe, however, that good educational management is vital to maintaining educational quality. This is because good management underpins all the issues which have been discussed in the previous section. Educational administration in this context refers to three broad levels: at the *centre*, we refer to the central functions of planning, development of sectoral strategy, provision of inputs, monitoring and evaluation through national testing programmes, and so on; at the *intermediate* or *local* level (e.g. state, province or district), the administrative structure provides support and assistance to schools through, for example, the channelling of inputs, the monitoring of school performance and the provision of a focus for community support; and at the *individual school* level, the role of management is in day-to-day operation, organization and provision of incentives to staff.

In most countries, educational administration is highly centralized and in some it is becoming more so. Research in a number of countries has suggested that considerable gains in school effectiveness can be achieved through decentralization of at least some aspects of educational management. This research points to the desirability of providing for increased school autonomy and decentralized decision-making. Generally speaking, schools are in a much better position to respond to local community needs and conditions than a centralized management. Because education is based strongly on relations between teachers and students, most of the necessary resources exist at the level of the school itself and upper levels of the organizational hierarchy have little to contribute that is not already there. Furthermore, the intangible or qualitative characteristics of effective schools may be extremely difficult to measure in a complex central bureaucracy but quite amenable to workable specification at school level (for example, every principal can identify disciplinary effectiveness or teacher professionalism, even if these cannot be precisely measured).

Policy implications

Strategies for educational development, both short-term and long-term in both developing and developed countries, cannot afford to ignore educational quality. Programmes for educational expansion that concentrate only on numbers of students without regard to the standard of education being delivered may end up being self-defeating. So much can be said as a generalization. To become more specific in terms of desirable policy directions will lead to different conclusions for different countries at different stages of development.

In developing countries it is important to look at the whole range of factors affecting school quality in order to identify which ones are acting as crucial constraints to development. But, having drawn attention to the specific dimensions of the quality issue, it is important to point out that they are not independent of each other. Raising the quality of science teachers, for example, may have little effect if the teachers do not have adequate laboratories and equipment to work with. New textbooks cannot be effectively utilized if they are inconsistent with the curriculum in use. If educational management is weak, the process of establishing an effective curriculum and selecting textbooks will be inadequate. Problems of language teaching exacerbate problems of low-quality teachers and insufficient books. In the production of desired educational outcomes, the various aspects of quality interact in a variety of ways, some obvious, some more subtle.

The implication of this for policy is clear. Strategies to improve educational quality will fail or at least be less than fully effective if they overlook important complementarities between components of quality. In terms of investment priorities in the education sectors of developing countries, this is likely to mean that quality improvements have to be delivered as a package, rather than as one-off projects concentrating on a single aspect of the problem to the detriment of others.

At the other extreme, in developed countries, where the levels of educational quality are generally already high, it is essential to understand that the major determinants of educational expenditures – class size, teacher education and teacher experience – do not show a reliable relationship with measured learning outcomes. Hence it is likely that increased expenditures will also be unrelated to such outcomes. Thus simply spending more money is unlikely on its own to lead to improved educational achievement.

The OECD implicitly endorsed the wider application of this result in observing that 'politicians and educational administrators have

become wary of throwing more money at schools' (*Education in Modern Society,* 1985, p. 72), and more recently noted the increasing recognition that 'beyond a certain ceiling, additional resources appear to make little or no impact on educational outcomes' (*Schools and Quality . . .,* 1989, p. 4). In recent research noteworthy for its careful sampling and statistical work, Chubb and Moe (1990) concluded that 'money is not what makes some schools more effective than others. Better schools do not require lots of expensive equipment or huge new buildings or vast libraries. The performance problems of schools have little or nothing to do with inadequate funding, and they cannot be corrected by digging deeper into the public purse.'

Nevertheless, current research has been less than successful in providing guidance on how schools in developed countries can improve their educational quality. It is one thing to identify those characteristics which distinguish effective from ineffective schools; it is quite another to know how to use public policy to enhance those characteristics. This is a particularly crucial deficiency because a major lesson to be learned from the effective schools literature is that, as noted earlier, improved quality must be seen as a package. There is no single key to higher student achievement.

Thus, ways of achieving an overall organizational ethos or climate constitute much of the contemporary research agenda in school quality in the developed world. Much of this work is focused on exploring the appropriate managerial and administrative structures at all levels to bring about more effective schools. Some of the work suggests that effective schools can be achieved through substantial deregulation and much wider consumer choice. Increased choice for parents has been a strong feature of much educational reform in recent years (OECD, 1994). It is increasingly common for parents to be able to make a choice of school, rather than having their children administratively assigned, and to be able to select from a range of diverse or specialist schools within the public system. Other writers suggest that improved school quality will only be achieved by moving to a strongly market-based system, perhaps using a modified voucher scheme to encourage the establishment of for-profit schools with the incentive to provide more direct competition for the public system. A somewhat less radical line of attack (and one which is being implemented together with wider consumer choice in many countries) is to experiment with schemes of school-based management within a wider public education system.

Whatever the precise policy recommendation, the common theme

in all these policy prescriptions is an emphasis on the creation of administrative structures for education systems that will provide a supportive overall framework within which schools can operate with increased autonomy and closer interaction with the various communities they serve.

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Vocational training yesterday, today and tomorrow

Claude Pair

Every trade or profession requires know-how, skills and knowledge accumulated over a period of time by a human community. Their acquisition, however it may take place, is part of the training process and contributes to the creation of a personal identity and social recognition.

The term *technological and vocational education and training* is often used. The idea is to make a distinction between *education* which is imparted in the early years, or perhaps even only during the period of compulsory schooling, and *training* which follows later. These two aspects may also be quite simply the responsibility of different ministries. We do not make this distinction but will use the term *training* to cover both aspects, i.e. *initial training* before taking up a job and *continuing training* thereafter. What is more, the two increasingly tend to be separated by a gap for induction into working life. We also use the term *general education*, which does not refer to a trade or even just to the role of the human being as a worker, in opposition to – or in association with – *vocational training*. As to the distinction between technological and vocational training, this is in some countries a matter of level: the training given to skilled workers is referred to as *vocational* and courses on a higher level, in particular for technical specialists, designated *technological*.[1] We do not make that distinction

1. Another difference is linguistic and also involves social concepts: the French term *formation professionnelle* is translated into English as *vocational training* or even *craft training,* while the English word *professional* tends to denote the professions or engineering.

either, since, in our view, training courses are always vocational and the difference of level is not clear-cut in the present employment situation. We prefer to use the term *technological* to denote academic training organized around technological disciplines such as mechanical engineering or electricity, and not directed towards a specific trade, such as that of a lathe worker or electrical fitter.

After a rapid historical overview, which highlights the necessity for close links between vocational training and employment, we go on to propose a typology of the vocational training systems handed down to us from the past; we then look at the main trends observable in the world today. That in turn allows us to envisage the issues which are arising in an uncertain world and to conclude with a few tentative forecasts.

Historical overview

In traditional societies in which knowledge is fairly static and social evolution slow, training takes place informally, on the job, by practising a trade, often from childhood and within the family. This applies, in particular, to farming and shopkeeping.

In the craft trades, the notion of the master and apprentice emerges more clearly. Apprentices acquire their trade by watching the master at work. They take an active part in the work and are given advice as they do so. The link between the two may be formalized by a contract setting out their respective obligations, sometimes including payment by the family of the apprentice for the training provided.

The appearance of industrial companies from the mid-nineteenth century onwards in Europe and North America introduced a completely new form of employment organization. To enable a large number of persons, drawn mostly from the rural environment, to be set to work rapidly, a rigid, hierarchical and mechanized organization made its appearance, passing on little information and needing little training. A parallel may be drawn with the dominant science of the industrial revolution, i.e. physics, which explains the world in mechanistic terms and views matter as hierarchical and undifferentiated.

The era of mass production, with standardized forms of production and consumption, was made possible by the 'scientific' organization of work, i.e. Taylorism or Fordism. Its effective implementation required only minimum general education on the part of the work-force: reading, writing and arithmetic. The school had the task of providing this basic education while the very limited vocational training needed could soon be acquired on the job.

Supervisory staff were few and split into two groups. On the one hand were the foremen, who came from the ranks of the workers and were set apart by their experience, authority and close integration into the system. On the other hand were the engineers, whose social or ethnic origin was different. They had received a higher education, admittedly technical but nevertheless conferring a different type of authority on them through distinctive cultural features.

At the same time, an essentially administrative and commercial tertiary sector gradually developed, with non-symmetrical exchanges between different parts of the world: a flow of raw materials in one direction and of manufactured products in the other. Organization here was less rigid, while still being influenced by the division of labour and Taylorism. The necessary training was also of a general nature, but slightly higher than in the case of manual workers, so justifying a difference in hierarchy between white-collar and blue-collar workers. The techniques were fairly rudimentary and distinct from each other, consisting of shorthand and typing, and accountancy. However, they justified the organization of specialized courses to teach them.

The professions round off this portrait of society in the nineteenth and early twentieth centuries. Their organization resembled that of the craft trades, but the education of their members was completely different, being of university level.

Society was in fact split between a small and largely hereditary elite (company directors, engineers and members of the professions) and a mass of small farmers, manual workers, office workers and shopkeepers. The education system reflected this dichotomy, with two types of education whose boundaries were hard to cross – primary schools for the masses with a few extended courses to train office workers and civil servants, and secondary education for the elite.

The period which followed the Second World War led to a very different situation. The needs of reconstruction, urban development, political change (especially decolonization and the desire of all countries for development), the increasingly global nature of problems and of people's awareness, technological evolution towards computer systems and electronic or physical communications, resulted in an unprecedented growth of world production and trade.

From the point of view of social organizations, the first consequence was an increase in the size and complexity of companies, made possible by the easier and more economical transmission of information. Employment became diversified and new kinds of employment made

their appearance, half-way between managerial staff and shop-floor workers: foremen, technicians, sales personnel and so on. At the same time, the role of the state became more pronounced with an increasingly complex civil service. In the Western countries, a new compromise was struck between liberalism and state control.

The demand for labour thus not only increased but also became more varied. Companies wanted to have at their disposal a reserve of trained labour which would permit growth and flexibility, whereas the relationship between training and employment was becoming more complex and forecasting more difficult.

Economic growth and job diversification came to permit an unprecedented degree of social mobility. The development of information made this mobility desirable to people and they now sought to plan their careers more carefully. One's job became more than ever before a component of personal identity. The employment of women grew, but their jobs were less varied than those of men and were concentrated essentially in the tertiary sector.

The notion of productivity spread. The economic theory of human capital and its derivatives[2] resulted in a growing awareness of the fact that vocational training is not just a private matter, that it holds the key to the future of our countries, and that the public authorities cannot afford to disregard it.

All these factors resulted in a demand for education, rising numbers of pupils and students, and greater variety in education systems.[3] Vocational training acquired an institutional basis and diversified. It acquired the status of a specific activity, either as a new function identified as such in companies or as something provided outside by specialist bodies. In addition, it was no longer confined to the period immediately following recruitment since the rapid development of products, manufacturing techniques and skills provided an incentive for training to become permanent, lasting all through a person's working life. The problem of how people could find their way in this educational and vocational world, with a rapidly growing range of opportunities, also became increasingly acute.

2.   See report by Danièle Blondel to the Second Session of the International Commission on Education for the Twenty-first Century (September 1993), Development and education – the present state of economic analysis.
3.   See *Reflections on the Future Development of Education,* Paris, UNESCO, 1985. In particular, a remarkable effort has been made in several countries of South-East Asia.

With the economic and cultural crisis which followed the period of growth in most countries, unemployment became the main problem. This is something which now affects the industrialized countries and is becoming more serious in the developing world.

The organization of business and the civil service, and the role of states, are being rethought because people are beginning to realize that increasing complexity is playing its part in the crisis and that employment is created mainly by small companies. Once again, progress in the transmission of information is playing a decisive role. There is in fact no longer any reason to accord pride of place to a hierarchical organization as the most economical method for the transmission of information, given its lack of flexibility in other respects. It is becoming possible to go over to forms of organization that are more adaptive because they involve closer personal participation and in which the objectives are set at a higher level and the lower level is left to decide how best to attain them, subject to evaluation. This trend is moving the organization of production away from the Taylorian model.

Unemployment is accentuating the development of education and training, thus making the public more immediately aware of this development and making it more irreversible. Wherever sufficient resources exist and demographic circumstances permit, there is a tendency for education and training to expand and even to experience explosive growth. Education and training are perceived by some economic agents as a magic solution, by individuals as an insurance policy against unemployment and by the public authorities as a means of further delaying the arrival of young people into a difficult employment market. Women are more affected by unemployment than are men and the education of girls is developing even more quickly than that of boys. What is more, the problem of the employment of unskilled young people who left the education system prematurely is becoming particularly acute.

Coexistence of different systems of vocational training

The historical development outlined above brings to light the growing complexity and specialization of vocational training. This development has left us with several different systems of training which coexist not only in different countries but even within the same country to satisfy different needs. Because of the variety of these systems, it is no easy matter to categorize them.

The period of vocational training, when it can be specifically identified, comes somewhere between general education and employment.

The system of vocational training is intermediate between the education system and the production system. Three criteria for classification therefore spring to mind.

Proximity of the training and employment situations

These situations coincide when young people take up employment accompanied by on-the-job training after a longer or shorter spell of general education, or perhaps none at all; this is the oldest system of all and no doubt still the most widespread. It is said to be informal. It covers both traditional farming, which requires not much general education, and craft and commercial apprenticeship in many countries, to say nothing of the modern Japanese corporations which recruit their employees for life after secondary or higher education.

In other instances, vocational training is formal in the sense that a distinction can be made between the period and status of training and employment. However, the distinction may or may not be clear-cut and participation in the productive process during the training period also varies – from apprenticeship under contract to training in schools possibly accompanied by work experience in a company.

Role of general education

General education and vocational training may be consecutive or partly simultaneous. In the first instance which is, in particular, that of the informal systems, general education does not continue during vocational training. In the second instance, time is set aside for general education in association with vocational training. The vocational training may range from a few hours each week in the German dual system to the American system where a vocational module is added to a course of general education which takes up most of the student's time. The commonest trend nowadays is for growing importance to be attached to general education.

Responsibility for training

This may reside primarily with the company or else with the education system: the responsibility of the company may be total, as in the case of informal systems. It may be shared with outside bodies as in the case of the German dual system whose roots can be traced back to the old craft apprenticeships and an early realization by industry of the importance of training for the work-force. The responsibility of the company takes precedence under this system. Companies may join forces to shoulder this responsibility, especially when they are too

small to have their own training department. In that case they may delegate some responsibility for training to an inter-company centre.

Training may be entrusted entirely to autonomous centres. This arrangement is particularly widespread in Latin America, one example being the National Department for Industrial Apprenticeship in Brazil, whose training centres are managed on a tripartite basis by the government, employers and employees. It may also be entrusted to private or public vocational schools. There is no clear dividing line between training centres and vocational schools, but the schools have closer ties with the education system and this promotes links between general education and vocational training. This is the commonest type of system in continental Europe and it has spread to many other countries throughout the world.

Vocational training may be organized in the same schools as general education, either in special streams or as modules which form part of a more general secondary-education course. This is a situation found in the English-speaking countries and it is possible to see technical options tied in with general courses being introduced as a preliminary to informal vocational training so as to take account of the importance of general education for today's trades.

As pointed out above, several different systems may be found in one and the same country. This makes for greater flexibility and young people can pass successively through more than one of them. What is more, since the 1960s, the idea of continuing training has taken root. This is being made increasingly necessary by the demand for an adaptable work-force. It is largely the responsibility of companies, but the companies often negotiate such training with specialist outside bodies or with schools. While several systems coexist in many countries, the fact remains that as a general rule one system takes precedence over the others, for example, full-time vocational training in Germany and Japan or apprenticeships in France. The other, less prominent, systems meet specific needs and may help to remedy the shortcomings of the dominant system. In particular, the problem of the failure of too many pupils in compulsory education and their early elimination from the education system leads to an expectation that vocational training will make good this failure so as to alleviate unemployment. In the 1980s, many countries set up specific schemes, with the participation of companies, to satisfy this urgent need. One example is the British Youth Training Scheme which was grafted on to an essentially informal system following the very considerable decline of apprenticeships.

Major trends

During the period of economic growth and then during the crisis which has followed, we have gone from a society based on energy to a society of information and communication.[4]

At the time of the industrial revolution, the dominant sciences were physics and, as an offshoot of technology, mechanics. These are the sciences of the material world. During the period of growth, however, biology developed and, as an offshoot of computer technology, informatics. Unlike physics, biology places the emphasis on variety, the environment and uncertainty, and hence on adaptation. Informatics is not so much the science of the computer as the science of information. It deals less with equipment, like mechanics, and more with reasoning, like mathematics, but in this case the reason is embodied in programs. To give a name to this expression of immateriality, it was even necessary to invent a new word, software as opposed to hardware. What is more, informatics leads to the construction of models of reality, intellectual models rather similar to those of Plato. The realities of which models are built include human organizations and even the human being, so that the term 'artificial intelligence' is now used.

To a greater extent than their predecessors, modern techniques reach out into daily life and have become a factor for the unification of the world, even if this trend seems likely to impoverish our culture.

The second major trend is technical developments which, together with developments in science and the progress of ideas, have had a considerable impact on the organization of work and on employment.

Automation leads to a new division of labour between the worker and the machine, and a reduction of the labour needed to achieve a given level of production, with the reduction, or total elimination, of repetitive routine tasks, first in industry, then in the service (or tertiary) sector and even to some extent in agriculture. There has been a change in the people's roles: in earlier days people had to apply rules, for example on a production line or to keep accounts. Today they are being increasingly asked to respond to the unforeseen at a control console, or in a financial analysis or even when an agricultural market suffers a setback.

4. This does not imply that the problems of energy have ceased to be important; however, they are themselves dealt with by resorting to the techniques of information and communication, whether the aim is to save energy or take financial, diplomatic or even military action.

Another impact can be seen in the development of the service sector, in the sense of action taken to influence people and human groups, now that automation leaves time enough for this purpose.

A change in the international division of labour and the increasingly international nature of the economy have been made possible by the rapidity of electronic and physical communications: the location of economic activities is no longer tied to the proximity of raw materials and energy but to a much greater extent to the availability, cost and training of the work-force.

Innovation and flexibility have become increasingly important in order to face competition in every sector, including agriculture.

Business organization is being changed to introduce a smaller hierarchical pyramid, decentralized decision-making and greater responsibility at the implementation levels.

The third trend is that profound changes are now beginning to affect every country, although their impact is being felt gradually, and they inevitably call for new aptitudes on the part of employees: a critical mind and sense of responsibility at every level; independence in space and time; ability to use knowledge in order to solve problems; transition from the concrete to the abstract and vice versa; symbolization and use of different types of language; reasoning; ability to communicate and work in a team; and creativity. Today, everyone is expected to possess these skills which used to be the privilege of senior management. Above all, the key word is adaptability in reacting to unforeseen events in daily work or in the ability to cope with technical and organizational change.

All these economic, social and cultural changes created a growing need for education and training, first in the era of economic growth and then during the crisis which followed. A consensus grew up between companies, the public authorities, families and teachers to invest in education and raise the standard of training. Convergence was indeed achieved on this point between economic demand, social ambitions and the ideology of an education seeking to liberate the individual.

Today, however, it would seem that this consensus is unable to cope with the continuing crisis and rising unemployment. The notion of raising the standard of training is too vague to satisfy the demands of the economy, so we find here and there an unsatisfied demand for labour coexisting with high unemployment; social mobility is insufficient to satisfy the growing number of graduates, especially as it is hampered by the crisis; the exclusion of the unskilled becomes more serious when their numbers diminish. Finally, we are coming to realize

that the consensus was based on a misunderstanding, since the demand from the economy is indeed for a higher standard of education and training, but only for those whom it can and wishes to employ. However, their number is tending to fall and their prospects of social mobility are not so good as they once were.

The misunderstanding is particularly apparent in the case of young people who fail in their general training. Many of them come from deprived backgrounds and, unless we take great care, the expansion of education may even tend to widen the gulf between the rich and the poor who cannot manage to benefit from it to the same extent. Social demand, taken up by the public authorities, consists in asking vocational training to make good failure and provide a second chance. In some countries, this is being extended to persons whose educational success is only average and for whom secondary or higher studies seem inappropriate. Even if this attitude is justified in social terms, however, it nevertheless helps to devalue vocational training and does not reflect the expectations of the economy.

In conclusion, we are witnessing an ambiguous process of change. It is making work less strenuous and requires greater personal initiative and responsibility; the human resource is regarded as more precious than before. At the same time, however, it is casting doubt on the role of work, which is coming to play a very minor part in human life, perhaps representing less than 5 per cent of time on average, and badly distributed at that.

These developments can be summed up by saying that we have gone from a stable world which did not make many demands on training in the formal sense of the term, to growth, interaction and complexity, and then to a world in which uncertainty reigns supreme.

Training for an uncertain future

Action in an uncertain world is a particularly delicate matter when it comes to training, especially vocational training with its precise objectives. Training is in fact slow to define and implement; the time taken may be as much as ten years. What is more, it prepares people for a career which will stretch over several decades. Training must therefore make it possible to reconcile two goals which appear at first sight contradictory, i.e. suitability for jobs of the kind which exist at present and future adaptability in a situation in which companies and jobs will both be undergoing rapid change. The tendency in most countries is to abandon over-specialized training courses by grouping different types of courses together.

In addition, forecasting is difficult if not impossible, even in the short term. Examples abound of a rapid turnaround in the short-term situation of certain occupational sectors. Even if it were possible to predict the way in which job opportunities will develop, it would still be necessary to know whether these jobs will be open to young people, to the unemployed or to persons already present on the labour market. On the labour market overall, young people are very much in the minority when it comes to recruitment.

Today, we know that the relationship between training and employment cannot be seen as a supplier–client relationship. It is far more a question of a mutual interaction, with the organization of work depending on the persons who might be recruited. For example, Taylorism responded to the need to harness masses of often illiterate peasants to industrial work. The end of Taylorism was attributable, among other factors, to its incompatibility with the psychology of better-trained workers.

Given all these considerations, no one believes any longer in models designed to determine accurately how many persons need to be trained in each occupational sector in five years' time. Nevertheless, regulation by market forces alone is not feasible either, given the fact that lead times are so long for education and training.

The only option open to training is to lay emphasis on the adaptability of the work-force. This is a relatively new requirement for skilled workers of all kinds. Two complementary solutions can be given. Transverse skills of the kind referred to above must be developed. The first response therefore consists in strengthening general education, which is today becoming the principal form of vocational training. In particular, it is evident by now that effective literacy training, i.e. going beyond the acquisition of basics, is vital. As the next step, basic general education may include a technological component enabling pupils to be given a technical culture and so make the whole population familiar with technology. The second response lies in continuing training, lasting throughout a life. One of the goals of initial training is to encourage this possibility by teaching the individual to learn. What is needed is to think out in a comprehensive way what lifelong training could consist of in a continuum between initial training and continuing training.

We then arrive at an arrangement consisting of improved general education followed by training for a first job, and then continuing training in accordance with the needs both of the company and of the individual. However, this arrangement comes up against three

difficulties. Firstly, unemployment is making it harder to find a first job. Then again, the usual academic training is not necessarily designed to enable students to acquire the transverse capabilities required. It ought, therefore, to be rethought with that aim in view and more in its methods than in its programmes. Finally, there is a risk that insistence on a higher standard of general education will create an obstacle to training for all, particularly for those from modest social backgrounds.

Thus the solution of longer general education prior to any course of vocational training, which might even be delayed until higher education, is at first sight attractive but is nevertheless a delicate issue. It could result in the vocational dimension of general education being forgotten or disregarded, it raises the problem of the integration of general and occupational skills, and it places individuals who find it hard to acquire academic skills at a disadvantage. There are also cases in which vocational training may actually promote literacy training, especially for adults.

Instead of a short course of preliminary training for a job, preference should be given, after basic training, to a period of a few years in which vocational training and general education are associated, with the one motivating and supporting the other. This recommendation fits in with the ideas advanced by the science of education on the building-up of knowledge through action. It is certainly easier to implement in a system consisting mainly of school-based training rather than in a system which falls under the responsibility of companies, and more readily in an education system in which the vocational routes are clearly demarcated, so that it is possible to link general education successfully with vocational training. The most widespread tendency today is to prepare for a family of trades rather than one specific trade, thereby promoting adaptability. However, training may also be provided for a specialized occupation of the kind encountered in companies close to the training establishment or in the firm where the trained person is employed, provided that, starting from this vocational nucleus, the horizon can be broadened to cover neighbouring careers, and transverse and transferable skills. This teaching technique may facilitate the success of young people who are experiencing difficulty with their general education.

Nevertheless, many questions remain about this intermediate period and its relationship with general basic education: What paths are there for the different levels of qualification? Must they diverge at any early stage? And are bridges needed between them? How can the intake of students be adjusted? How can the contents, curricula

and programmes be determined, the training validated and the qualifications recognized? What resources should be devoted to vocational training and who is to provide the money?

Paths

There are two pitfalls in education. The first is premature segregation, for example between the streams leading to university education and those leading to manual or office jobs. This increases the disparities observed at the outset and proves disadvantageous to slow learners, particularly those from modest social backgrounds. It amounts to an instrument for the reproduction of the existing social hierarchy, which may perhaps avoid conflicts and frustration but does not make the best possible use of talent. The second pitfall is identical education for all; since this denies the existence of differences, it is unable to make the best use of different motivations and in the end favours the pupils who most resemble the teachers. That may cause the same pupils to fail as in a segregative system, and perhaps cause them to fail more badly. It may also jeopardize the quality of training.

Each country must steer a course between these two pitfalls, having regard to its own history and the ability of the teachers to get heterogeneous groups to work successfully. There are grounds for thinking that historical trends and social demand will lead to the separation of pupils being delayed, for example until the end of compulsory schooling, by practising differentiated teaching in the classroom, and then lead to the avoidance of dead-end streams, through the establishment of bridges or modular systems.

Vocational training is concerned by this problem to a particular degree as it is bound up with the hierarchical organization of companies. There are various levels of qualification and employment (unskilled personnel, skilled workers, technicians, higher technicians, engineers) and the simplest solution is for the length of general education to be the essential distinguishing feature of their education. Vocational training may even be shorter, the higher people rise in the hierarchy. What is more, continuing training will tend to be reserved for persons who already have a better level of employment. This 'fractional distillation' inevitably results in the devaluing of vocational training in relation to general education since, at each branch, it leads to positions that are lower than those which one could hope for if one continued with general education.

One solution is to set up real vocational streams which may be entered and, above all, left at different levels to return to the context

of continuing training: 'Let every soldier have a marshal's baton in his knapsack', as Napoleon Bonaparte put it.

However, the organization of teaching for streams of this kind is complex and requires thought to be given to what is needed in order to pass from one level of qualification to the next level. In some instances, especially in the craft trades and professions, the call is essentially for specialization and more thorough knowledge. In modern industry, the need tends rather to be for a broadening of the occupational training so as to give access to posts of responsibility and supervisory, planning and decision-making functions which require greater self-reliance in space and time. Some types of knowledge and specialized skills then become superfluous and may sometimes even be a barrier to learning. It is necessary to discover how to use them to extend one's skills. The situation becomes still more complicated in cases where training takes in at one and the same time specialists from a lower level whose skills need to be broadened and persons with general training who now need specialized knowledge.

Intake

After defining the paths to be followed, the problem arises of the distribution of the intake between them. The pattern of vocational streams may have the drawback of encouraging people to go on studying indefinitely, in a way that does not match the real needs of the economy, with only the students who fail dropping out. This happens when youth unemployment is high and companies do not apply a suitable pay and promotion policy. If giving up study leads to a lower salary, more strenuous and less interesting work, a less promising future and a higher risk of unemployment than if one continues, is there a genuine choice? The only thing is to introduce other criteria such as making the cost of studies high, making the course very demanding or the selection tough.

However, the other pattern presents the same drawback by replacing 'giving up study' by 'abandoning general education to transfer to vocational training'. In actual fact, social contradictions lie at the heart of the difficulties of vocational training and many complaints about the devaluation of vocational training are hypocritical, the situation which they criticize being merely the result of young people and their families having better information. Some people would, of course, prefer an early segregation based on supposedly educational – but in fact essentially social – criteria making it possible to restrict this information when the separation occurs.

Market forces can have a partial effect on this problem of intake and companies also hold a part of the solution in their hands, with a varying degree of intervention by the public authorities from one country to another. It is also the responsibility of the public authorities and training agencies to make sure that young people and their families are properly informed about the prospects afforded by the different training courses and streams.

The longer the training, the more difficult it becomes to provide information since decisions on the courses to follow have no immediate effect in terms of employment opportunities. It is therefore reasonable to suppose that market forces operate more effectively for company-based training systems, such as informal training or apprenticeships, since companies regulate access to training in accordance with their policy for the renewal and development of the work-force. In addition, once young people have joined a company, they are almost as favourably placed to stay there as their more senior counterparts. These training systems are therefore relatively more favourable to the employment of young people, a fact which seems to be confirmed by the German dual system.

However, companies must still be capable of predicting the future. The risk is that the trainee population may fluctuate with the economic cycle so that training goes by the board in a time of crisis and is hard to reintroduce thereafter. Thus, when a system in which apprenticeship holds a prominent position exists at the same time as persistent economic difficulties, this leads to the collapse of vocational training.

A school-based training system, on the other hand, is more sensitive to the demands of young people, which are known to it, than to the largely uncertain needs of the economy. It therefore runs a greater risk of being out of phase with the employment market, training too many people to a level which is too high during periods of unemployment and not necessarily in the right sectors in a period of balance. However, it is less bound up with the economic cycle and may even play a temporary buffer role by extending the length of education in times when employment is scarce. This has happened in recent years but cannot continue indefinitely.

Content

Deciding on the content of training courses leading to the different trades or groups of trades is always difficult. Each company has its own ideas and the acquisition of a corporate culture has become important, but companies vary greatly. They are at widely differing

stages of technological and structural modernization, and training may indeed have the value of bringing them skills which they do not already possess. In an uncertain world, it is important to encourage worker mobility. Professional organizations are supposed to know the needs of the companies which they represent, but they are often remote from them or only represent the viewpoint of the largest companies, and it is not always these that recruit young people. In addition, not only the employers but also the employees must be allowed to express themselves, and that is often still more difficult.

In a number of countries of Europe and North America, techniques for deciding on content (curricula, syllabuses, reference systems) have been developed. These techniques are based on an analysis of each trade or work-station in terms of the tasks to be performed and the skills or competences (knowledge, know-how, attitudes) which training should impart. Very real difficulties arise because companies are so varied, with the result that the trade or work-station is in reality no more than an abstraction. In addition, the analysis is easiest for the Taylorian form of organization which is now disappearing; in a different context, it runs the risk of leading to over-simplification, in particular by placing most emphasis on know-how. What is more, it is based on the existing situation and can hardly predict the future, except by extrapolating past trends and comparing the situations which exist in all the different companies. It runs the risk of sacrificing adaptability, or of seeking to impart it by adding unnecessary content 'just in case'. Finally, it is difficult in this way to design streams with several exit levels where the objectives at each level are not just directly vocational, but also involve continuing with a broader education.

To overcome these difficulties, it might be worth combining entry based on vocational objectives with entry based on the subjects taught. Some techniques are shared by a number of different areas of work such as mechanical engineering, electricity, management and informatics. Quite recently, they have given rise to academic disciplines known as the artificial sciences. Their aim is not to understand a given piece of data, as is the case in the more traditional sciences, but to find answers to problems by linking together hardware, intellectual and software components. Methodological aspects play a fundamental role. Their permanence over a period of time revolves around methods and the links between components, over and above technical developments, which leads them on to systemic approaches through functional analysis and to black boxes. In this way, learning them can promote adaptability and provide a backbone for the

vocational training streams. A series of training courses constructed round these disciplines to serve as the basis for later vocational specialization may be termed 'technological education'.

It is clear that deciding on content is an activity which cannot be improvised and takes time, a fact which is incompatible with the necessary flexibility of the training system. To carry out this task effectively, the employers' and employees' representatives must be assisted by instructors and curriculum specialists. This should be an area for international co-operation.

Decisions about content are linked with the validation of training and the recognition of qualifications. This confirms the need for discussion and agreement between employers, employees' unions and instructors. The agreement must cover a significant geographic area and an informal training system experiences difficulty here. The local level is insufficient, as indeed is the national level in some cases. This raises the issue of the mutual recognition of diplomas and qualifications by countries between which significant migratory movements exist.

Resources and financing

One obstacle to the development of vocational training is the scale of the resources needed. It is more expensive than general education, but the increase in the cost of training runs up against demographic constraints, the fall in GNP in many countries and other social expenditure such as that required in the health sector.[5] Hence the providers of funds face two temptations: first, that of placing emphasis on general education alone – this is reasonable to some extent but is liable to exclude part of the population from any usable training; and second,[6] that of restricting vocational training to what is known to be absolutely necessary – although uncertainty over the future does not make it possible to know what is necessary, so that there tends to be a risk of having an undersized training system, resulting in the long run in a lack of growth and a loss of competitiveness.

Two contradictory approaches are encountered here. One approach regards vocational training as an investment for the future, taking as a basis views such as those set out above, while the other doubts whether the investment is viable and cites examples of cases in which it was not. These contradictory approaches both have an element of

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5. S. Peano, *The Financing of Education Systems,* Paris, UNESCO, 1993.
6. S. Heyneman, *The Financing of Education,* Strasbourg, Council of Europe, 1993.

truth. The investment in question may be extremely profitable but is uncertain in strictly economic terms, like any long-term investment in the world in which we live.

We now make a closer analysis of the investments that are required and the ways of funding them. The two main cost elements are personnel and equipment. In many parts of the world, vocational-training teachers are few and far between, much more so than teachers in the general education system, and their own training is both difficult and costly. The equipment, too, is expensive and technical progress soon makes it obsolete.

Training under the responsibility of companies offers a major advantage here since it enables instructors to be chosen from their own personnel and the companies' own equipment can be used. However, this advantage is perhaps less decisive than it might appear at first sight. Teaching is a profession which cannot be improvised. A good worker or a good engineer will not necessarily make a good teacher. Companies which use modern production equipment are not keen on making it available to their apprentices. They prefer to set up their own school on the company premises with its own equipment. When training is given outside, the outside establishment is able to organize exchanges of personnel and equipment with companies. Ideally, this will involve exchanges in both directions, with company staff contributing to the teaching given in the school and the teachers from the school providing continuing training for company personnel. The school will occasionally make use of the company's equipment but may also itself make available equipment which companies in the vicinity do not possess.

Regardless of the system which is chosen, the beneficiaries of vocational training, i.e. companies, must contribute to its financing. Applying this principle is nevertheless a delicate matter at a time when worker mobility is increasing and is proving to be a factor for progress. In addition, it should be remembered that training is an investment which brings benefits to the entire national community, if not to all humankind. Applying this principle is a still more delicate matter when general education and vocational training are combined, as recommended by us, particularly under the responsibility of a state education system. It would appear easier in the case of continuing training than in that of initial training, although there is a danger of inequality between workers from different companies.

Partnership

Two points emerge from this analysis of the problems confronting vocational training. No one system enjoys clear superiority over the others, even though it is clear that an informal system cannot promote either the mobility of the persons who have been trained or the integration of the two kinds of training, general and vocational. The disputes over organizational aspects are therefore secondary when measured against the fundamental issues. In any event, whenever we take a close look at the main system of training in any country, we find that it is intimately bound up with history and social behaviour, and is therefore hard to export. In addition, the likelihood is small that a far-reaching change of approach will prove successful. What is more, the choice does not always exist. For example, it is necessary to make provision for vocational training even where there are no successful companies, if only to attract business to a region. In such cases, training can only take place in the school system.

The key factor is to ensure a partnership between training establishments, employers, employees' trade unions and the public authorities. For this partnership to be effective it must be arranged at various levels: nationally or internationally for the decisions about content and recognition of diplomas, and nationally or at a lower level for action on student intake and for policy matters relating to the introduction of training. For that, we need a reliable information system. Lastly, implementation must be arranged locally, for which purpose it is imperative for the establishments to have sufficient freedom, limited only by the need for official recognition of diplomas. It must be an ongoing partnership, which alone can replace the planning that has become impossible in our uncertain world.

In the case of a system which is essentially school-based, one element of the partnership is the inclusion of work experience in the training course. Over and above the evident benefit to pupils who then find themselves in a real working environment, the establishment can also become aware of current trends and help to assimilate them, provided that some kind of system linking different schools exists. Other elements in the partnership include exchanges of teaching staff and equipment or even the subcontracting of work by companies to schools.

Conclusions

The close interaction between employment and vocational training makes it essential for the two to be considered simultaneously and it

might even seem pointless to provide vocational training without the certainty that it will lead on to employment.[7]

Under the influence of internationalization, automation and an ideology of 'rationalization', employment today is in a state of deep crisis in most countries. Work has ceased to be a curse and is becoming a privilege instead. We may have emerged from a situation of conflict between the possessors of wealth and the workers, but it has been replaced by a gulf, which is no less dangerous and is certainly more widespread, between those who are able to participate in the society portrayed by the media and those who are excluded from it. The latter are in a majority in the world and their numbers are increasing. Employment is a key factor, not only because it brings an income to sustain life but also because it provides an occupation and a position in society.

The possible responses to the problem of employment centre on three notions: job-sharing, the resumption of growth and the development of new occupations or a return to some which have disappeared. Each implicitly calls for strengthening vocational training. Work cannot be shared between some people with a high level of performance and others who have not achieved that level. In the present state of the economy, growth requires well-trained workers. New occupations will only emerge if those who pursue them provide a real service. The aim can thus no longer merely be to train people for types of employment which already exist. The aim of training must also be to enable jobs to be created.

The first notion, job-sharing, is pertinent mainly for rich countries. The other two overlap if they are seen as the reconciliation of the vast needs of humanity and the means of satisfying those needs. Growth must be employment-intensive and must respond to real needs if it is to be sustainable. The precious nature of the human resource must be taken seriously. We must promote an economy in the service of people by giving companies the objective not simply of supplying goods and services but also of providing jobs. This involves a major change of perspective and will not come about spontaneously. Public authorities have a part to play, but the breadth of activities ranging

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7. This point of view is put strongly by the World Bank in its general policy document on technical education and vocational training (1991). See also J. Middleton, A. Ziderman and A. Van Adams, *Skills for Productivity: Vocational Education and Training in Developing Countries,* Oxford University Press for the World Bank, 1993.

from the small family firm to the biggest multinational requires a partnership at various levels: local, national, regional and global.

The local level is essential because it is hard to imagine that solutions could come essentially from the outside. Training is one of the main driving forces behind economic takeoff and it must be a training which gives people the will to become entrepreneurs and the skills to do so. In addition, at every level, training has its place in partnership with companies of all sizes. It forms part of the resources offered to companies and of the services which they themselves can provide.

However, if jobs are not available, or not in sufficient numbers, and until new forms of employment can be created, the problem arises of the occupation and social position of each individual, i.e. ultimately, the possibility of living together in dignity and peace. Training also has a role to play here, with both general education and vocational training integrated into a system of comprehensive training for individuals, citizens and workers. After all, the cohesion of society is made up at one and the same time of unity and diversity: the unity of a shared culture which enables people to exist and act together and the diversity which enables them to recognize each other and give to each other. Nobody must be placed constantly in a dominated situation. Every individual must possess an area in which he or she is able to take initiatives in order to encourage consideration and action by others. General education places the main emphasis on the unity and transmission of a culture. But it is vocational training that ensures differentiation and completes the personal identity, provided that it does not confine itself to securing the performance of stereotyped gestures but permits autonomy in space and time. Its objective within global training therefore goes beyond mere preparation for employment and should be suitably broadened in future.

After proclaiming the right of everyone to literacy training, which confers proficiency with the written word, the vital instrument of thought, should not the twenty-first century also ensure the right to vocational training, a tool for action, for everyone throughout their lives, not only to bring about progress in solving the employment problem but also as a dimension of individual identity and of social life?

The role, organization and financing of higher education

Danièle Blondel

Higher education seems likely to take on increasing importance in the development of economies and societies in the twenty-first century. There are several reasons for this.

First, cognitive resources are supplanting material resources as a development factor. The expanding role of scientific and technological knowledge is visible not only in the spectacular impetus it is giving to industry and trade but also in the solutions it provides to human development problems (problems associated with nutrition, life expectancy, health, living conditions, communication, access to culture, etc.). Nowhere are the production and dissemination of such resources better accomplished than in the universities. All reports therefore advocate both the stepping-up of research training and the use of research to improve training, in order to sustain not only the research institutions themselves but also the economic sectors. They also advocate the encouragement of a university/industry partnership for the production of science.

Second, economies, swept along by innovations and technological advances, are becoming increasingly demanding as regards the qualifications of their labour force. Employment structures in every sector are taking on a new shape as societies move forward and machines replace people; there are fewer shop-floor workers, while the functions of supervision, executive management and organization are gaining in importance and making the intellectual training of personnel more and more necessary. Universities and, more widely, higher-education systems are therefore required to turn out larger and larger cohorts to shoulder these tasks.

Lastly, in this cognitive society the function of educating and training is having to become strategic; the period of schooling is tending to be prolonged everywhere, while continuing training is seen to be increasingly essential. This calls for more and more teachers, and, even though it can be assumed that not all need be trained by universities as strictly professional teachers, since some will doubtless function alternately as teachers and learners, it is clear that the leading resource centre for the initial and recurrent training of educators will continue to be higher education whose institutions will be the venue for knowledge updating.

The strong pressure of social demand being exerted throughout the world for expansion of the higher-education sector therefore seems justified, as does the actual tendency towards a steep rise in the number of students in all countries (student numbers worldwide have more than doubled in twenty years, from 28 million in 1970 to more than 60 million today). Reports by all the international bodies, however, speak of a crisis in higher education, not only a financial crisis but also a crisis of identity.

The problems associated with higher-education policies for twenty-first-century societies, which in some aspects extend far beyond the national setting, must therefore be resolutely faced up to by the Commission, since the implementation of other education-policy objectives and development policies generally depends heavily on the solutions applied to those problems.

Perhaps a clearer understanding of the multiplicity of and possibility of conflict between the *objectives* and *tasks* assigned to higher education would lead to a more precise statement of the *organization* and *financing* problems.

Objectives and tasks currently assigned to higher education: problems of compatibility

Three tasks are generally assigned to higher education: two are traditional, involving, on the one hand, research and cultivation and, on the other, the training of teachers, and are both more crucial than ever for development; the third is more recent but is tending to take on increasing importance, inasmuch as it consists of meeting the new qualification requirements of today's economies through the high-level vocational training of scientists and technicians in the latest technologies, and of managers and administrators in the control and handling of increasingly complex systems.

These three tasks are not contradictory in their long-term objectives,

for they all contribute to sustainable development. They also coincide, in their implementation, with the concern for equity that aspires to give all citizens the benefit of the intellectual and material resources of higher education, since they lead growing sections of the population towards higher education. Nevertheless, in the dynamics of university systems, these tasks can appear difficult to reconcile and even contradictory. One or two examples may be given to illustrate this difficulty.

In university curricula, when it comes to choosing between basic subjects and applied subjects, and subsequently when students are being counselled at the various stages of a degree course, there may be some rivalry between the research function and the professional qualification function. Hence a scientific university, for instance, must decide whether to steer exceptional students towards research or towards industry. The common-sense reply would be that the university must present both options under the same conditions, without showing any preference, leaving students the freedom to make their choice in accordance with their own tastes and aptitudes. Yet in reality everyone is aware that cumulative processes that are difficult to prevent will lead students towards what, in the short term, seems to them the surest and the most status-enhancing option. Sometimes it will be research, but most often it will be the labour market 'captured' by the university or school from which they graduate. The problem then is to decide whether the establishment should pursue several goals at the same time, or specialize. What would become of a university, however, that devoted itself uniquely to teacher training or the training of professionals and lacked a research structure? Such a situation is familiar to certain developing countries that have set up universities of this kind. Can it even still be called a university, in view of the fact that the distinguishing feature of the university is precisely the synergy of research and teaching?

A second example of contradiction is provided by the zoning of universities. With regard to both the initial and in-service training of teachers and professionals, and the democratization of higher education, it seems logical to distribute universities quite widely across a country in order to facilitate access and cut down travel expenses. Conversely, as far as research is concerned, all agree that for international quality, which is the only reference possible, if waste is to be avoided there are critical minimum thresholds in regard to infrastructure costs and number of researchers. This problem is flagrant in Africa, but it will also exist in twenty-first-century Europe.

The answer suggested by certain organizations, including the World Bank, is to break away partially from the traditional university model in the implementation of the higher-education development programme at world level and create marked differences within the system by various means, following examples that have already produced good results.

The development of non-university institutions (polytechnics, short technological studies institutes, community colleges, etc.), even though they are generally less costly, entails serious risks: the segregation stemming from the selective entry to universities may channel off the most disadvantaged towards the non-university institutions and lower the quality of the whole system.

The development of higher-education distance teaching makes it possible to reach the more disadvantaged (in India women account for 41 per cent of enrolments in the open university, as compared with only 32 per cent of enrolments in traditional universities).

The encouragement of private higher-education institutions that can respond in a relatively flexible manner to labour-market changes runs a risk that should be noted. Such institutions may fall into two distinct classes: some are non-profit-making and are generally of good quality and fairly selective; the others, which seek to make a profit, admit all who can pay and may be of poor quality. Eventually, perverse inverted redistribution effects may come into play in a mixed public and private system if the most advantaged students, after having successfully finished their studies in good institutions (often private), then have access to the best public institutions (as in Thailand and Brazil).

This question of diversification of the supply of higher education comes back directly to the question of the organization of the institutions responsible for providing it.

Organization of higher education

Where higher education is concerned, there is often a clash between two sets of ideas. There is the public-service approach on the one hand, which has in mind not just educational purposes but also, perhaps more importantly, cultural purposes, including basic research, which is not profitable in economic terms but is essential to human development. On the other hand is the market approach applied to the supply of training, based on the theory of human capital, with the exchange of knowledge being supposed to lead to the material and spiritual enrichment of all. In practice, the conflict between the

two can be overcome in terms of organization if one manages to make a distinction between what, in establishments of higher education, relates to intangible public investment over the very long term and what relates to a supply of training that is seeking to respond to a financially sound demand. It is thus possible to imagine that advanced schools of professional training might be at least partially organized and financed in partnership with those playing an active part in the economy, whereas research at university centres of excellence would be a public responsibility.

The problem nevertheless becomes more complicated when the debate between the public and private sectors turns into a debate about centralization versus decentralization. The impingement of private interests on university organization is necessarily a factor making for the decentralization of decisions relating to curricula, management and so on, whereas public responsibility frequently manifests itself through centralized control. It has nevertheless been found that the more the university system extends and diversifies, the more centralization can lead to bureaucracy and lack of accountability, to say nothing of waste, and everyone agrees that in order to be flexible, efficient and innovative, the establishments in question must enjoy a measure of autonomy.

From another point of view, an uncontrolled burgeoning of establishments of higher education in a particular area, engaged in short-term market competition to obtain enrolments or funds, does not offer any solution in line with the tasks set out above. What must be done, therefore, is to devise a system of guidance and co-ordination between responsible and largely autonomous establishments that can guarantee consistency in the long term, nationally and internationally. There are grounds for thinking it a good principle of organization to arrange for their relations with the government to be regulated by contract over a period of several years, within the framework of a long-term programme decided on jointly. Even then, the objectives must be clear, the incentives for carrying out the contracts and the methods of evaluating their implementation must be relevant (which raises the problem of indicators) and the government must provide guarantees for its undertakings. International reports speak of political and organizational shortcomings prejudicial to the creation of these conditions. In addition, long-term financial commitments are looking less and less credible in the light of the financial crisis most higher-education systems are at present experiencing.

Rapid increase in financing needs and impact on the quality of higher education

Although the figures still vary to a large degree between different categories of countries, the percentage of young people going on to higher education has been increasing worldwide at a rapid rate (between 1965 and 1990 the rate rose from 1 to 9 per cent in North Africa, from 7 to 21 per cent in Latin America and from 8 to 17 per cent in East Asia; it currently stands at more than 50 per cent in the Organisation for Economic Co-operation and Development member countries, more than 21 per cent in the middle-income countries and 6 per cent in the developing countries). As a consequence, even the developed countries, hampered by the economic crisis and budgetary restrictions, are having difficulty providing the necessary level of public funding. The problem is, of course, even more critical in the developing countries, where it is impossible to manage the expansion because of the leeway to be made up in the higher-education sector.

This pressure has resulted in a marked deterioration in the quality of higher education, the most obvious signs of which are a decline in the status and salaries of teachers (salaries in Nigeria are now, in real terms, at 10 per cent of their 1978 level), the dilapidated state of installations and teaching materials (premises, laboratories, libraries: in sub-Saharan Africa the number of books per student decreased from forty-nine in 1980 to seven in 1990) and the decline or actual disappearance in many countries of scientific production (only the newly industrializing countries in South-East Asia show any signs of progress in this field).

The growing number of unemployed graduates, which is, it must be acknowledged, also an outgrowth of the economic crisis, is a more indirect indicator of this lack of efficacy.

In these circumstances, any programme to revitalize and improve the quality of higher education must of necessity include organizational changes directed at reapportioning the financial burden. Experts are unanimous in condemning the inverted redistribution that has emanated from public financing and free higher education. Even today, throughout the world and particularly in the developing countries, the rich benefit more from higher education than do the poor, a phenomenon due in part to the lower level of secondary-school enrolment in the latter group and other social constraints. It might therefore be appropriate to attempt to halt this cumulative process in which the rich get richer by asking students to pay university tuition fees and, if necessary, providing scholarships for the poorer students.

Consideration of the funding issue brings us back to the idea of partnerships with those players in the economy for whom an increase in the number of qualified and competent graduates is likely to be advantageous.

Swept by major forces as the twentieth century draws to a close, systems of higher education are contributing in large part to the acute political and social crises worldwide and, at the same time, offer ample opportunities for experimenting with various forms of co-ordination and partnership.

Learning societies in the making

Paul Bélanger

Different models of learning societies are coming into being. The general rise in the level of schooling in all countries is in turn generating an increase in the demand for education throughout life. This emergence of 'lifelong' education systems is primarily the result of the new social pressures created by the employment crisis, the search for cultural identity, and the calling into question of excessively limited and formal blueprints for liberal democracy.

The transformation of education systems is still too confused for any overview to be attempted. We must first reassemble all the elements of an educational reality that extends far beyond formal institutions and takes different forms according to the social structures involved. Hence this chapter, like the educational scene in the different countries to which it refers, is by nature transitional.

We have focused our comments on three topics: first, the transformation of the relationships between initial training, adult education and learning environments; second, the fundamental internal dynamics of current transformations on the educational scene; and, third, the changing political economy of lifelong education. Initial training, at the other end of the scale from adult education, refers to the first phase of organized learning in which young people take part prior to their 'adult' life, either in school or through special non-formal basic education programmes. *Initial training* includes pre-primary programmes and primary schooling, but extends increasingly into secondary education and may even, for the most favoured students, go well beyond. *Adult education* denotes

the entire body of organized educational processes, whatever the content, level and method, whether formal or otherwise, whether they prolong or replace initial education . . . whereby persons regarded as adult by the society to which they belong develop their abilities, enrich their knowledge, improve their technical or professional qualifications or turn them in a new direction and bring about changes in their attitudes or behaviour in the twofold perspective of full personal development and participation in balanced and independent social, economic and cultural development (*Recommendation on the Development of Adult Education*, UNESCO, 1976).

Adult literacy and 'second-chance' education are here regarded as forming part of adult education. *Learning environments* refers to the impact of the sociocultural contexts and everyday circumstances of children and adults: in private life, at school, in the community, at work, via the mass media, etc. As here defined, learning environments relate to organized learning processes, but constitute a distinct reality. They reflect the diffuse pressure exerted by the different environments in which individuals find themselves and which influence their participation in organized learning activities. The expression refers to the informal dimension of lifelong education, but denotes first and foremost the cultural environments in which initial training and adult education are provided.

Transformation of the relationships between the three components of lifelong education

Lifelong education, as discussed in this chapter, is not a universal norm to be prescribed but rather an empirical reality (learning as a communal activity) to be analysed and a series of activities to be reintegrated in their different contexts. Lifelong education covers the whole range of learning activities in each society; it may be broken down into three specific constituent parts: initial training, adult education or continuing training, and learning environments.

In real life education is obviously more complicated; activities intersect; educational agents change places; new relationships are established; complex crossovers are effected between initial training and adult education; and the growing opportunities for self-instruction and the reflective accumulation of experience all help to confuse the issue. We simply wish to suggest that, in order to grasp the transformations that are currently leading to different models of lifelong education, it is essential to piece together these three components and to analyse the changing and varied relationships being forged between them.

Initial training

The concept of education as a continuing process stems firstly from the recognition that learning occurs throughout life. An issue immediately springs to mind: that of the cumulative nature of education as it becomes increasingly prolonged. The more we are trained, the longer we tend to continue our training. A spiral is thus created: participation in adult education is greatly influenced by the quality and intensity of initial training. This trend can be observed in industrialized and developing countries alike. In short, the later course of an individual's educational career is largely determined at the time of their initial training. Hence the importance, in any forward-looking view of lifelong education, of identifying and correcting inequalities in initial-training systems.

In this regard, the general trends are encouraging. The continuation of initial training into secondary and even advanced secondary schooling is now a fact of life in most developed countries,[1] while a growing minority of developing countries provide initial training lasting ten years.[2] The overall literacy rate in the world is also rising, having reached 65 per cent in 1991, while the Jomtien Conference undoubtedly gave fresh impetus to investment in basic training. As a result of this very progression in initial training, the demand for adult education and the predisposition to it have increased.

Thanks precisely to this close link between initial training and adult education, the crucial development of initial training will provide an important benchmark for evaluating not only potential progress in various countries towards a learning society but also the types of learning society towards which they are moving. However, this cumulative process operates in both directions. A vicious circle comes into play. Limited initial training constitutes an obstacle to the pursuit of training in later life. Inequalities between young people in schooling tend to produce two-track learning societies, in the South no less than in the North.

It is in this context that the current crisis affecting initial training in both the industrialized and the developing countries takes on its full significance. In the industrialized countries, a substantial number of young people, despite having met all the formal requirements of

1. In 1988, half of the developed countries had achieved 90 per cent success in their goal of higher secondary-school attendance.
2. For example: Botswana, Brazil, Chile, Cuba, Jamaica, Jordan, Panama, Philippines, Tunisia and Venezuela.

compulsory schooling, fail to attain the expected level of skills and are consequently less likely to continue their training and thereby win a second chance. This problem, frequently referred to as functional illiteracy, is now recognized as such in most developed countries. Despite the progress highlighted above, major disparities persist between the industrialized and the developing countries. The average duration of initial school training in sub-Saharan Africa is no more than two years, as compared with over fourteen years in the countries of the Organisation for Economic Co-operation and Development. This gap is likely to grow still wider as a result of the negative impact of structural adjustment programmes and the all too rapid growth of school-age populations in many countries.

Happily – and there is increasing evidence to prove it – the reproduction of educational inequalities throughout life is neither total nor automatic. Affirmative action policies have enabled the prevailing trends to be reversed in several disadvantaged communities, as for example in Chile. Likewise, despite problems of funding, basic non-formal training for young people out of school and adult literacy training are today part and parcel of the educational landscape in many developed and developing countries. However, while trends can be reversed, the corrective measures that have been taken to date are still far too limited to achieve a definitive reversal. This is a crucial issue, since the provision of initial training for all constitutes the first stage in an educational career that will have repercussions throughout life and in all spheres of activity, thereby endowing societies with an internal capacity to respond to challenge.

Creativity: a new challenge

There are several sorts of initial training. The quality of education is not a neutral concept. In this regard, a whole range of doctrines are currently being put forward, from the demand formulated by certain groups for a return to 'basic values' and the definition they give of such values to the scheme to develop a critical and reflective form of learning that is respectful of cultural differences and leads to a non-subordinate educational career and an independent-minded citizenry.

It is in this context that the concept of creativity, momentarily set aside, resumes an important place in the discussion on the future of education and its contribution to sustainable development. The concept of creativity to which we refer here is not the preserve of exceptionally talented people, but rather a potential which can be tapped by everyone: the ability to learn by oneself, receptiveness to

new experiences and relationships, willingness to investigate differences, empathy with others, a curiosity about new issues, a taste for exploring divergent ideas, the ability to formulate problems individually or in groups and to solve them, and the capacity to do all these things reflectively and to enjoy doing them. It is also important to establish an active link with the learner's own oral culture and learning experience by shifting the perspective away from the act of teaching to that of learning and by focusing attention on the learning subject within the community.

In studying the transition towards models of learning societies it is therefore crucial to establish the degree of prominence given in initial training to creativity as an integral part of the learning process and as its fulfilment.

Adult education

The transformations occurring on the educational scene are linked not only to the changes affecting initial training but also to the current boom in adult education. The demand for adult education has been constantly rising for the past twenty years and has now reached an explosion point everywhere, as witnessed by the demand for basic adult education and non-formal education, the growth in adult attendance at part-time courses in post-secondary establishments, the new vocational training and retraining requirements, the increase in on-the-job training, the soaring demand for second- or third-language courses, the growing numbers of men and women wishing to use their leisure time to undertake personal development projects, the expansion of training within co-operatives, associations and trades unions, and the proliferation of open-learning and distance-learning systems. Participation rates in adult education are already over 40 per cent in Germany, nearly 50 per cent in Sweden, and even higher in Japan.

The main factors underlying this growth in demand for adult education are themselves expanding: the general rise in school enrolment, the transformation of modes of production and the resultant needs for the retraining and development of human resources, and, finally, the increase in free time during and after working life. These three series of expanding factors will, in the coming decades, propel this demand ever higher and further. The trend is a powerful and sustained one. When adult education is reintegrated in all its dimensions and accorded its full significance, it will prove to be one of the main centres of growth of education systems.

This boom in popular demand for adult education, which was barely perceptible at the time of the International Commission on the Development of Education chaired by Edgar Faure (1971–72), is currently creating in the world of education an entirely new dynamic which the present Commission will ignore at its peril. Adult education has now become an enormous field, encompassing a critical mass of educational activities that are converting education as a whole into a lifelong process.

Widespread though it is, this new demand is nevertheless beset by a number of disparities. The opportunities for pursuing further training are largely determined by educational level, professional status and income. Throughout the world, there are marked inequalities between men and women in access to literacy training and adult education. This trend towards greater inequality in initial training is not unavoidable. Effective strategies have been introduced to correct inequalities of access and opportunity, such as outreach programmes in Sweden, adult literacy campaigns and missions in Nicaragua, Ecuador and India, adoption of paid study-leave schemes in Germany and Denmark, and decentralized public services providing non-formal basic training in Thailand and Viet Nam.

Learning environments

Education is not just education. The home, school and work environments in which learners live their lives are no less important than the educational activities which are conducted in them. These environments exert an influence through the degree of motivation and the kind of stimulus they provide, and the extent to which they encourage significant learning experiences. The hidden culture of the institution, the family, the business enterprise and society itself is also a form of education. Every institutional context has its own secret curriculum.

All educational activities are carried out in a subtly persuasive atmosphere which encourages or represses speculation, curiosity, the desire to learn, the willingness to reconsider conventional ways of thinking and doing, and which opens up or shuts off the opportunity for personal idiosyncrasies to emerge.

Regardless of what child and adult education actually teach, they are first and foremost the product of the institutionalized culture in which they are set. The all too common contradiction which consists in providing training for democracy in an authoritarian context, in teaching self-reliance in an educational relationship of dependence

and in educating people to take on responsibilities in a business enterprise that ignores industrial democracy cannot be evaded. Nevertheless, the impact of the various learning environments – one of the three components of our lifelong education triad – remains a hidden dimension that has hitherto received very little study, whether in relation to the family environment, for example, and the value attached to written communication by the parents, or to the availability in the community of cultural infrastructures likely to stimulate the urge to learn and gratify the desire to practise newly acquired skills.

Educational policies and programmes cannot therefore be solely educational. There can be no disregarding the diffuse pressure of institutional cultures or the cultural impact of the various urban and rural environments, any more than the media and other cultural industries, libraries and museums can be ignored. The entire educational scene is undergoing a transformation, one which self-evidently affects initial training and adult education but which also – and this is another point of reference – concerns the changing reality, barely acknowledged yet highly tangible, of learning environments. Learning environments, and the incentives to study which they nurture or stifle, are simply a more immediate aspect of the sociocultural dynamics at work in all societies.

Transformation of the relationships between education, work and non-working life

The transformations affecting the demand for education can only be grasped as they relate to the changes currently taking place in the world of work and in the lengthening period of non-working life in present-day societies. What first strikes the observer is the change in the relative amount of time that education, paid work and non-working life take up today, in the course of a lifetime, as compared with earlier decades. Education occupies an increasingly important place as a result of a longer initial training period for young people and, in later life, increasingly frequent participation in different forms of adult education. The second factor to be observed is the shorter duration of working life, with a reduction in the total number of hours of paid work. Annual average working hours in the developed countries have fallen from 2,050 in 1960 to 1,700 in 1990. Finally, there has been a consequent increase in free time during employment and a longer period of retirement, with a corresponding increase in the time available for other activities.

Learning thus plays an increasing part in people's lives, and is

becoming less and less bound up with formal schooling at a particular age. In the educational biographies of the populations of post-industrial countries, initial schooling features much less prominently in comparison with the time devoted to training during adult life. The overall structure of education is being transformed: initial training is becoming universal and longer, but is now only the 'first cycle' of organized educational life. These morphological changes are a familiar feature today in the developed countries. They are nevertheless much more than purely quantitative transformations leading to an increased demand for education among the adult population. They constitute a radical change in direction linked to the transformations currently taking place in the world of work and in non-working life.

Employment crisis

An initial trend in this direction is already visible. The transformation of production processes to achieve greater competitiveness on today's globalized markets, together with the crisis affecting entire industrial sectors, are triggering an increase in educational demand within the adult population. This is all the more obvious in that the pace of constant change makes obsolete the strategies of the past, based on the flow of new generations of school leavers. On the contrary, the crisis calls for more rapid, intra-generational responses, giving rise to an exponential increase in the demand for job-related adult education. The development of human resources is today regarded in all regions of the world as a key factor of economic growth and sustainable development. Nevertheless, the observed boom in the demand for training in the industrialized regions is marked by a split in the labour market, whose discriminatory effects extend into the field of adult education, where they are accentuated by a tendency to favour the better placed and to exclude the others.

A third observation on the increase in demand is called for, prompted in this instance by the unequal development of the world economy. While expressed demand is expanding dramatically in the developed countries, in the industrial areas of the rapidly developing countries and in the most highly qualified sectors of the working population of Latin America, it is substantially lower in the least developed countries suffering from severe economic recession, as is the case in Africa. A quite new issue is at stake here, affecting all countries where employment is in recession and which are experiencing a drop in the overall volume of shareable working hours. Should everyone work less in order that all may have a job? To be sure, the

debate on the hypothesis of the 'collapse of work' is by no means over, but the scenario of a global reduction, or at least a levelling off, in the number of jobs, and particularly of the kind of jobs to be found on the primary labour market, remains the most likely.

We are thus confronted by a dilemma: whether to accept the stagnation in the number of jobs available and to restrict to an even greater extent access to the primary labour market and to the recurrent education that is still closely associated with it, or to shorten the duration of the working week and to share out the jobs thus preserved or created. This issue of sharing paid employment is crucial for the future of learning societies, since work still constitutes one of the main means of access to continuing skills training.

Non-working life: a new area and new issues

The employment crisis is an aspect of the breakdown of work and of the novel issues raised by non-working life. As a result, the demand for education is changing not only in relation to the transformation of work but also, paradoxically, as a consequence of its declining importance and loss of centrality, and in relation to the new social dynamics that ensue.

Obviously, the problem takes very different forms in post-industrial societies and in the rapidly developing and economically less developed countries. On the whole, however, the phenomenon is not, as was announced in the 1970s, that of the emergence of a 'leisure civilization'. It is more a question of the expansion of broadly conceived free time, an area of life that is not conditioned by paid work but involves a form of broadly conceived productivity in which the management of time eludes traditional controls.

Work is ceasing to be the main criterion by which the members of a society are defined. It is losing its key position in the definition of the conflicts that drive societies, interests, and social and cultural practices. Beyond the problem of the shrinking proportion of time devoted to work, new issues are looming: the calling into question of the limitless, linear expansion of production and exploitation of resources, the competition between the cultural industries and voluntary associations to occupy this new ground and shape its future development, and the growing aspirations of individuals to manage their own time, organize their own careers and explore alternative ways of directing the course of their lives.

In this new context, the predominant trend towards an excessive concentration of educational demand upon work is liable to become

anachronistic. Adults take part in educational activities for a multitude of reasons and in a wide range of different contexts. It will become increasingly difficult to apprehend the evolution of the demand for education if due attention is not given to changing social participation, and to the relatively independent new social forces active in the workplace: the feminist, ecological and solidarity-based movements, and the drive to promote regional cultures. This is particularly true in so far as environmental, population and health care problems cannot be solved without resort to social participation and the empowerment of the citizen, and hence to a wider range of learning opportunities designed to enable individuals to realize their creative potential, to turn to account their social and cultural productivity, and to make the most of their differences.

The increase in free time and its impact on the overall structure of lifelong education is not a phenomenon confined to the post-industrial countries. The study of non-working life, however, cannot be transferred from one region to another. Specific research must be undertaken in order to understand the different dynamics involved. It is known, for example, that in both developing countries and those areas of developed countries that are experiencing a crisis in employment, the absence of work, far from constituting free time, is primarily a matter of involuntary unemployment, leading to survival activities and to hunting for jobs in the informal economy to make up for inadequate wages or the erosion of pensions as a result of inflation, in short, to generate income, a trend that in turn drives rural communities, urban neighbourhood associations as well as women's groups to formulate specific requests for training.

A new factor on the educational scene, the lengthening expectation of life – of a life, moreover, in which work occupies an ever smaller place – is transforming educational demand. This transformation is providing individuals and societies with totally new opportunities to develop and turn to account a productive capacity which, hitherto too narrowly confined to the tightly regulated world of paid employment, can now become truly multidimensional. Society can henceforth become a learning society.

Dynamics of educational demand and efforts to meet it
Contradictions between demand and supply

The growth potential of adult education cannot be denied, and efforts to meet this demand are being correspondingly stepped up and diversified. The boom in the demand for adult education and the

accompanying transformations are not leading to a corresponding development in the usual responses and the institutions which supply them. It may even be said that institutionalized adult education is going through a crisis in several countries. Demand is growing, but frequently leads to the introduction of activities organized around concepts and on the basis of terms of reference that fall outside the institutional scope of adult education. For purely semantic reasons, the responses organized in other institutions and ministries are left out of account (such as on-the-job training, new forms of self-instruction, educational activities forming part of the work of associations and movements, private networks, training courses offered by local groups of small and medium-sized businesses or professional associations, educational schemes launched by museums and libraries, distance training, etc.).

A second factor needs to be highlighted. The relationship between social demand and educational response, far from being a purely adaptive balancing process, brings into play a range of different interests and entails social negotiation. The emergence of a demand channelled and expressed by particular social groups is one thing, the prevailing trend and current organization of the responses is another.

Thus the policy of competition which certain multilateral funding bodies are seeking to establish between school training and adult literacy programmes with a view to financing the former at the expense of the latter frustrates adult educational aspirations while at the same time contradicting the evidence now available on the synergy between initial training for young people and the training made available to parents. During the past decade, a similar trend was to be noted in the developed countries, forced as they were to make budget cuts targeted first and foremost on the still fragile sector represented by the public services responsible for adult education. Some types of educational demand have powerful support and enjoy backing that enables them to be clearly voiced and to stake effective claims. However, it must be recognized that inequalities persist as regards the ability of different social groups to mobilize resources. The framing and articulacy of social demand in this area are an important measure when it comes to transforming education systems, one that is far more significant from this standpoint than any institutional analysis of the responses.

One thing is clear, we are witnessing a change of perspective. Attention hitherto riveted on the organization of the responses is becoming increasingly focused on the analysis and expression of the demand and of its contradictions with present-day education systems.

Diversification of responses

We are also witnessing a diversification of the providers of continuing training. In China as in Sweden, in Japan no less than in Spain or Latin America, adult education has become an integral part of the policies and programmes of a variety of ministries: agriculture, health, population, the environment and culture. To this must be added the spread of open-learning and distance-training systems. Furthermore, in addition to the fragmentation of the types, times and places of training, a more radical diversification and a stronger dynamic are developing within the structure of the response itself. They affect the very plurality of activities and, despite the primarily adaptive nature of the various approaches, the opportunities they make available for difference.

It is essential to grasp this new educational scene as a whole. Education is not just institutionalized education. There is a dynamic at work between 'schooling' and the educational alternatives, a dynamic based on complementarity, but also a process of change, a questioning of the practices and the partitions of knowledge.

A further aspect of this dialectic process is the rigidity of the institutional responses and the tendency of educational providers to impose on the new demands academic responses characteristic of formal initial training. At the same time, resistance to the workings of the new dynamic does not stem solely from the institutional responses. Those who promote alternative experiments also tend to deny that the 'state apparatus' possesses any capacity for change and to refuse all contact, all communication and all dialogue with 'schooling'.

If we are to apprehend the forces at work and the real chance of effecting change, we must break with a dualist vision that falsely opposes a formal system that has become ossified in its functions of socialization and reproduction to non-formal educational practices, whether in the voluntary or the industrial sector, private or public, that are assumed to be spontaneously in tune with changing educational demands.

By tracing people's educational biographies, we perceive the educational dialectic in a new light. Life histories make it possible to grasp several dimensions of the transition towards learning societies. To begin with, we become aware of the diversity of the different types and places of learning, and above all of the discontinuous nature of continuing education. Unexpected events, moments of crisis and the new opportunities that arise in the course of a lifetime provide strategic occasions for learning. At such moments adults find themselves facing

a whole range of widely varying practices and approaches. Whereas some are aimed primarily at empowering the individual, others tend merely to offer the learner repeated opportunities for adjusting to immediate needs.

The manner in which societies handle these periods of change in the private lives and professional careers of individuals is a revealing indicator of the types of lifelong education in the making. The growing volume of research on life histories gives us greater insight into the long-term impact of practices that aim to make such occasions the cornerstone of the learning process and the starting point of new cycles of discovery and development rather than a hurried return to 'normality' or a mere 'quick fix'. These new spaces opened up by the delinking of life cycles and the dialectic nature of educational bi-ographies in present-day societies will therefore become the critical focus of analysis and major bench-marks for redefining policy.

Political economy of lifelong education

The transformation of social demand and of the relationships between initial training, adult education and educational environments leads finally to a disruption of the political economy of lifelong education, beginning with economics.

Economics of lifelong education

The conventional wisdom on the economics of lifelong education and its cost–benefit ratios no longer holds. The narrow interpretation of the benefits to be expected and the resultant investment priorities must be revised, as must the distribution of costs. Fortunately, we are beginning to witness a reappraisal of perspectives in this regard, both in initial training and also in adult education. Admittedly, the cost-effectiveness, indeed the necessity of investment in both initial and later training is coming to be increasingly recognized. Continuity of education is becoming one of the new priorities. However, current thinking on the 'return on investment', focused on the short-term comparison of income gain at different skill levels, has hitherto tended to underestimate the longer-term advantages of investing in upgrading the skills of all sections of the working population. Thus no account is taken – and this holds good in developed and developing countries alike – of the costs involved in not raising the productivity of all citizens.

Moreover, in so far as the positive impact of the general expansion of initial training and adult education on health, agriculture and family

planning is beginning to be recognized, educational 'outlays' not immediately linked to work are less perceived as a luxury and cease to be defined in reductionist terms as a non-productive item of consumption. In both North and South, the prohibitive costs of a healthcare policy whose focus is primarily curative as a result precisely of the absence of preventive education are beginning to reveal the economic consequences of a failure to invest in this type of education.

The central argument of the Club of Rome since its famous report *No Limits to Learning* (1979) is that only active training, spread out in time and space, will enable present-day societies to solve the problems facing them, above all in the context of the crisis that has overtaken the welfare state.

Against this background, the distinction between work-related training and so-called general education is becoming increasingly difficult to sustain. In addition to the ever greater overlapping of contents, reciprocal transfers are taking place between vocational and general courses. Educational aspirations and individual participation in education are undergoing a cumulative process. Above all, we are now concerned with learners who, providing the opportunity is made available, will benefit from synergy throughout their diversified educational careers.

Recognition of the multidimensional nature of the impact of educational investment will thus tend to generate higher incomes and may help to solve the crisis of educational funding. This nevertheless raises a new problem, that of the fragmentation of financing for later education. New management and follow-up methods will be needed in order to take account of this diversification of funding sources and to pursue common goals that are recognized as essential in all activities.

Lifelong education and the reformulation of the role of the state

That the state's role in education (education considered in the broad and true sense of the word) is in crisis is an obvious fact of life in all regions of the world. This crisis corresponds to several changes, some political, others of an economic and social nature. There is, first, a calling into question of the national state both by infranational, regional and municipal bodies, and by the emergence and growing power of supranational organizations, whether intergovernmental (such as the European Union), multilateral (such as the World Bank) or private, as for example the multinational corporations. The crisis also

stems from the probing carried out by the new social movements, which point to the inadequacy of purely state solutions to social problems, but which at the same time refuse all truck with the 'rightist' project to dismantle the state and to undermine social rights and entitlements. Increasing awareness of the emergence of a new and persistent form of poverty (the 'underclass') in post-industrial societies, of the growing gap between the world's major regions and of the powerlessness of governments to reverse these situations by themselves, is not foreign to this calling into question of the models of public intervention.

On the educational scene as a whole, and over and above the simplistic dilemma between state control and privatization, a number of observations come to mind: first, the provision of universal basic education can no longer be solely dependent on formal schooling for young people – it requires a dual approach aiming both at young people and at people outside school; second, the development of a political economy of lifelong education is not – and can no longer be – contingent upon the sole strategy of extending public responses to educational demands; third, all actors on the educational scene are now seeing their role transformed, be they national states, local authorities, new supranational authorities, community associations or corporations; fourth, this overall system of organization cannot be left to the workings of the educational market alone, on account of the dysfunctioning it produces, the need to regulate quality and qualifications, and the social and economic costs which the inequalities produced would entail; fifth, the recognition of social rights, including the right to learn, far from being an impediment to development, proves to be a viable instrument, owing to the fact that, regardless of cyclical contingencies, it maintains investment in the development of human resources, which is always a long-term undertaking; and sixth, these social rights in turn entail responsibilities, obligations and duties, in other words the participation of citizens and civil society in the development of skills and the improvement of the quality of life.

Actions to encourage the full expression of social demand, to make public the failings in the responses provided, to stimulate learning environments and to democratize the cultural industries, are not entirely due to the public authorities but are also the work of social actors who, by negotiating or setting up independent alternatives, help to correct the negative effects of the fragmentation of educational action at all levels.

In this new overall structure of education that has now become lifelong, the role of the state will no longer be what it was at an earlier stage, when education and schooling were one and the same thing. And much more than morphological diversification is entailed.

To begin with, the role of ministries of education is changing. They are becoming first and foremost ministries of initial training, responsible for ensuring that everybody embarks on a continuing and more self-reliant process by introducing measures to prevent functional illiteracy and providing more prolonged initial schooling. In addition, and more importantly, they are having to share responsibility for later training with other ministries.

The striking feature of adult education is the shift in government action which to an ever-increasing extent exceeds the scope of ministries of education or of the development of human resources. We have already stressed the growing reliance of many ministerial departments on educational measures in pursuit of their policies. The models for incorporating such information and training strategies in different sectoral policies are, like the terminology used to describe them, extremely varied. The legislative and political environment of non-formal training and continuing education is changing rapidly.

The second significant change, which has already been noted, is the pride of place given to policies centred on demand. We are witnessing the emergence, at local level, of new public information and advisory services enabling adults to formulate their own training plans. In some countries, such as Japan, national, regional and local lifelong education councils are being set up to co-ordinate a wide range of activities. Financial assistance policies are also being introduced, often in collaboration with companies and local authorities, in the form of study leave, vouchers, time-sharing measures, grants for participating village groups, day-care services, and so on.

A third tendency is concerned with the adoption of policies and measures aimed at improving learning environments: support for non-formal pre-school education, the activation of public library networks, policies for providing access to printed matter and the media, and the promotion of school, family and work circles.

Lastly, a change can be seen in the role of the state as a direct provider of adult-education activities. Except in a few countries, the role of public adult-education services tends to be maintained and recognized, but within an increasingly diversified overall system in which the public sector serves the supplementary purpose of correcting inequalities, either in respect of less well-endowed sectors of the

community or in areas that are less immediately cost-effective. There is also increasing collaboration between education systems and on-the-job training schemes. In addition, more and more adults are enrolling on a part-time basis in post-secondary establishments, while new public institutions are being set up to cater directly for this target audience, such as distance universities and public agencies for training and the award of individualized diplomas.

The most significant change in the role of the state in adult education is probably the emergence of a new transversal function bringing together all the actions and actors involved in this new diversified and fragmented system of continuing education. Bridging measures are being introduced to promote mobility and help learners to pursue their educational plans; policies for supporting non-governmental initiatives and on-the-job training schemes are being adopted; centres for accrediting non-formal learning are being set up or encouraged; interministerial committees for horizontal co-ordination are being formed; and local or regional lifelong education councils are being established.

In contrast to the linear planning strategies typical of ministries responsible for initial education, these new global policies for lifelong education are mainly concerned with creating or strengthening synergies between the diversified activities of adult education. Like the environment sector, adult education, viewed afresh in terms of lifelong education, could serve as a model laboratory for a more general transformation of the role of the state.

From the point of view of the subject or learner, the development of this transversal function of public adult-education departments will become crucial. The multiplication of opportunities and places for learning poses a significant challenge to every individual faced with the need to find coherence in a constantly shifting world. Many different educational events devised without any connecting link by various educational agents are experienced or 'undergone' by the same learners, who have to create the links for themselves and fit them into their educational biography, bringing everything together in ways which are fortunately always provisional. The fragmentation of the organization of adult education raises more than the purely mechanical issue of the recognition of diversified learning outcomes. Given the diversity of the overall structure of adult education, the problem arises of the unity of the subject and of the learner's search for self-reliance, identity and productivity (in the broad sense). This will become one of the key functions of a public continuing-education service: to provide

adults with the information, support and conditions they need for an education which it would make better sense to call synergetic rather than lifelong.

Conclusions

It is too early to attempt a synthesis of the different kinds of lifelong education which are beginning to appear. However, one thing has perhaps emerged more clearly, namely the forces at work in the transition process which various countries are going through as they move towards different models of learning societies. In the course of this study, we have identified a number of pointers in a bid to grasp the significance of the transformations and to be in a position to impart a new direction to the current trends. We have singled out fourteen such pointers:

1. The higher the level of initial schooling among the adult population, the higher the rate of participation in sociocultural activities and adult education. The way the current crisis of initial training is resolved in each country will therefore have a crucial impact.

2. The outcome of the debate, in each society, on the definition of the quality of initial training and the consideration given to the development of the creative potential and self-reliance of young learners will have major cultural repercussions on the educational career of individuals and also on the likelihood of the societies concerned becoming learning societies.

3. The degree of development of pre-school training services, particularly in circles that are traditionally remote from school culture, is a critical starting point for the continuation of an educational career.

4. One crucial point will be the way in which the real but still silent boom in the demand for adult education will be followed up and reintegrated in different countries, and also the way in which the entire system of responses will be managed and corrected, taking into account the full range of training projects and educational actors.

5. Revealing pointers to this will be found in the formulation and implementation of policies or teaching methods for educational environments highlighting the educational potential of the different family units, local communities, work-places, the media, and museums and public libraries.

6. The existence or not of affirmative action policies and the setting up of specific programmes or measures for women.

7. The scenarios that are beginning to emerge on the division of labour and job reduction in each society and at the international level will have a considerable influence on the future direction taken by educational demand and on the possibility of correcting the current tendency towards two-speed lifelong education.
8. In each society and social group, the direction which the new and expanding area of non-working life will take in the formulation of the sociocultural and educational aspirations of adults.
9. The recognition or otherwise of non-school learning and the type of mechanisms provided for that purpose will indicate the extent to which lifelong education models have become operational.
10. The part given to the various social and economic actors in educational decision-making.
11. The recasting or otherwise of the role of ministries of education or human resources and the creation of transversal and intersectoral functions.
12. Changes in the attitude of governments and social actors to investment in education will influence the allocation of public funds to later training and will alter the relationships, which are becoming increasingly intertwined, between vocational and general training.
13. The way in which the diversified, direct and indirect, public and private methods of financing the various forms of participation in adult education in different countries are categorized, interrelated and where necessary corrected, will also reflect the degree of progress which these countries have made towards models of learning societies.
14. The formulation of explicit policies situating the whole range of educational and cultural activities in the context of lifelong education.

We have refrained in this chapter from considering lifelong education as a universal programme, a general norm. Instead, we have attempted to grasp the empirical processes involved in the transition of national education systems towards models of lifelong education. Although the right to learn is universal, there is a discontinuity of contexts and projects, and hence a plurality of forms of lifelong education.

Teaching in the information age: problems and new perspectives

Jan Lepeltak and
Claire Verlinden

In the twenty-first century the use of new technologies can be expected to have a pervasive influence on social life. Education will not and may not be immune from these changes. The present report deals with the implications of the new information technologies for the teaching profession.[1]

International research, in particular Computers in Education (COMPED), has shown that information technologies are being used increasingly in regular education. Large sums of money are being invested in automation in education, for both the present and the future. Changes in society entail other demands on education. There are three particularly striking features: the discrepancy found between supply and demand on the labour market (in some sectors it is difficult to find technically skilled candidates, while in other sectors there is a constant surplus of candidates); a high percentage of students leave school early without any qualifications, with all the social consequences that this implies; and a discrepancy on the labour market between level of education and level of function. One of the results of this discrepancy is that those with a higher level of education take the jobs of those with a lower level of education.

The improvement of the quality and thus of the efficiency of education is a key concept. Expectations were high when information

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1. This chapter is the result of collaboration between the General Union of Educational Personnel (ABOP) and the National Institute for Curriculum Development (SLO) of the Netherlands.

technologies were first introduced in education. Later on it was pointed out that there is a danger of seeing the computer as a panacea which can solve all kinds of problems in schools. Although we advocate a critical examination of the potential of this new educational resource, we believe that information technologies can and must play a crucial role in education, with the teacher occupying a pivotal role. The computer will never replace the teacher, but it will change the role of the teacher to increase the time and attention that can be spent on groups of pupils who are often neglected at present – exceptionally gifted children and those who lag behind.

The computer makes it possible to differentiate in education, which is extremely important. This means that the education provided need not be homogeneous and aimed at a group (a teacher who gives lessons standing in front of the class); it can be aimed at the individual needs and potential of each pupil. There are software systems which make it possible to keep track of pupils' progress, record their results and make recommendations if required. The use of systems of this kind imposes high, new educational demands on the teacher. The development of these teaching methods and their incorporation in initial teacher-training courses are preconditions of an adequate education system.

The terms used in this chapter are taken from studies concerned with terminology used in information technology.

New information technologies: everything connected with the methods and resources that have emerged and that continue to emerge as a result of the developments and applications of (micro-)electronics.[2]

Multimedia: the integration of (moving) image, text/data and sound within a single platform which is accessible and operated by the computer, and which can be approached interactively.[3]

Telematics: the integration of telecommunications and information technologies in an educational environment. In practice, this means the possibility of linking computer systems which are at some distance from one another.[4]

New technologies: various developments in the field of information technology which are relevant for education. This includes everything connected with methods and resources which have been devised as a

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2. L. A. M. Verbeek, *Begrippen en terminologie in de informatica,* Enschede, 1990.
3. J. Moonen and B. Collis, *Multimedia in het onderwijs. Een verkenning,* Zoetermeer, 1991.
4. Ibid.

result of development and applications of (micro-)electronics. Examples are: television, videotape recorder, videodisc, satellite communication, computer, computer network, transmission by glass-fibre cable, data banks. The term also refers to such concepts as automation, information science and telematics.

International situations

In most of the industrialized countries, the 1980s witnessed the first attempts by education to catch up with developments in the field of new information technologies and new media. The backwardness of education in this field is part of a wider problem: it is almost impossible for education to keep up with the growth of knowledge and the great leap forward in technological development. In the Netherlands, for example, this was also the period in which it was discovered that the gap between education and the labour market was a very big one and that renewed interest in professional training on the part of the social partners, employers and employees, was called for.

Many countries discovered that large investments in new technological equipment and additional training of workers in education called for sizeable investments which were not covered by education budgets. Co-operation between educational institutions and the world of industry and commerce was therefore required for large-scale investment in educational computers and the development of software. Since the education systems of these countries are very different, this public/private co-operation also takes on different forms. In the case of the highly centralized development of a curriculum, for example, the new influence of industry is soon felt to be sufficiently important, while in minority-language communities co-operation is vital to make software affordable.

In the United States, the idea of a book as an educational resource has already been extended to include electronic media, which will have major consequences for educational publishers. The sponsoring activities of the world of industry and commerce also provoke mixed reactions. At what point does education come to depend on industry, and what consequences does this have for government spending on education? A critical scrutiny of these relations is called for.

Computers in Education

COMPED is a large-scale international comparative survey of the use of computers in education in more than twenty countries, co-ordinated by the International Association for the Evaluation of

Educational Achievement (IEA). Two inquiries were conducted and their findings were published in reports between 1989 and 1992, the first dealing with the use of computers among pupils and heads of schools and the second dealing with pupils and teachers. The final report was issued in 1994.[5] The research is primarily aimed at distinguishing the main factors in the use of computers in different countries and to provide policy-makers with comparative material from other countries to enable them to adopt the appropriate measures.

Primary education (elementary schools)

The first countries where personal computers were introduced in primary education were the United States and Canada (1983), followed soon afterwards by France, Belgium, Israel, Portugal, Italy and the Netherlands. Japan followed later. The number of computers per pupil in 1989 varied by country, from 1 : 24 in Canada to 1 : 85 in New Zealand. Computer equipment used in primary education was and still is highly diverse. Most countries have opted for a simple type of computer. The large variety of hardware means that computer programs cannot be used universally. Canada is the only country in which primary and secondary schools make use of the same equipment. Programs in every subject were by no means available in every country in 1989. There are programs for most subjects in the United States, but other countries only have access to programs for two to four subjects. There is no information available on how intensively the computers are used, but there are statistics dating from 1989 from a few countries on the percentage of pupils from the highest classes in primary education that used computers for educational purposes: Israel 96 per cent, New Zealand 92 per cent, United States 76 per cent and the Netherlands 74 per cent. These data do not tell us anything about the intensity of use.

The COMPED study indicates that the bottle-necks in the use of computers are roughly similar in all of the countries covered by the survey: lack of hardware, lack of programs, lack of expertise among teachers (rated by school heads almost as high as lack of computers) and lack of time. These preconditions are mentioned not only by heads of schools, computer co-ordinators and teachers, but also by teachers who do not use computers in education.

The incorporation of the computer in the usual types of lesson, i.e. its integration into the curriculum, is regarded as a common

5. COMPED, Final Report, 1994.

bottle-neck in every country. Despite the similar problems, there are considerable differences between countries as regards the extent to which the computer is implemented. A larger supply of programs does not necessarily mean that teachers use the computer more often. Whether a teacher uses the available programs depends above all on how readily they can be incorporated in practice. With programs for nine subjects, the use of computers in the United States is comparable with that in the Netherlands, for example.

Secondary education (secondary level)

The introduction of computers in secondary education began in Canada and the United States in 1982. The computer:student ratio in Canada was 1:17 in 1989. The introduction of computers in Japan did not start until 1987; during the period of the survey the computer:student ratio there was 1:292. Japan has opted for an in-depth strategy. The average computer:student ratio in the countries surveyed was 1:40. Like primary education, secondary education also makes use of a large variety of types of computer, though a greater number of them run on MS-DOS. There are no COMPED data on intensity of computer use, but the percentage of teachers that report the use of computers in mathematics lessons is 55 per cent in the United States. Mathematics scores highest in every country. The percentage of teachers who report the use of computers in natural science and first-language learning is less than 20 per cent in most countries.

   The bottle-necks reported by heads of schools, computer co-ordinators and teachers closely resemble those reported for primary education: too few computers, insufficient software, insufficient expertise and time, and problems in integrating the computer into the curriculum. The major complaint by heads of secondary schools concerns the lack of expertise on the part of the teachers. The nature of the software packages supplied with the computers also plays an important part in their integration into different subjects.

Schools, Teachers, Students and Computers

The second COMPED survey report, *Schools, Teachers, Students and Computers,* describes and analyses the integration of the computer in education more from the students' viewpoint. By comparison with the first survey, the number of computers in schools has grown appreciably. Research was carried out in Austria, Bulgaria, Germany, Greece, India, Japan, Latvia, the Netherlands, Slovenia and the United States, covering 2,500 schools. The number of computers per school

varies considerably per country, ranging from 1 : 6 (United States) to 1 : 30 pupils (Japan).

Learning how the computer functions is still the major pre-occupation. The computer as an educational resource, integrated into the curriculum, is an innovation still difficult to implement. The software shortage remains a problem and the majority of students complain that the programs are not easy to use. The subjects mentioned most, apart from computer science, are still mathematics, science and first-language learning. Access to networks is rarely realized, except for 15 per cent of schools in the United States.

The information on the use of computers by students at home is revealing. For example, 60 per cent of families in the Netherlands with school-age children have a computer. Experience is thus increasingly acquired at home, especially in computer games, which are extremely popular among primary-school children. Word processing and computer programming are also mentioned in secondary education. Nevertheless, learning about and with the computer takes place at school and that in turn stimulates use of the computer at home – not vice versa. It is also important to note that for many students their first experience with a computer is still at school, which puts them in a disadvantaged position vis-à-vis fellow students who have a computer at home. (These differences often reflect class differences.) There is still a great difference between boys and girls as regards interest in the computer in practically every country covered in the survey. The exception is the United States, although here too there is a difference between boys and girls in the pleasure in and use of computers at home. According to the researchers, the causes may lie in parental encouragement, possible applications of a computer, role differences between male and female pupils, socialization and the behaviour expected of girls. They point out that school policy to reduce these gender differences is rare and, when it does occur, parents are not involved. Further analysis and scrutiny of these conclusions are required in order to arrive at an appropriate strategy to reduce these negative differences. Attention should be paid to the role of women teachers in computer education, to refresher training aimed at preventing negative gender difference and to the involvement of parents in a specific school policy.

An attitude test has been developed in the Netherlands (available on disk) to enable schools to find out what different pupils think about the computer. This offers an easy method of examining role-reinforcing behaviour in connection with the use of computers.

Researchers point out that the introduction of computers in education is still so time-consuming that a specific policy aimed at preventing negative gender difference is not yet on the agenda. The problems mentioned by teachers in this second report are still the lack of expertise and training possibilities. The introduction of computers in education proves to be a complex innovation, and simple training in the use of the computer is not enough. Teachers responsible for computer co-ordination do not have enough time to assist their colleagues in the classroom.

These reports reveal once again how crucial a role is played by the teacher; heads of schools should therefore devote more attention to innovation in this field, and policy-makers should pay more attention to the crucial role of the teacher in this respect.

IEA draws the following conclusions from COMPED:

A computer at school does not automatically result in its regular use in the classroom. The effective integration of computers in the lessons demands time and strategically oriented activities, such as the provision of information on the additional benefits of integrated use of the computer, the development of software and training. It may now be stated with confidence that the introduction of the computer in schools will take more time than was originally supposed.

It is very important for teachers to receive training and support and for more hardware and software to be made available.

For pupils who do not have a computer at home, the school is still the main link in offering equal opportunities to learn about information technology.

National education systems will have to keep on working hard to keep abreast of the far-reaching digitalization of information. A striking increase in the availability of the number of computers has taken place during the last few years, but on the other hand the computer is only occasionally used as an auxiliary resource in the learning process.

Schools, parents and policy-makers must be aware of the differences in expertise and experience in the use of computers between boys and girls. The lack of experience and familiarity with computers may result in a socially disadvantaged position for girls.

Use of new technologies in the future
Experiences with promotion of new technologies
during the past fifteen years

Information technology plays an important part in the relation between society and education. The importance of a good education system for the socio-economic development of a country is beyond any doubt. Changes in society make new demands on its members, and thus on education. Information technology plays a crucial role in this respect. It can be seen in the industrialized countries how information technology plays an important role in processes of production, and one can observe the shift which is taking place from the industrial sector to the service sector (which already accounts for approximately 50 per cent in the countries of the Organisation for Economic Co-operation and Development). The ability to access sources of information is thus growing in importance.

The experiences of introducing the computer in education in the 1980s may be useful in answering the question of how new technologies may affect the professional practice of teachers in the twenty-first century. Teachers played a key role in determining whether the high expectations in educational circles regarding the influence of information technologies on school practice were realized or not. Those expectations varied from a revolution in teaching to just another teaching aid. Although experience has dampened the high expectations, remarks such as 'the computer will go out of fashion again like the language labs' are now rarely heard in educational circles. The computer is here to stay.

Almost all national information technologies programmes had a strong top-down approach. This was practically inevitable – after all, you have to start somewhere. The consequent risk of teachers often feeling themselves to come at the bottom of the list proved to be a real one, especially at a time when the teaching profession was going through a serious international crisis in terms of appreciation, salaries and workload.

In those countries that do not have a centrally run education system, such as the United States, major developments can be detected at the grass-roots level, where innovations are enthusiastically implemented. The problem here is the principle of equality. It is precisely as a result of decentralization and remote management that economic differences impinge directly on education. Even within an area like that of state schools in New York City, there are still great differences in premises and the availability of hardware and software

facilities. These are partly due to the different contributions that are received in each school district; the level of the contributions is related to the revenues from property tax and this can vary to a large degree within the city.

In some countries there is still a tendency in education to place emphasis on the detection of special talent (tracking), minority groups included, and less on a general raising of the level of education. 'One of the major messages is that all kids need to be performing at higher levels', according to Ross, co-author of the American federal report *National Excellence: A Case for Developing America's Talent,* quoted in the *New York Times,* 5 November 1993, p. 23).

Education and society at macro level

The importance of the use of new technologies in education as a way of promoting the quality and efficiency of education has been generally recognized for some time. At the macro level, efficiency in education plays a role in the introduction of new technologies. The high percentage of drop-outs and the large group of pupils who take longer than the statutory period to complete their education, related to the cost of education in the industrialized countries of the West, make changes in education inevitable. In many West European countries, this has led to changes in the content and structure of the entire education system, from primary schools to higher education, over the past ten years. Small-scale but intensive in-depth projects have often led to broad projects which envisaged a general implementation of information technologies. As mentioned above, these developments are monitored internationally (for example, the COMPED survey).

Another factor which hardly played any part in national policy operations is the increasing influence of all kinds of media and institutions which are outside regular education yet play a role therein. Learning is no longer the exclusive preserve of the education system.

Meso level: the school as organization

In a 1993 article, Toenders and Kobus raised the question of the effectiveness of the current concept of education.[6] Although it has been known for a long time that the lecture model of teaching is not very effective, a considerable part of education is still given in this manner. This model assumes that the teacher does the talking while the student listens. It also appears that the content of higher education

6. L. Toenders and M. Kobus, *MESO,* No. 7, 1993.

does not tie in adequately with what has been learnt during the preceding phase. There are problems in the fit between secondary education and higher vocational training. Sometimes syllabuses overlap, sometimes they fail to make contact at all. That is why proposals are being worked out in Netherlands education to change the second stage of secondary education in such a way that the syllabuses and the choice of subject groups offer the student a more flexible educational trajectory and guarantee a better fit with higher education. The same applies to the fit with the labour market. However, computerization makes differentiation and individualization of the educational trajectory possible. The trajectories of individual students can be monitored using the appropriate monitoring systems. All the same, it should be stated that this potential is barely used at present.

The rise of micro-electronics meant that information technology also came within the reach of primary and secondary schools. This was primarily a matter of the supply of hardware, training and the development of course materials. Special computer rooms were often set aside and teachers were chosen to act as co-ordinators. It was rare for a member of the school management team to be given the responsibility for automation within the school. Many schools decided to develop special computer literacy courses for pupils. Word processing and databases were the main applications.

A large number of teachers, but by no means all of them, took special courses, while many learned to work with the computer on their own or with the assistance of their colleagues. The model which assumed that teachers with the requisite expertise would pass it on to other colleagues at school proved not to work in practice. Teachers had very little opportunity to pass their expertise on to other colleagues within the limits of the school organization and timetable. In some cases, heads of schools did not provide sufficient support for these activities. In other cases, teachers did not feel the need to share the expertise, insight and position in the school which they had often acquired through great effort.

Micro level: the classroom

In retrospect, three developments in the field of hardware and software development over the last fifteen years have had important implications for the use of the computer in education and may be regarded as critical factors. The first was the development and general acceptance of standards for the operating systems of personal computers (PCs): MS-DOS for the (original) Intel processors and the system for Apple

Macintosh computers. The second development concerned interlinking/compatibility: that is, the possibility of exchanging information between different systems. These may appear minimal prior conditions for the educational application of new technologies in education. The market mechanism plays an important part in this respect. The third development was an easy-to-use graphics interface (such as Windows, which regulates the communication between the user and the computer) for the operating system and applications in use.

Once an industrial standard has been developed (MS-DOS for example), mass production and competition result in spectacular price cuts. Thus the present generation of MS-DOS PCs is cheaper than the first generation of machines using the 18086 processor, is five to ten times as fast, and has a much larger internal and external memory capacity. This has had a number of important consequences for education. PCs became cheaper for initial education and were purchased by schools and/or issued to schools by the state. A market was created for software development – teachers who often worked with home-made programs at first now purchase software which has been developed and issued by educational publishers. The user interface was highly technical and command-orientated at first. This made using the computer more difficult and was one of the factors leading to a strong focus on the information science element in using the computer.

The development of computer literacy was seen as an important educational objective. The limitations of the available hardware (relatively slow computers with a small operational memory) also affected the software. Initially programs often had a practice-and-drill character, with little scope for user intervention. All kinds of limited Computer Supportive Education play a role here. Important applications such as word processing have also gained in popularity and are still an important resource in the teaching of writing, for example. An American inquiry on the use of telematics reveals that the majority of the teachers interviewed use telematics applications in their own professional practice out of curiosity about the new technology.

The implementation of new technologies in education is generally justified by the argument that the use of computers must provide additional benefits. The benefits of computer programs were not always measurable or demonstrable in the past. In this respect technological advances seem to play a role, whether one likes it or not. In general, the various surveys indicate that the effects of large-scale implementation projects are often somewhat disappointing. It is difficult to keep on

innovating after a number of years. It is difficult to say whether the content and organization of education have changed. The results will vary from one country to another.[7] At any rate, in view of the experiences and the limited data available, it is doubtful whether much has changed.

Various investigations have shown that the teacher plays a crucial role in the implementation of new technologies. This role is determined to a large extent by: (a) the school organization; (b) the teacher's views on education and teaching methods; (c) the teacher's knowledge of information technologies and their use in education; (d) the availability of hardware and software; and (e) the advantages experienced in using new technologies. The fact that implementation often fails to come up to expectations may thus not be attributed directly to the individual teacher, but is also to a large extent dependent on the context in which the teacher has to do his or her work.

Developments from the present to the future: multimedia and telematics

Since most European countries are abandoning central government control of information technologies in the 1990s, new developments will have more of a bottom-up character. This is welcome in the first instance and it increases the involvement of teachers in educational innovation, but it also entails the risk that developments will generally remain on a small scale and that they will peter out in the long run. The state will thus have to continue to play a selective promotional role.

The risk of new inequalities is particularly acute where there is a tendency to give schools an increasingly autonomous status by means of lump-sum funding and deregulation, especially if this policy is guided by the desire to implement cuts in public spending. Schools with children from a middle-class background will find it easier to provide the desired level of facilities than schools with a large proportion of disadvantaged children. In that situation, the question of the availability of new technologies may lead to the creation of new inequalities. Social demand is also a prerequisite for the implementation of new technologies in education. Major developments in technology are now considered.

7. See information in the December 1993 COMPED report.

Multimedia: videodisc, CD-ROM, CD-I, 3DO, DVI, etc.

The increasing miniaturization of micro-processors results in faster computing speeds and increased memory capacity. This is particularly important for the digital processing of live images. All types of multimedia involve the computer-operated integration of image, sound and data. CD-I is operated by a special compact disc player; all the other multimedia are operated by a PC.

Potential. These new interactive multimedia are exceptionally powerful and facilitate interactive use tailored to the individual pupil/student. This offers great opportunities for advancing the active learning process, as well as allowing the monitoring and management of progress. Access to these media in all kinds of locations by means of telematics (by the creation of information highways, using glass-fibre technology) has a great potential.

Problem. The development of multimedia productions is an extremely expensive business and calls for large investments. A substantial market is required if investment is to be commercially feasible. The fact that there is no clear standard multimedia operating system at present means that there are only sub-markets for multipurpose devices. For instance, various types of CD-ROM are available at the moment; the disks all look the same, but are often incompatible. The situation recalls that of the early 1980s, before MS-DOS had become established as the industrial standard for a PC operating system. It may thus be necessary for the state to intervene in the short term to make possible the development of interactive multimedia productions.

Telematics

The most important development in the field of telematics is the national and international linking of computer networks, allowing electronic mail to be sent and remote data banks consulted at a relatively low cost. The implications for education are that teaching need no longer be bound by place and time. Permanent education becomes a valid option through the use of the growing supply of training courses which operate by means of telematics. In the United Kingdom the Open University offers a modest part of its courses through electronic distance learning.

The global village is becoming a reality. The exponential growth of the Internet and its European counterpart EARN during 1993 is an example. The Internet was originally set up for the academic world. In 1992 it linked up 400,000 computers and 3 million users all over the world. In January 1993 some 8,000 networks in the United States

were linked through the Internet; by June 1993 the corresponding figure had risen to 14,000, an explosive increase.

Electronic super highways: a symbiosis

The potential of so-called electronic super highways, which have already been set up in the United States on the initiative of the United States Vice-President Al Gore, is so powerful and revolutionary because they are able to combine the advantages of two systems: top-speed communication over a distance and the use of interactive new media. This means that a connection through the high-speed glass-fibre network offers the user simple access to all that the new technology has to offer: databases, images, sound and, in the long term, integration of television, distance learning and other forms of telecommunications.

Multimedia applications can thus be made available to large groups by means of digital telephone (ISDN) networks or glass-fibre cable. The existence of an international community should also stimulate the development of multinational communications systems.

Micro level: teachers in the twenty-first century

Significant social trends in the West are: individualization, automation of information, increased flexibility (lifelong education) and also internationalization. In terms of education, these trends imply: (a) differentiation of educational trajectories (individualization), following courses at any time or place – learning is no longer exclusively a matter for schools but can take place at home, in the local library or at a media centre; (b) the possession of information literacy, i.e. the capacity to find, process and provide information (often making use of information technologies); (c) the possession of adequate communication and study skills and problem-solving abilities to be able to engage in lifelong education and to change jobs if necessary; and (d) the exchange of pupils and students, the mutual recognition of qualifications and a dramatic increase in international contacts through the development of large-scale educational networks (such as Kidlink, Greennet or I-Earn on the Internet).

Individualization often forces teachers to adopt a different role. Instead of acting as experts and giving lessons in front of the class, they have to become guides and assistants. The discovery of ways of finding information in the network of systems, the formulation of the appropriate search command, the development of algorithmic problem-solving skills, the ability to abstract, and the ability to communicate in word and gesture will gain in importance.

Toenders and Kubus[8] claim that the new roles of the teacher tend towards a facilitator: someone who creates the conditions for learning and organizes the learning processes. The new-style teachers will also be expected to advise on educational trajectories, and to register and assess student progress. They will also organize information, select it and make it available, as well as acting as guides in the use of information. In short, they are general assistants in the use of information technologies. Of course, it is impossible to combine all these characteristics in a single person. The new responsibilities of teachers in the twenty-first century entail an almost entirely new professional profile. In the past, especially in secondary education, the most important aspect of the professional profile was specific knowledge in one academic discipline. Other requirements, which have to be formulated anew and elaborated, will have to play a part in teacher training.

Teachers may regard all this as a tremendous challenge or as a new source of great frustration, especially if they are expected to do things which are impossible in the circumstances (insufficient information technologies expertise, a rigid school organization, the lack of adequate facilities, the lack of integration of information technologies in the curriculum and meagre career prospects or opportunities for functional differentiation). In other words, the burden of the tension between the demands of society and pupils, and what education supplies, is borne by the teacher who has to provide that education.

The state must continue to be involved in this process of change by drawing up standards for teacher-training courses and making facilities available for the continuing education of teachers.

Multimedia. The use of multimedia will continue to be limited for the time being, although it may not be long before they are introduced in schools. It depends on when a de facto standard is established to facilitate their use on a large scale. There is no multimedia equivalent to MS-DOS and MS/Windows for the PC or Nintendo for the games computer. In the meantime, the CD-ROM is becoming the standard storage medium for the PC (e.g. electronic dictionary or encyclopedia).

Investigation into the use of multimedia in test schools has shown that pupil motivation is particularly heightened (even after prolonged use). This is a significant finding in view of the general lack of motivation that is reported among pupils, which makes teaching such

8. Op. cit., 1993.

an arduous occupation. The range of all kinds of music-oriented television channels, and the large-scale use of games computers and videotape recorders, help to explain why teachers armed with chalk and a blackboard are no match for these powerful new media.

Meso level: the school as organization

Since teachers in the future will have to pay much more attention to individualization, it is important for them to know that they have the backing of a group. In view of the specific technical demands entailed by the implementation of new technologies, a certain differentiation of the responsibilities of teachers will also be required within schools, irrespective of the subjects they teach. Autonomous teachers who stand in authority in front of their class are a dying race. Some teachers will feel more affinity with the counselling aspects of their work, while others will be good at certain forms of instruction. Since, in the long term, the various subjects will be drawn closer to one another and the emphasis will shift to applications and skills, there will be repercussions on the work of the teacher. Forms of team teaching are important in this respect.

A school will only be able to face the challenges of the twenty-first century if it functions as a team; in which everyone's specific skills are used to the full. This can also be effected in broad-based comprehensives in smaller organizational forms.

Macro level: facilities for all, quality supervision, innovation and standardization

The role of the state will be focused on making facilities available where possible. For teachers, facilities may imply training, including refresher courses, and the provision of information/assessment of teaching materials – textbooks and software. Teacher-training courses will have to place more emphasis on the changing role of the teacher in education. New practical ideas will have to be developed for a different organization and different teaching methods.

The state should guarantee the quality and improvement of education. As far as quality is concerned, minimal fixed targets should be formulated, though they should be flexible enough not to be experienced as strait-jackets.

There is a tendency in the West to describe the development of education too much in terms of a market mechanism in which the state plays a marginal role. The state must continue to play a key role in initial education, based on guarantees of equal opportunities

and possibilities for all. There is a very real danger that new technologies will create new inequalities. If the state only provides minimal facilities, schools will emerge in which the parents have to make additional contributions for such items as taking on extra teaching staff, purchasing extra hardware and software, the extra training of teachers, etc.[9] The result will be a great divide separating rich schools from poor ones.

The application of telematics and distance learning has great potential for those re-entering education and for basic education. These may be new groups of citizens (ethnic minorities) who are given access to basic education, or those undergoing further training and refresher training in connection with an active employment policy. The state should also develop initiatives to set up an information infrastructure which can supply distance-learning facilities.

Technological developments (computers have a life-span of three years) are often so rapid that it is difficult enough for the countries in the West to keep up with them, let alone the developing countries. This means that the technological gap separating Europe from Africa, in particular, will continue to widen. Considerable attention must be paid to this effect, especially in connection with international co-operation (the problem of North/South relations).

The importance of good education is recognized by many countries in the Far East. It is the Asian countries (for example, Malaysia, Singapore and Thailand) that are undergoing sharp economic growth as well as Japan. Participation in national and international projects enables them to maintain and supplement their level of knowledge. It is also highly significant that these countries are not faced with a crisis in the teaching profession and that teachers are held in high esteem there.

The technological potential of distance learning also offers opportunities. The use of satellites to transmit images, sound and data to locations that are difficult for teachers to reach should to be exploited more.

In view of the need for standards, the state can play an important role in the development/promotion of a telecommunications standard and a telematics infrastructure. This development can be seen in the United States and Europe in plans to implement the electronic information highways mentioned above (a glass-fibre network for top-

9. P. Baak, 'Nieuwe Technologieën, Nieuwe, Achterstanden', *COS,* Vol. 4, 1989.

speed data transmission). In view of the appreciable financial interests involved in the further development of telematics infrastructures, public/private partnerships should be developed.

In connection with the major investments entailed by the implementation of new technologies, the state should bear in mind the cultural position of minority-language communities where the development of materials is involved. The technology-push is still present (in the background) in all these developments. The state should operate as a buffer to represent the interests of schools, teachers and pupils. It should ensure that technology does not dictate the content of education.

The most important task of education remains that of the transfer of knowledge: teaching young people how to make choices in an increasingly complex society. It is impossible for computers to replace teachers in this role.

Contemporary information and communication technologies and education[1]

Alan Hancock

Introduction

This chapter looks at the role of modern information and communication technologies and their impact on education from two distinct perspectives. The first is the classic perspective of how they can be used directly in support of educational goals and strategies. However, the exponential growth of the media and information technologies, especially the computer, as a prime vector in social organization and behaviour also implies another level of analysis. Increasingly the media have become a major – in some societies a dominant – source of information and an educational determinant, at times explicitly, more often implicitly. This second perspective may lead us in turn to draw some conclusions about the relationship between communication technology and concepts of literacy, and the need for educators to be fully aware of communication processes.

Media and information technologies in support of education

The chapter focuses where possible on the developing countries, but it has necessarily to do so from a base of technology with its origins in the industrialized world.

1. This chapter draws partly on papers and ideas submitted by Manuel Alvarado, Professor, Faculty of Humanities, University of Luton (United Kingdom) and John Mayo, Professor, Center for International Studies, Florida State University (United States).

We begin therefore with some basic explorations of technology itself. It is important to stress that, whatever promise the new technologies may have, this is invariably subject to constraints – of a cultural, economic, social or psychological nature – which have to be realistically acknowledged. There is a tension between the opportunities of technology – which are themselves constantly shifting – and the conditions attached to their application: the ability of the sustaining social, education and management system to accommodate technology at a particular level of performance.

Technology

While a recital of innovation may be unnecessary, it is important to understand the particular opportunities offered by information and communication technologies to sustain educational processes. In principle, they can offer: *outreach* (the opportunity to reach a very large number of people, in many cases simultaneously); *economies of scale* (the economic consequence of outreach is a lowered unit cost, which has often led to a view of educational technology as a less costly variant of expensive traditional structures; this has been characteristic of distance education approaches); *richness of illustration and visualization* (including such special applications as ultra-high definition, or microscopy); *individualization* (a more recent function, associated with the spread of video cassettes, compact discs (CDs) and computerized applications); *access to information* (including new concepts of archiving and storage linked to interactivity); *simulation* (prospects for the future, including artificial or multi-sensory presentations of reality); and an *outlet for creativity (*new formats for the writer and artist).

Not all of these functions are attributable to all technologies, so that further examination by both communication *types* and communication *processes* is needed. We can use a classic typology, of print, film, audio, video, multimedia and telematics (these last two terms combine media, computers and telecommunications, and represent the cutting edge of the new information technologies). But all of these basic types have been subject to considerable refinement over time (and interaction with other technologies), particularly in relation to the *processes* of media and information creation. These are, put simply, production (the originating creative process), recording (in modern times largely inseparable from production), distribution (by physical or electronic means, but more often mixed in these days of remote transmission and facsimile printing) and, finally, utilization.

The last is really a complex of processes, since it covers both the storage of information (often over long periods of time, as in archiving) and its access by producers and audiences, with variable degrees of interactivity.

In Figure 1 a simple attempt is made to relate technology types and processes in a single matrix; the main types are noted here in relation to production phases and the myriad links between them explored. The diagram needs some commentary, especially in relation to its horizontal (process) axis.

Under the production heading, each basic medium is broken down into its subsidiary forms: books, radio, television, etc. The added dimension of recording expands this division considerably, to a point where we almost seem to be faced with new media: tapes, cassettes, CDs and various possibilities for recording, re-recording, etc. In recording, a qualitative supplement may also be found: higher resolution, fidelity or definition, leading to more faithful and complete reproduction. It is similarly in recording that electronic technology plays a determining role, further confirmed at the distribution stage, where physical distribution processes are most often combined with electronic transmission (for example, facsimile printing, the copying of video materials or of data).

Even at the level of this simple diagram, the increasing complexity of distribution forms is apparent, and the marriage of computer and distribution technologies to create new systems (videotext, teletext, e-mail, teleconferencing and the Internet) that considerably increase data storage, access and interactivity. Ultimately a point is reached where the computer is itself used as a logical, discursive and intellectual tool in expert systems, artificial intelligence which mirrors human thought processes, or combined with audiovisual media to simulate reality in a multisensory form (so-called 'virtual reality').

The main educational functions already attributed to media and information technologies can be assigned to different stages of the production process. *Illustration and visualization* are largely functions of production and of recording: in educational programmes, they enlarge the range of experience, of sensory or intellectual access, by helping students to cross time and space barriers. *Outreach* is a function of distribution: enlarging and expanding audience numbers (or audiences themselves since modern multiplexing and multichannel techniques can expand the range of choice and not simply numbers). *Economies of scale* are largely achieved through distribution processes (though lowered costs of production and recording certainly make
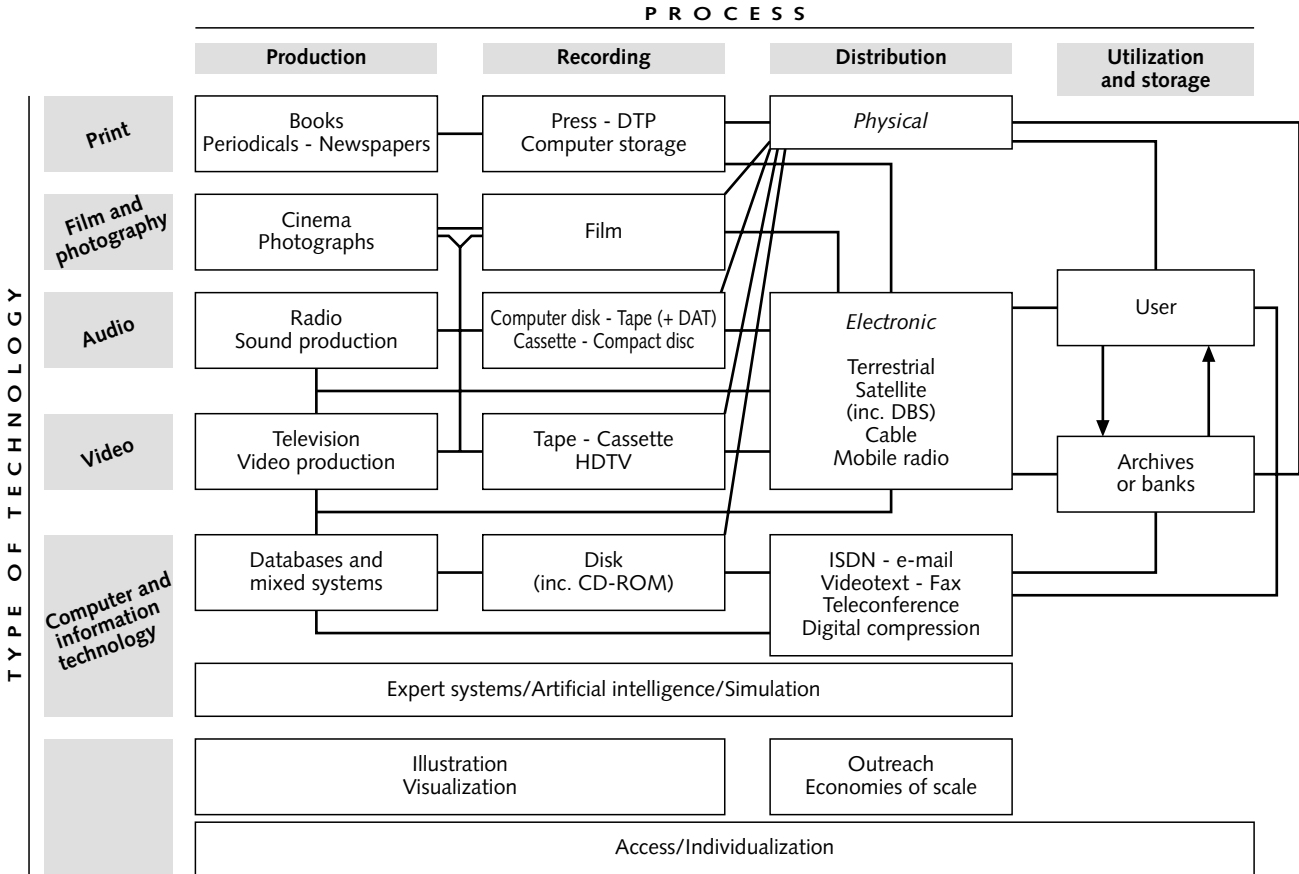
Fig. 1. Technology-type/process matrix.

their own contribution). But *access* and *individualization* are primarily dependent on technological innovations applied to the system as a whole.

At a theoretical level, technology is already able to overcome many of the limitations to which it was formerly subject. Both theoretically and in practice, it can combine high-capacity information storage with virtually individualized access and large-scale distribution. The current limitations are those of the technology support systems: weaknesses in the economic and the industrial base; the human and financial resources of educational infrastructures; and the ability of students to connect to and empathize with technology. These constraints are paramount in determining technology's contribution to education and should not be underestimated.

In particular, what was said above concerns technology in the abstract and needs to be contextualized. There are, for example, sharp differences in environment and potential between industrialized and developing countries, reflecting contrasted conditions of investment, opportunities for original research and design, market possibilities and rates of return. For the most part, possibilities for modifying technologies in the developing countries are limited, except in countries such as India or Brazil where a reservoir of design talent exists and there are facilities for exploitation. At the same time, the educational priorities of the developing countries are also different, since basic literacy levels are much lower, infrastructures much less developed and resources fewer. This can be illustrated, for example, by comparing the relative priority attached to the various functions of the media described above. In the developing world, it is the possibility of outreach and of economies of scale which is most immediately attractive, rather than richness of illustration or individualized access and interactivity; in the industrialized world, the position is reversed, since distribution and access are more or less guaranteed and individualization can count for much more.

From theory to practice

When we read in the World Declaration on Education for All that 'In addition to the traditional means, libraries, television, radio, and other media can be mobilized to realize their potential towards meeting basic education needs of all', we may be forgiven for thinking that the use of media and information technology in education has a limited past. In fact, it has a long and relatively well-structured history dating back to before the Second World War, when educational radio

first made its appearance. The most direct tradition can be traced to the publication of Wilbur Schramm's seminal work *The New Media: Memo to Educational Planners.* This tradition is more or less unbroken, even though to the novice it may read more like a history of successive and dramatic innovations, with significant steps taken en route in American Samoa (educational television), Côte d'Ivoire (Etelevision), India (satellite broadcasting, SITE), the United Kingdom (the Open University, distance education) and Nicaragua, and many more examples since (interactive radio).

What has changed over the years has been not only the range and sophistication of the technologies employed, but also a concern for an expanding set of audiences, beginning with formal, classroom-based instruction, but expanding upwards and downwards in age range, from pre-primary audiences to the elderly, from formal and non-formal settings to the wider, open community. These have come to the forefront as educational fashions and priorities have themselves changed. However, there has been a continuing debate over most of this time on the role of media and information technologies: whether they are intended for use as *direct instructional* devices, aids or replacements to traditional instructional settings, or rather as *enrichment* tools, drawing on audiovisual media and information technologies to expand learning, enrich experience, enlarge the knowledge base, and develop teaching and learning techniques. This debate still continues and cannot be said to have been resolved one way or the other, since the nature of educational media and their use depend on local cultural and educational contexts. They are affected, for example, by whether the education system in a particular case is centralized or decentralized (since large-scale distribution of identical materials for learning purposes has, for most of media history, been possible only in centralized systems).

In reality, in the development of educational media and technology, periods of euphoria have alternated with periods of hesitation as innovative projects have been introduced but have in many cases not lived up to their expectations. The euphoria stemmed mainly from the apparent potential of educational technology to resolve so many pressing problems, both qualitative and quantitative. These include coping with student numbers, infrastructural limitations, the lack of material and financial resources, and the need to retrain or motivate the teaching force; while the inherent qualities of the media to enrich and visualize teaching processes have always been recognized, it is rather their economic potential that has fired enthusiasm over the

decades. Over the years, therefore, the multichannel educational television service in American Samoa arrived in the 1960s (and has largely gone); Côte d'Ivoire's Etelevision, originally instructional in purpose, has been transformed into a general public service; and the promise of India's SITE, a focal point of the 1970s, is still not fulfilled. The main conclusions of the evaluators of educational media (and many of these experimental systems have been extensively evaluated) are that technology per se is no solution or panacea to educational ills; it has to be employed within a multimedia system, linked with traditional approaches and infrastructures, not as impressive add-ons or as stand-alone alternatives to traditional forms of instruction. As with other forms of innovation, the main challenges to be faced are those of retaining momentum and support, and of maintaining quality and an adequate resource base over time: in other words, of institutionalizing successful demonstration projects.

In order to make a distinction at this point between the industrialized countries and the developing world, it may be helpful to return to the brief earlier discussion of the functions of media in education. In the developing countries, it is the possibility of addressing massive audiences, or of reaching audiences that are not normally reached at all, which is important: the villages accessed by SITE, the USAID Rural Satellite Program, the establishment in the 1980s of a dedicated educational radio network in Thailand, a national distance-education programme in China and applications of surplus satellite capacity in Intelsat's Project Share. The same considerations are preeminent in many of the new ideas currently under review: planning a low-orbit satellite system for information distribution in Africa; dedicating part of the HISPASAT provision (designed to cater for Spanish domestic telecommunications needs) to Latin American television networking; and developing interactive radio across the Portuguese-speaking countries.

Conversely, in the industrialized world, more often than not the illustrative properties of audiovisual media and their potential to reach specialized, minority or disadvantaged groups are emphasized. The Open University was originally constructed on this premise (initially it drew up very detailed profiles of the groups to be favoured). Transmissions for specialized audiences have been accommodated for more than thirty years in the television channels of European and American public broadcasting systems; a variety of projects has introduced both in-school and out-of-school audiences to computer operations; much of the development in the library field, whether for

print, audiovisual or other forms of data, has been to facilitate cataloguing and retrieval, and such customized approaches are at the heart of modern library planning. Compression and multiplexing techniques have given cable systems a greatly enhanced channel capacity (by now their range is more restricted by economic considerations) and some satellite projects, such as the OLYMPUS satellite experiment of the European Space Agency, have offered networking opportunities to specialized interest groups (linguists, teachers, social workers, etc.). Digitalization is now extending the capacity and quality of all systems, including terrestrial networks.

The search for greater access, variety and individualization in learning and study materials has been accompanied by a search for more interactivity (to simulate the tutor/student relationship). Many interactive videodiscs and CD-ROMs have already been made for training and orientation purposes. Potentially, the limits of computer/telecommunications systems, interfacing with audiovisual media, are difficult to circumscribe, depending as they do on context, economic conditions and the sophistication of the tasks which they are set. Most probably, it is the world of industrial training, teleconferencing and marketing that is shaping this future, rather than educational demands.

Distance education

Today a special focus of attention is distance education, an interest originally sparked off by the development of the Open University in the early 1970s, from which many analogues have been derived. Examples are to be found in Thailand (the Sukkothai Thammathirat Open University), Pakistan, China and Venezuela, to name but a few; information and research are disseminated by the Commonwealth of Learning (in Vancouver) and in the United Kingdom-based International Centre for Distance Learning. Some of the earliest pilots for distance education were organized by the International Extension College, which celebrated its coming of age in Cambridge in 1992 with a conference that analysed a number of case studies. These included distance-teaching experiments (some of them of long standing) at the secondary, adult basic, teacher-training and university levels, employing a variety of delivery channels (correspondence courses, radio, audiovisual media, study groups, summer schools, telephone tutorials and teleconferencing). The role of the media and educational technologies was seen to vary widely within and among these systems, although in the main distance education – a process in which a

significant proportion of the teaching is conducted by someone removed in space and time from the learner – does not normally use radio and television as primary means of instruction (and even when they are dominant, the accompanying instructional guides are critical). In general, in the developing world, radio has had a better history of success than television, though this is probably due more to the greater ease with which radio can be accommodated to the infrastructures and resources of the developing countries than to any innate advantage. Many evaluators have noted that differences *within* media outweigh differences *between* media in terms of cost effectiveness and performance.

John Mayo and Tony Dodds, the authors of a review paper prepared for the International Extension College anniversary conference, came to a number of conclusions as to the likely future of distance education. The most likely future audiences, in their opinion, in the developing countries will be threefold: adults seeking advanced accreditation and training, with career improvement as their primary goal; adults with little or no previous formal education seeking basic and non-formal education; and adolescents and young adults who have just left school, have not settled down in employment and are seeking a substitute form of or re-entry to secondary schooling. In each of these cases, distance education is seen as a potential means of overcoming failure in the existing education system, whether formal and in-school or part of employment. (This is, of course, a different set of primary audiences from those most common in the industrialized world and it reflects both a different level of infrastructural development and a different degree of failure.) Nevertheless, Mayo and Dodds still think that we should be careful of treating distance education as a potential remedy for all educational ills; from experience, it seems to be better adjusted to educating motivated and older audiences than to providing an alternative mechanism for drop-outs.

The authors agreed that the demand for distance education will grow dramatically over the coming decade, though not always perhaps for the best of reasons. They also predicted that the demand will grow at several educational levels, including areas where it has already been shown to be less effective, simply because the pressures and problems involved are so great that radical solutions are looked for, even when previous experience shows that they seem to be inappropriate. At times, given the drop in available resources, distance education may appear to be the only available means of compensating for the absence of certain vital infrastructures.

The difficulty in predicting future growth in distance education in the developing world arises not so much from uncertainty about technology but rather from problems of timing and confidence. Even in the industrialized world, growth is hard to assess, with even giants in the computer and telecommunications fields losing ground to recession: developments which might otherwise have been telescoped may now take much longer to materialize. Their transfer to developing countries is more difficult still to pinpoint, if a genuine adaptation, rather than a synchronic transfer, is visualized.

Over time, however, with increasing trends towards individualization, the learning situation of distance students cannot but improve. And as this happens, there will also be more convergence between distance learning and other kinds of remote activity (e.g. *télétravail*), as habits of distance working, distance marketing, household and leisure management are better integrated economically and socially. For distance learners and workers both, the separation between education, work and leisure will become further blurred, as the phenomenon of technology convergence comes into play (that is to say, common channels for carrying a variety of kinds of information). But the gap between the arrival of these practices in industrialized and in developing countries is likely to increase rather than diminish unless a major effort of political and economic will is made to secure the necessary investment in human and technical infrastructures in the developing world.

All of this implies an enlargement of actors and partners in the distance-education and educational-technology fields, with the private, the non-governmental, the political and the professional sectors all crossing frontiers traditionally reserved for educators.

Communication for development

Some blurring of frontiers between educators and communicators has already been in progress for several decades. Outside those channels normally considered 'educational', it has been concentrated on development support and on community-building. Many professional communicators entering the development field have been convinced that the mass media, and the techniques adopted by producers and advertisers, can be deployed for educational and developmental purposes: for public campaigns (health, anti-smoking, literacy and population) or for sensitizing and motivating audiences normally resistant to educational programmes. Possibly the best known example of such an approach in relation to children was the early work of the

Children's Television Workshop in the United States, which produced *Sesame Street*, using the techniques of advertising, the analytical tools of the psychologist and the market researcher, and the magnetism of the television medium, to introduce deprived children to basic literacy skills and better motivate them towards education. This experimental approach was repeated in many parts of the world, including the developing countries.

Other attempts to cater for special audiences that fall outside the mainstream mass channels are to be found in community radio and television, the rural press, alternative video and community communications, which seek through low-cost, small-format techniques to cater for the special interests of women's groups, rural audiences and young people. In a broader sense, the same approach is also reflected in the FM radio services of large modern cities.

In parallel, a long tradition does exist of applying the media to development processes in what is generally termed 'development communication': special programming that employs a variety of audiovisual formats for development campaigns, specialized audiences for agriculture, health and population, field and extension workers. Often these use the techniques of distance education to reach dispersed target groups in a highly focused way.

Many of the experimental approaches described above have been outside the formal educational environment and as a result are not always widely known by educators; many bureaucratic separations exist between ministries and agencies of education and other development or information ministries. These divisions, found in the developing and industrialized world alike, make it difficult to function in the intersectoral manner essential for the worlds of education and a mediated society to be regularly and usefully bridged. It is only through such deliberate experiments as the Open University or the Children's Television Workshop that this bridging has been forced in the past; the most successful experiments have usually been the outcome of imaginative personal interventions (by scholars, politicians or philanthropists) that have been brought to a successful conclusion by sustained, interdisciplinary work.

Media and information technologies as education

In turning now to the impact of communication technologies on a wider society, we are reversing the telescope, trying to assess an impact which is largely unplanned on learning and social behaviour.

The information society

The twentieth century has witnessed the invention and development of records, radio, television, audiotape, videotape, computers and the possibility of transmitting electronic signals through terrestrial systems of aerial broadcasting, cables and satellites. Telecommunications systems have developed ever more sophisticated systems of interpersonal communication: telephones, faxes and computer modems.

The most striking aspect of all these developments, however, has not been technological but economic and social. All these technological systems are now small enough and cheap enough to be widely available for domestic use by most people in the industrialized world and by increasing numbers in the developing world.

The technological shift that has taken place with these developments can be characterized as a shift from the general to the particular, i.e. a shift from broad through narrow casting to interactive possibilities and facilities.

There is no need to labour the idea of an increasing penetration of media into people's lives, notably in the industrialized world (where the statistics are more readily available) but increasingly in the developing countries. In 1992, for example, in the United Kingdom, a survey by the Independent Television Commission revealed that 99 per cent of all households had one television set, 67 per cent had two and 30 per cent had three. Videotape recorders had achieved a penetration of 77 per cent: home computers already had 30 per cent. These overall percentages were even more exaggerated in homes with resident children (91 per cent had a videotape recorder, 51 per cent had a home computer). The figures in other industrialized countries are comparable (and higher in the United States).

Expressed in temporal terms, some five years ago the average daily individual television viewing time was 360 minutes per household in the United States, 267 per household in France, 218 per individual in the United Kingdom; in 1991 a UNESCO survey gave figures for Bulgaria as 131, for Hungary as 117. In the United Kingdom, children now spend approximately 25 per cent more of their time watching television than they spend in the classroom (and eleven hours a week, on average, are devoted to viewing 'soaps' or *feuilletons*.

Social research shows that considerable changes are taking place in the ways in which we receive, process and verify information. For example, television is now the major channel for world news: a 1992 survey showed 71 per cent of respondents giving television as their major source (as compared with 17 per cent for the press). Conversely,

the position for local news is quite different: 51 per cent of residents derive their information from the press and only 24 per cent from television. While this in part reflects television distribution patterns, it also has something to say about the changing functions of the print media.

Given a world with multichannel transmission possibilities, compression techniques that increase the amount of information that can be carried and transfrontier distribution, it is not surprising that new patterns of audience use are developing, with existing formats turning into virtually new media. The example of video is characteristic.

Video/print technologies

Video offers vastly different distribution patterns from all previous celluloid and electronic media. One example is the use of video by minorities, such as the Asian community in the United Kingdom. With virtually every Asian family possessing a video recorder, the Asian community imports huge numbers of films and television programmes, on videotape, which provide both entertainment alternatives to British television and also act to encourage and maintain Asian cultures and identities within British family structures. More generally, migrant workers from many parts of the world use video to maintain closer links with their families and cultures.

Given the lack of developed broadcasting systems, many families in the Gulf States purchase multistandard equipment (capable of playing back PAL, PAL-M, horizontal and vertical SECAM, NTSC, etc.) in order to maximize the sources from which they can obtain films and television programmes on video.

Video also offers new, alternative and localized production possibilities. One example was the use of video during the Sandinista period of government in Nicaragua. Another is the development of the worker's video co-operative television in São Paulo (Brazil) which offers a radically different view of the country and of South America generally than that offered by the broadcast television companies. A third example is the use of video by various aboriginal communities in Australia.

Not surprisingly, the relationship between print and audiovisual media is changing, and it has been argued that in the industrialized world, for certain entertainment functions, the video cassette or the compact disc may actually supplant the book in a short space of time. In the developing world, this trend could be even more rapid, since constraints of illiteracy can slow down book distribution; it has even

been argued that, in such cases, developing country populations may bypass the printed word, moving directly towards media literacy.

In general, however, while the audiovisual media have become increasingly important, they have not yet superseded – nor will they eclipse – the print media in education. The book still continues to offer the smallest, quickest, most efficient and economic form of interactive technology and research tool available. At the same time, an important distinction has to be made between the book and print media, on the one hand, and text and language on the other, since literacy in all media depends on a mastery of verbal and textual communication.

Verbal language – and its written symbolic form – will probably always constitute the basic system for human interaction and intercommunication. Furthermore, computers, teletext, interactive video, CD-Rom (and their attendant instruction manuals) all require – and will continue so to do – the most subtle and complex of symbolic communication systems.

Studies of the communication landscape

The study of communication and information, as a branch of the human and social sciences, is of relatively recent origin, dating back to the 1930s (to propaganda and political opinion research), but blossoming as a component of social research only in the 1960s. Inevitably, as it developed it fragmented into many separate strands and perspectives: semiotic and textual, economic, sociological and psychological. The substance of this research is outside the scope of this chapter (and has already figured in the work of other independent commissions, notably the MacBride Commission which produced its report *Many Voices One World* under the auspices of UNESCO in 1980); nevertheless, the landscape which such research examines is very much that in which education and a mediated society interact. Today, communications and information are major multinational concerns, which have recently seen many mergers and acquisitions, in particular amalgamations of American and Japanese interests, and confederations elsewhere.

In the international circulation and marketing of audiovisual media, only a dozen countries can now compete and so dominate the world market-place. These are France, Germany, Italy, Spain and the United Kingdom in Western Europe; Brazil, Mexico and the United States in the Americas; Nigeria in Africa; Egypt in the Arab States; and China, India and Japan in Asia.

The reason for this situation is that only these countries have domestic populations large enough to provide licence fee revenues, advertising revenues or subscription sales adequate for the most expensive areas of domestic television production such as high-quality fiction. Furthermore, having amortized all costs against domestic transmission, these countries' television producers can then market their programmes internationally at prices the individual purchasing country can afford. Thus, unlike other commodities which have to recover the unit costs of production, television programmes can in many cases be sold at highly variable prices according to the capacity of each and every market.

In consequence, the developing world has to import much of its audiovisual requirements. But the developing world can afford neither to sustain independent international news agencies and their support systems, nor to originate its own high-cost fictional production.

While the 'new' electronic equipment is, to some extent, beginning to democratize audiovisual production in the industrial world, it is unlikely to change this unequal relationship with the developing world. Those countries which do have substantial alternative production systems (e.g. Televisão dos Trabalhadores in São Paulo) are countries that are already 'media rich'.

At the same time, recent political changes throughout the world have indicated how important are the media – and information-distribution processes in general – to democratic development; the enhanced freedom of information visible in Eastern Europe is paralleled in many parts of the developing world, even though change is not uniform or invariably positive. There is a growing realization that pluralism of information channels, and diversity of production and distribution means, are both a prerequisite and an indicator of de-mocracy, quite apart from the fundamental importance of freely circulating information and comment. This makes, of course, for a less tidy, less regulated information landscape and inevitably demands an element of redundancy, without which pluralism cannot exist. In the most recent debates on information, many of the classic arguments on the tension between individual freedom and the need for social constraint have resurfaced in a new form, as have the debates on professional deontology. It is not simply a changing political climate that has led to this renewal; the new technologies have themselves contributed, as they have bypassed frontiers, found new ways of entering private homes, and new patterns of access and distribution. Quite recently, for example, some reservations have been voiced on the

implications of the European Directive on Transfrontier Broadcasting, which was agreed in March 1989 and came into effect in 1991, because it appears to make national control of satellite-transmitted stations virtually impossible and unregulable. In the developing world, a similar debate surrounds direct broadcasting by satellite, with respect to cultural identity and the promotion of endogenous production.

In this changing situation, the scope of communication research has also broadened and now rests on a considerable corpus of experience. The earliest research into instructional media and educational technology was largely designed to show that these could, if properly introduced and utilized, be effective educational agents; the bulk of current communication research deals with the influence of the media on human beliefs and behaviour. No one would now contest that the media have a strong agenda-setting and behavioural-reinforcement function, even though some earlier claims that the media have a primary causal relationship with violence or deviance are believed to be exaggerated. Moreover, the media themselves are major actors in current political practice and decision-making, whether through opinion polling, televised commentary or more recently (as during the Gulf War, the United States presidential campaign and various judicial hearings) through a live coverage of events, to the extent that scheduling and participation in these events are affected.

Media education

While much of this debate is outside the scope of the present chapter, it is nevertheless a backdrop against which educational analysis has to be set. Mass media encountered outside the classroom furnish a mould for learning and for the interpretation of events; moreover, the most significant application of information technologies to behavioural change is clearly in advertising, which has become a major multinational industry in its own right, as well as a prime source of media financing. Recognition by educators that the media constitute a very significant part of their students' universe and that, within the media, advertising formats and techniques are likely to mould aesthetic preferences, implies that this dimension should form part of the processes of curriculum creation.

The importance of the concept of 'media literacy' (an analogue of basic and functional literacy) was recognized by the Jomtien Conference; understanding and using media and information technologies is very rapidly becoming a prerequisite for functionality in the contemporary world, whether industrialized or developing. (As

such, it can be related to 'computer literacy', although in the latter case there is a greater emphasis on skills than on understanding in a social and economic context.) The idea of 'media literacy' gives rise, in turn, to the concept of 'media education'. What does this constitute?

The question takes us back to the expanding horizons of media research. Fundamentally it can be argued that all films, television programmes and other audiovisual objects may be considered as both *commodities* and as audiovisual *texts*. As commodities they undergo the same conditions of existence as all other commodities (i.e. the stages of production, circulation and consumption). Investigating media products as commodities therefore involves a similar type of economic, regulatory, political and social analysis as exists for any other commodity.

As texts they are susceptible to analysis as objects that are constituted through and by a symbolic system, albeit a highly complex one that encompasses language, music, moving images, colour, gesture and all the other aural and visual elements of human existence. An important part of this analysis is the relationship between the text and the real world. The extent to which the text projects a useful and interesting relationship to the world as the viewer perceives it will determine how acceptable is that particular representation of the world.

It follows therefore that a crucial question to ask concerns the relationship between an education system and its containing culture: to what extent has a culture produced the education system it desires, in terms of reflecting or reproducing the social structure?

This view could be said to see education as essentially a process of socialization. It is also a view which, with other (and often more idealistic) views, treats as unproblematic the way in which society presents itself to the pupil through the schooling process. Since the beginning of the 1970s, one of the major problems debated in Europe on media education has been whether or not to argue for the 'institutionalization' of this new subject area. Opponents of the idea argued that this would have the effect of transforming the subject into just another area of the curriculum; furthermore, it was felt that making the subject examinable (the next stage) would ossify it, rendering its syllabus rigid and difficult to change.

Those who favoured the study of media education argued that it was ridiculous for the major social, political and cultural form of communication in twentieth-century civilization to be ignored by a curriculum inherited from a nineteenth-century education system. Furthermore, the position ran, until the area was examined at

university level, it would be very difficult (probably impossible) to obtain the funding necessary to mount courses or to engage in much-needed research work. For a variety of reasons, this last argument eventually prevailed and media education began to enter the curriculum.

However, over the same period, yet another strand in the development of study of the media can be discerned. Partly on the basis of work in semiotics and structural linguistics, the possibility was raised of introducing the notion of visual literacy into the curriculum as a core element to take its place alongside the other core elements of literacy, verbal literacy and numeracy. In consequence, the concept of a 'core curriculum' became of crucial tactical importance to teachers embarking on the debate about the location of media studies.

Without coming down clearly on any side, it can be argued that the problems that teaching these core areas have exposed begin to offer a new way of thinking about the curriculum. One starting point may be to ask what the study of the media has introduced in terms of fundamentally new understandings of the world. At one level at least, it has provided a place for the intersection of a unique combination of theoretical and political elements.

Conclusions

The purpose of this chapter has been more to raise questions than to answer them: in particular, to try to ensure that the debate is allowed sufficiently broad margins. For the sake of analysis, it has treated communication and information technologies, first, as supports to the educational process and, second, as extraneous or surrogate educators. In reality, these divisions are arbitrary; the children in the classroom are also those who watch television and video at home. At the end of the day, when it comes to establishing policies and priorities, the view from both ends of the telescope is needed.

Nevertheless, a holistic view is not an undifferentiated view; while the starting point for a mediated society lies in technology, technology has no universal solutions to offer, but is applied in a social context, differing between industrialized and developing countries, and dependent on levels of access, investment and social imperatives.

Hearings

Schools at the crossroads

Robert Bisaillon

Schools often seem to be standing still while the rest of the world moves on, and there is a strong temptation to make changes to the education system or even, in a Utopian vein, to do away with schools altogether. I would like here to emphasize a number of social changes that, in my opinion, look set to challenge not only existing education systems but the very function of education.

The main educational problems occur at the crossroads where two different trends intersect: on the one hand, the state no longer seems able to go on financing and directing education as hitherto; on the other, schools and local authorities would like to have a greater say in these matters themselves, in order to enjoy a greater measure of self-determination.

In these circumstances, the role of schools and their place in society become less straightforward than they were. They are no longer the only places where knowledge is dispensed. The new information and communication technologies are causing the educational approach and the role of teachers to be re-examined. Schools are no longer capable of comprehensively covering all the different areas of knowledge and they are involved in relationships with institutions, be they families or work-places, that are themselves in the throes of change. Furthermore, the concept of skills has itself taken on a broader meaning: as well as transmitting knowledge to their students, teachers must train them to find information for themselves and put it to practical use. The kind of training given in schools is an initial training only, and students' skills are now defined in terms of their ability to adapt

to different types of training and jobs. In a multicultural society where there are fewer and fewer fixed points of reference, students must also be taught how to form their own values and this in turn raises the issue of the contribution of schools and of education in general to social cohesion.

At an even more profound level, the ways in which young people acquire knowledge have changed. In particular, acquisition by absorption from the media is taking over from the process in which the family or the school acted as the intermediaries. The media appeal to young people's emotional responses and curiosity, but in a random fashion, and schools then find it very hard to put this knowledge into some sort of order and, accordingly, to make use of it.

What is more, the student population is no longer a single, homogeneous body. In a context of large-scale school attendance, that population is drawn from a variety of backgrounds, it is multi-ethnic as a result of increasing immigration and, in North America at least, a large proportion of students are 'working their way through college', with the result that the possibilities of underachievement and even of exclusion are multiplied. The question of what is required of schools and of how to achieve integration is thus restated in new terms.

All these factors taken together have a considerable impact on the very functions of education, and hence on the direction in which education systems are to evolve. They also raise a number of questions of a political nature, one of which concerns the reformulating of education's democratic option: finding a way to aim not only for a better-quality 'added knowledge' but also for 'shared knowledge', shared, that is to say, by the greatest possible number so as to prevent further fracturing of an already too fractured society.

What should be the role of the state in relation to that of institutions and individuals? Another vital question is how to reconcile the preservation of the universal heritage with the manner in which it is to be presented within the context of national identities: in other words, how are we to combat cultural homogeneity and uniformity at the same time as combating racism and intolerance? There is perhaps a need to define a 'common public culture', encompassing a set of non-negotiable values that are necessary to social cohesion. These consensual values could justifiably be 'imposed' on minorities or migrants without infringing their basic rights, and could then be invoked to withhold recognition from schools with a religious or ethnic basis. Again, instead of adding new subjects to the syllabus, it would be useful to deal with such matters as human rights, international

understanding, and knowledge of other languages and cultures as part of the existing syllabus. Education could in this way become truly a factor working for peace, in keeping with the aims of organizations such as UNESCO.

Furthermore, the function of opening students' minds, which is a necessary precondition for a genuine culture, needs to be combined with that of providing specialized qualifications, corresponding with the requirements of the employment market.

It is one of the aims of education to provide young people with the means of changing the society in which they live by exercising influence over progress and social change. This can only be achieved through self-reliance in the learning process, by the acquisition not only of methods for monitoring change, including comparison, analysis, synthesis and experiment, but also of the skills of social intercourse and negotiation that life in modern societies requires.

Among the conditions for educational success are dynamism on the part of schools and a willingness to adapt their methods to the student community concerned, and also a readiness on the part of teachers to break with routine and make use of the greatest possible variety of learning resources. Education systems have not yet, however, succeeded in diversifying students' learning trajectories in such a way that those who do not obtain academic qualifications end up, not by being excluded, but as responsible members of society, exercising to the full their rights as citizens.

It is also worth while recalling that teachers have a leading part to play in any process of educational change, which is why one of the most basic changes to the system concerns the teaching profession. A modernization and renaming of teachers' functions is therefore required. In the schools of today, teaching is primarily an act requiring creativity, reflection and action. It is also an act entailing interaction with young people in a learning situation, an act of mediation and initiation to provide the learners with access to knowledge and develop their intelligence.

With this in mind, more emphasis should be attached in pre-service training to teachers' individual and collective responsibility, i.e. to the development of professionalism. In view of the length of teachers' careers, pre-service training, practical experience, professional integration and in-service training should form an organic continuum. Next, the necessary conditions should be put in place to enable teachers to re-establish mutually supportive relations, so that the system as a whole may benefit from a collective professionalism that reflects

collective responsibility, mutual assistance, a sense of belonging, and good citizenship.

Given the pressing calls for change in education systems, success in fact depends on responsible commitment, by each according to his or her role and competence, on the part of all those who determine educational policies, those who are in charge of schools, and those whose daily business is education.

The hands-on approach

Goéry Delacôte

Education has been traditionally regarded in the United States as the concern of the local authorities and the Constitution does not confer any responsibilities in these matters upon the Federal Government; but a different approach has been emerging in the last four or five years and the government has begun systematically laying down minimum standards and common objectives for all schools, thus creating a general frame of reference.

In the case of mathematics, the standards and objectives have already been set. Similar standards are being prepared for science teaching and will soon be brought into force for all subjects. They cover three essential elements: content, teaching methods and evaluation. In the first place, they determine what young Americans should have learned by the end of a certain number of years of schooling, be it in mathematics or science, history or modern languages, etc. They also describe relevant and effective methods to be used for the teaching, in three- or four-year stages, of the various subjects. Lastly, they set forth methods of monitoring and investigation that, on the one hand, facilitate a form of evaluation that has an immediate feedback into teaching practice and, on the other, make it possible to check whether the predetermined learning objectives have been met.

A fourth element in this system is a set of standards applicable to the resources required to meet the three other standards, also setting out the conditions to be fulfilled in order for the objectives relating to content, teaching methods and evaluation to be put into effect in

a coherent and viable manner. A nationwide consensus thus emerges on the desired outcomes and conditions of success for all American students, in four-yearly stages.

These measures bear certain resemblances to those relating to the establishment of school curricula in France in the late nineteenth century, at the time of Jules Ferry, except that they are not restricted to questions of content and are flexible in character, that is to say that they leave plenty of scope for initiative at local level and define only the objectives to be attained at the end of a four-year stage, thus creating favourable conditions for a genuine debate among the various people and institutions actively involved in the system. This flexible approach makes it possible to take the needs of specific communities into account and to optimize the management of local resources. In parallel with these general measures, a remarkable exercise in social engineering has been carried out, as a result of which standards in mathematics have already been promulgated, with the support of all the parties involved in the changes – chiefly schoolteachers, represented by their professional associations, academics and the American Academy of Sciences, but also business people, parent/teacher associations and politicians.

This process, a thoroughgoing piece of social and political alchemy, has been carried out with the co-operation of all those competent in the subject of mathematics teaching, thus avoiding any repetition of the mistakes made thirty years ago when so-called modern maths were introduced. A similar process was carried out in respect of science teaching under the aegis of the American Academy of Sciences and its President, Bruce Alberts, and resulted in the promulgation of standards in 1995.

The example from the United States suggests that all education systems will in the near future be drawn to seek compromises between the need for a nationwide definition of objectives and the need to leave scope for local initiative. The greater the scope left for local initiative, the greater will be the need to define a flexible general frame of reference within which that initiative operates. In Europe, for instance, it is possible to envisage a gradual convergence of the various education systems towards the collective establishment of common general objectives, within which system there would be room for each tradition or each national or regional spirit to find its place and develop in accordance with its own specific characteristics.

The risk, however, is that changes such as these will merely produce empty frameworks, unless changes are made at the same time in

schools themselves and in the way they operate. The fact is that, owing to the substantial increase in school enrolments, schools are facing a number of problems, irrespective of whether they are publicly or privately run. Expansion without change in response to population growth is in the process of stifling and paralysing the education system. Only a reorganization involving differentiation of the practices followed and the introduction of new learning tools will make it possible to surmount this gigantic crisis that confronts all education systems.

The fact that schools do not at present enjoy real autonomy in the management of their resources – an autonomy which would be possible within the framework of clear, contractual objectives – reduces their power of initiative. Schools operate on the basis of imposed standards rather than on that of agreed objectives that would allow them to allocate their resources at will between the various items such as staff, equipment, and so on. This lack of autonomy makes it particularly difficult to create learning environments – incorporating information and communication technologies – which, on the basis of a good knowledge of the subject matter and of effective socio-cognitive instruments for attaining that knowledge, would make it possible to achieve a significant improvement in pupils' and students' performance and to take serious steps in the direction of equal learning opportunities for all of them, taking account of variable local conditions. In short, the lack of autonomy is hampering the system's adaptation to the changes and diversification that are made necessary by its expansion. It constitutes an obstacle to the promotion of equal opportunity.

The experience of the San Francisco Exploratorium may be of some interest in this respect. Founded by F. Oppenheimer in 1969, its purpose, using new methods, is to bring scientific knowledge not only to schoolchildren but to the general public, and to parents and teachers in particular. It is open to all comers and provides learning aids, access to on-line services (the Internet, for example), resource persons and guides. This combination of tools, access systems and facilitators makes it both a learning environment and a place where teaching and learning tools and techniques and new methods can be constantly tried out and used. These new learning technologies and methods, worked out jointly by teachers and engineers, with inputs from the learners themselves, inevitably bring to light difficulties and cognitive or socio-cognitive subtleties inherent in the learning process itself. The tools used in the Exploratorium are designed to motivate the learner and to facilitate dialogue and the input of information as

and when questions are being worked out, with the aim of putting users in the frame of mind to go on asking more questions, this being a feature common to the learning process and the scientific approach. These tools and methods are also conducive to a collective consideration of scientific knowledge, its social uses, and its individual and collective ethical implications.

Not content with providing learning environments for all and sundry, a centre like this is also a 'home away from home' for teachers from the beginning to the end of their careers. Prospective teachers can come here for a kind of foretaste of their future work. The pre-service training that can be given here aims above all to create conditions such that the in-service training subsequently received shall come as a consistent, natural follow-on. No pre-service training can of itself impart all the different skills and knowledge that a proper vocational qualification requires. In the case of science, it consists chiefly of trainees familiarizing themselves with the experimental approach, trying to form a better understanding of the learning process, designing and managing environments for effective learning, putting real teaching methods into practice under actual classroom conditions and developing a capacity to stand back and think about those methods.

At a more general level, the educational role of scientific centres (museums of science and natural history, botanical gardens, zoos and so on) is being comprehensively reconsidered in the United States. This role is undergoing a veritable transformation: centres are in the process of changing, from being mere adjuncts to formal education with a low knowledge content to becoming experimental logistical bases for the whole formal education system. As compared with the universities and with schools, the scientific centres possess a remarkable degree of freedom in terms of their timetables, programmes and organization, and of the use they make of their premises and available technologies, and they are widely accessible to a variety of users. Excellent as the universities are as regards research and academic knowledge, according to the teachers with whom we work they are often ill-suited and, especially, insufficiently motivated in terms of providing proper vocational training for teachers. Scientific centres linking up with universities and research centres could very well take charge of that vocational training and provide teachers with ongoing back-up, while allowing parents and social groups to join in with these efforts at improvement and support.

Opening new doors in science education

François Gros

In the twenty-first century, humanity will have an opportunity to achieve an ambition that has moral as well as technical implications: it will be able to attain an all-encompassing view of Planet Earth. Modern communication technology, modern means of transport and satellite-based observation systems are already bringing the various parts of the world closer together, and there are good grounds for believing that, as a result, there will in future be far fewer remaining pockets of political and cultural isolation.

The planet-wide view thus made possible by scientific and technological progress none the less raises a problem of principle, indeed almost a philosophical problem: unless a very lofty purpose is assigned to science, unless the science we produce is more than merely utilitarian, there will be no means of surmounting a major cultural conflict that we have seen developing at the end of this century, one that is in fact much more serious than is generally realized.

The benefits of science and technology no longer seem so obvious as they did in the last century. Scientism, an outlook which regarded science as a panacea for all ills, has given way to a much more technologically oriented outlook. For a whole series of reasons, in part to do with the world wars of recent times, science stands accused of not having carried out its mandate or fulfilled its purpose. Serious doubts have arisen, and ever more sophisticated technologies cannot, in my opinion, be relied upon to solve that fundamental problem.

In this connection, one of the main threats to science teaching

comes from over-specialization. Although specialization is undoubtedly a necessary condition for the improved training of engineers and technicians, over-specialization is in danger of creating a gap between science and the general public, raising an increasingly serious problem of social acceptability. It is already becoming evident, for example, that further developments in biological research are likely to be held back more by ethical or cultural considerations than by economic ones. Efforts therefore need to be made to find some form or forms of training that, as far as possible, combine scientific education with education in other fields – literary, artistic, political or even economic – to ensure that the citizens of the twenty-first century see science primarily as an ally in achieving what they want done for the good of their country or of civilization as a whole.

We thus need to tackle the problem both in general and in specific terms, showing due regard for the different cultures of different countries and at the same time setting high aims for science in its universal dimension. Only by developing science along these lines will it be possible to avoid fragmentation of knowledge, which is harmful in every way.

After going through a period of crisis, universities can now aspire to provide both a general culture and a practical training for various occupations. It is, however, increasingly true to say that training for science and research cannot be confined to a single location: students go to university to learn the basics, then to laboratories to round out what they have learned, then into industry to study the technical applications or, for instance, to a museum to see the scientific realities at closer quarters, and so on.

The example of biology teaching in France, for instance, shows that, for almost the last fifty years, modern biology has been taught more at the Institut Pasteur or in the main laboratories of the Centre National de Recherche Scientifique (CNRS) than in universities. This networking between universities and other research institutions is something that should develop further in the future.

Moreover, universities should not all necessarily be teaching the same thing or covering their subjects exhaustively. Although there should be a common core, i.e. a basic mathematical and scientific culture without which studies cannot be carried forward, universities must also find their own specific roles in keeping with the aspirations of the societies within which they operate. The evaluation of universities, on the other hand, should be carried out at an international level: there is no such thing as French, German or American science, and

while cultural traditions and national goals differ from country to country, science for its part is universal.

In secondary schools, hands-on scientific experiments should be introduced at a very early stage. This is crucial, since such activities bring students face to face with their responsibilities, teaching them that they must be able to work as members of a team, must have an acutely critical outlook and must realize that there is not just one, but several possible approaches to the solution of problems – in short, that life itself puts us in situations that constantly require us to solve difficult practical problems.

There have long been calls for secondary-level science teaching of this kind, but it is not easy to set up. The logistics are expensive and teachers themselves are not always adequately trained for such ways of working. This is one of the reasons why France, along with other countries, has come out in favour of university-level teacher education institutes [Instituts Universitaires de Formation de Maîtres (IUFM)], where student teachers from different backgrounds are given an opportunity to come into close contact with experimental science during their training. Twenty-first-century science is likely to be a half-way house between computerized messages of the highest level of abstraction and highly specialized, sophisticated technologies; scientists will therefore need to be able to move freely between these two extremes.

Lastly, it seems to me that in France too much importance is given to mathematics in the selection of students: mathematics is one of the highest forms of intellectual activity and can be used to assess an individual's capacity for abstraction and rapid thinking, but it is going too far to take it as the sole criterion of selection; otherwise those selected, though knowledgeable, will seldom be well-balanced individuals.

Replies to a series of questions on science teaching

I am very strongly opposed to a pyramidal system of education because I think it very dangerous. To take a celebrated example, the French system of *grandes écoles*, which is extraordinarily pyramidal in structure, though it is not without its merits – it has produced some remarkable people – eliminates all students except those who reach the apex of the pyramid and does not give scope for the different talents of different individuals, some of whom may be more drawn to practical, technical activities, others to abstract ideas, yet others to art, and so forth. A wide variety of facilities should therefore be made available within research and training institutions, among which universities,

with their large intakes, have an important role to play. The growth of the student population in universities raises considerable problems, since it necessitates the training of adequate numbers of specialist teachers in various fields. Universities should therefore have an open-door policy and should allow scientists great freedom of movement, both within their own country and between countries, which means that they should set their sights high and have plentiful resources. In the case of India, with which I am well acquainted, I believe that universities cannot restrict themselves to training an elite, even if that is also necessary.

The teaching of the history of science makes it possible to place science, from the primary or lower-secondary level, in its cultural context. Young people are receptive to specific examples and they need points of reference; the history of science's positive achievements and negative effects seems to me particularly important from that viewpoint.

On a much more down-to-earth level, I think that it is in primary and secondary school that an attempt can be made to take a rather convergent approach, far more so than at a higher level, in the framework of what could be a planetary education for the twenty-first century. I think that by the university level it is already somewhat too late to try to find an optimum approach, one that is fully receptive to all forms of culture; the groundwork therefore needs to be laid at primary and secondary level. Science would thus be incorporated into education gradually and in a pluralistic manner, and every effort would be made to maintain a balance between it and other forms of thinking and inquiry.

A balance no doubt needs to be achieved as regards the use of television in science teaching, but this subject has been so much discussed that it is difficult to avoid stating the obvious. What seems to me more important is to try and design a basic education that will be valid for all the citizens of all countries in the twenty-first century. If we succeeded in so doing, we should have taken a huge step forward, because we would have given science a pluralistic, welcoming image, much less exclusive or divisive than the image now prevailing. The idea of an educational 'melting-pot' seems to me very important; it would be very useful for students to be taught by teachers from other countries as well as their own and for teachers from all over the world to meet on a fairly regular basis to bring themselves up to date on the best teaching methods. Universities are as yet not making sufficient efforts in this direction, whereas research, fundamental research in particular, has long had an extremely pluralist, international

dimension. This attitude, characterized by the high degree of mobility among researchers, should also inspire teaching institutions.

Until the great conflicts of our own times, science was generally expected to provide solutions to most of humankind's and the planet's problems. War has demonstrated that science has failed to alter mentalities and that barbarism still lurks beneath the surface, despite the considerable intellectual advances made possible by science since the early nineteenth century. A kind of disenchantment has set in. In order to bring us out of this phase of disenchantment, science now needs to be set within a far wider cultural context. Current debates over environmental issues and bioethics are highly significant in this regard: the ecological movement has not only caught science on the wrong foot, it has put it on trial, whereas normally science should be expected to come up with solutions.

The market plays a rather contradictory or paradoxical role in the spread of scientific information. On the one hand, more and more databases and data banks are being created and their information-processing capacity is growing apace, which should facilitate the dissemination of scientific data worldwide, inasmuch as plentiful information can be obtained very rapidly by simply interrogating these sources. On the other hand, the high cost of accessing them is a serious drawback. As they are highly centralized, they are in danger of becoming the exclusive property of a restricted number of large scientific or technological groups or of major institutions.

Cases also occur in which those in possession of scientific information keep it to themselves for commercial reasons. There is a strong temptation for industrial organizations to keep part of such information under wraps so as to steal a march on their competitors, moving rapidly to take out patents and immediately blocking access thereto for other potential users. The ferocious competition in the pharmaceutical industry, useful though it may be in stimulating research, is open to criticism in so far as it works against the interests of countries that lack the resources to participate in it. Information should be regarded as part of the common heritage of humanity and clear rules as to its dissemination should be established, an area in which UNESCO could play an important role. To take the example of genetics, one idea might be not to allow patents to be taken out until such time as a firm has reached the stage of making a product with proven advantages over other agricultural or pharmaceutical products. In other words, genetic data as such should be allowed to circulate without impediment for the benefit of genetics. Much

discussion is taking place at the present time, and we must ask ourselves which, for the twenty-first century, are the fundamental data that should not in any event be cornered by specific groups.

The solution to some of the developing countries' major problems is, so to speak, within reach, thanks to transgenic organisms: there are now nearly 300 transgenic plant varieties in existence, and it may be reckoned that at least a good third of these plants possess extraordinary properties of resistance to drought and poor climatic conditions. Scientists, however, stand accused of reducing biodiversity, endangering the health of consumers and depriving the countries of the southern hemisphere of a whole range of natural products, in favour of species raised entirely within the laboratory, largely by powerful companies that show very little concern for the worldwide balance of the environment. What needs to be done? Research cannot be halted for any length of time. I nevertheless believe that progress is gradually being made. The discovery of genetic engineering in 1973, for example, caused a worldwide scare, but it is now being used in every biology laboratory in the world for purposes of fundamental research, and there is no doubt that gene therapy – that is to say, therapy based on genetic engineering – will be widely practised in the near future. No one will refuse to use it, because it will perhaps be the only effective means available of combating cancer and possibly even AIDS. Here we have an example of a gradual evolution of collective attitudes, after a period of justifiable apprehension, towards a calmer appreciation and a gradual move towards real solutions. The only way forward, it seems to me, is therefore to establish a set of international codes of conduct and I am convinced that industrialists and the representatives of the major companies would also like to see this come about. An international forum would be a means of providing the necessary advice and avoiding possible obstacles.

Teaching methods, and textbooks in particular, need to be re-examined. Science teaching is at present too hidebound and is not a valid way of training the scientists of the twenty-first century. Physics, biology and mathematics are taught from textbooks of physics, biology and mathematics, whereas science teaching should be much more cross-disciplinary in character. Why do physics texts not draw examples from the realm of biology, and why is there no reference in the teaching of molecular biology to the underlying problems of physics? When dealing with biology why not deal also with the ethical questions that are bound to arise immediately? I am a strong believer in this cross-disciplinary approach. It was in this spirit that Pierre Bourdieu

and I worked together in our report for the Collège de France. It was partly for this reason that IUFMs were set up, to provide a cross-disciplinary teacher training, demonstrating that different problems are interconnected, not only at the subject level, but at the level of society as a whole.

Academies of science differ greatly from one country to another. Some of them, like that in the former Soviet Union, are structurally and administratively in charge of the country's research laboratories and thus have real power and very substantial funds. Others, like the Swedish Academy, have an ongoing advisory role vis-à-vis the government but until recently had no real impact on the research network itself. The National Academy of Sciences in Washington, to take another example, plays a considerable role in the United States' scientific relations with other countries. The influence of the French Académie des Sciences, to which I belong, is mainly a moral one, and it has little in the way of financial and logistical resources. It is not in charge of any research institutions; it is a forum for unbiased, independent opinion to which the government very often turns for an objective view on a given question and it also compiles, presents and publishes the findings of science. There are thus various types of academy, with different objectives and different structures, but they are at present in the process of closing ranks, which seems to me a very interesting development.

Making science simple

Jayant V. Narlikar

One of the most important questions facing us today is how to popularize science in the twenty-first century, how to help people appreciate science as a part of their culture. We can divide this challenge into four different aspects: primary education, secondary education, higher education and the general public.

In *primary education* the fundamental thing which one has to develop in schoolchildren is a curiosity about nature. Children generally start with this curiosity, but our education systems often suppress it. This must change. Next to be developed should be the concept of a pattern in natural phenomena. Then slowly the mathematical aspects should be introduced – the idea that what nature is doing has a quantitative aspect to it. Next to be revealed is the predictive ability of nature, the hallmark of science, the fact that nature is following certain laws and therefore one can say what is going to happen next. If these aspects are introduced and incorporated into primary education, children will begin to appreciate science as an important part of their education. One of the problems in teaching science is that of comprehension. Many children go to English-language schools and when they start learning science, they first have to translate the concept from English into their first language, in which they understand it best. There is a double effort involved. My personal experience has been that when someone starts out in their first language, the progress is much smoother. I feel that a problem today is that this is not emphasized.

Another problem of a practical nature is class size. In India, we

have sixty or seventy students to a class. This makes it difficult for the teacher to have a personal rapport with the children.

Coming to *secondary education*, the main issue here is to emphasize the experimental verification of scientific laws. We should not be learning to accept a fact because the teacher said so; we should be learning by the scientific method of experimental verification. Experimental verification, replication and error bars: these are intrinsic to science. There must be a do-it-yourself approach to science.

The next important step here is the historical development of science through the interplay of theory with experiment. I find from hindsight that if the history of science is taught in a way that shows how scientists actually learn by making mistakes and correcting themselves, then children will better appreciate and understand how the subject develops in a natural way.

As regards *higher education*, the main aspects here are: (a) access to additional source material beyond classroom teaching and texts – textbooks are not an end in themselves; (b) student–teacher relationships – students need to be able to discuss, ask questions, argue and interact with their teachers at the higher levels of education; (c) confrontations with research frontiers – science is progressive and students should see research being carried out around them; and (d) project work – students should have the satisfaction of doing projects, of finding out what interests them. They should be given the opportunity to add to the overall content of science. In this way, a student can discover his or her own likings. Students often do not discover what they really like until it is too late. In India we find that many would-be scientists become doctors or engineers because of lack of encouragement to do project work.

The fourth aspect is *science popularization for the general public*. One of the critical issues is helping people learn to live comfortably with science and technology. I think it is easy to view these subjects as something that has no relevance to daily life. It is important to correct this impression so that people are comfortable with science and begin to appreciate and enjoy it. These things can be conveyed in books, lectures and films that are made for the general public. It is also important that science be appreciated for its powers and its limitations. Often scientists get carried away and give the impression that science will cure all. Then there is a backlash from the intellectual community which asks: how can you offer answers to everything when you yourself know that science is incomplete? This greatly weakens our position. The solution is to share the failures as well as the triumphs.

We also need an appreciation of the importance of basic research. Often basic research is downplayed in developing countries because they cannot afford it. In India it has been demonstrated that basic research is fundamental to the application of science.

In India we currently face a number of problems in popularizing science. First, for students making career choices, other professions are more attractive than science. Universities with too many students cannot maintain good teaching standards. Second, research institutions have slender connections with universities (where potential brain-power resides) and industry stands very much aloof from the universities. 'Intimate' contact with students is missing on these fronts. Third, the educated lay person has a slim grasp of what science can do. But often this person has a great curiosity about science. One must tap into this curiosity. Finally, at all economic and educational levels, there is a disturbing lack of the scientific temperament.

In assimilating science and technology into a society, it is important to understand the limitations of science and what that society needs in terms of old and new values. This is the job of science popularization. What follows are approaches we have taken at all levels to bring science closer to people.

At the *university level*, in my own research centre, the Inter-University Centre (IUC) for Astronomy and Astrophysics, our basic objective is to provide advanced-level facilities for all universities to use. Because of a shortage of funds, we cannot give each and every university advanced facilities in astronomy. But we have created them in one centralized facility at Pune. The strategies under which this IUC was created – there are other IUCs in other fields – involve sharing national facilities among universities. I would like to see this experiment carried out in other subjects also.

Apart from our high-level research we promote *educational activities for children*. We sponsor monthly lectures and demonstrations for schoolchildren; summer projects for schoolchildren (we invite them to spend a week in our centre where they do very modest projects but have the satisfaction of having hands-on experience); national Science Day, which includes many festivities of a scientific nature in which schoolchildren participate; and something I personally do, 'postcard correspondence'. When I give a public lecture, students will often ask for autographs. I reply that I will not just give an autograph – they must write me a postcard with a scientific question. So this child must put in a little work for an autograph (I also must do more work in answering the questions). I collect a lot of postcards and of course, I always reply.

We also have many *public-oriented activities* including amateur astronomy programmes and public lectures. We also use all the media in different ways to propagate astronomy. At the Homi Bhabha Centre we have programmes for better comprehension, better textbooks and better science teachers. We also have a pilot programme encouraging children who, because of economic conditions, are not usually able to have access to science teaching. We have voluntary organizations that take up social issues in a scientific framework, and a Science Cavalcade that goes on the road and performs plays and magic shows, which are then explained in terms of chemistry and physics illustrations. This Cavalcade has considerably improved the appreciation of the villagers. We have published books that bring science closer to the community. These are not textbooks, but rather easy-reading books. Some of our government organizations act as catalysts, not in the sense that they take on these activities directly, but they give some support and this has proved extremely useful.

Looking at the state of science education and science popularization in my country, one sees that many things are positive, yet there is much to be done.

Multiculturalism, media and education

Mary A. Hepburn

Ten years ago, the Vinson Institute of Government of the University of Georgia formed a special educational division to provide a service for teachers, helping to supplement their knowledge of the social sciences and their civic-education skills. One of the issues this programme addresses today is the need for multicultural education. Another educational issue is the effect of the pervasive electronic media on school-age youth.

Let me first address multicultural education. Among the questions we ask are, what does multiculturalism mean, how should we interpret it and how can we help teachers in public schools adopt sound principles of multicultural education? In the south-eastern United States, these questions are posed against a backdrop of years of cultural tension between White Euroamericans and Black African Americans.

The intent of multicultural education is to broaden the base of a given culture, increasing respect and understanding of other cultures. It is to extend the main culture of a nation – be it the United States, or France, or any nation – and encourage, not just allow, multiple languages and cultures to flourish. This type of education encourages various ethnic groups to contribute to and expand the national norms, vision and values of the existing culture. This approach to multi-culturalism can be pictured as a mosaic or tapestry composed of many cultures, each contributing to the meaning and beauty of the whole.

Multicultural education conducted in the spirit of coexistence, mutual understanding and co-operation has been applied with enthusiasm in many schools. My hope as an educator is that civic

values and mutual respect can be strengthened by this method. Indeed we have seen some good examples of thriving multiculturalism helping to strengthen communities and bring people together. However, the literature on multiculturalism that I have reviewed in the last two years has revealed that another form of multiculturalism, a more radical form, has been developing that tends to pull a society apart. Some leaders are demanding that their cultural group be separate rather than a part of the whole. I am aware that this is a problem in other countries as well.

The radical form of multiculturalism thrives on divisiveness and tends to promote cultural competitiveness. Indeed, in its extreme form it can fragment and shatter a nation. In the field of education, different ethnic groups begin to demand that their children study in separate schools, and that the total curriculum be centred on their specific subculture. It does not broaden perspectives to replace one type of cultural dominance with another. Rather, it can lead to social fragmentation and in education, to institutional fragmentation.

In the south-eastern United States we have a large population of African Americans along with the majority of Whites, and there is a burgeoning Hispanic population from Latin America. From our experience, my colleagues and I feel that the most beneficial education is for all groups to be together, learn from each other and socialize together in a climate of mutual respect. However, there are some students and some educators who feel that they do not get respect unless they have a separate and culturally distinct educational experience.

A possible solution to radical multiculturalism in America is to revolutionize teacher education. Something must be done to increase teacher sensitivity to cultures other than the Western European culture in which they were educated. If we are going to strive for a common experience, we have to expand that common experience and we have to know more about the traditions and societies of the people from Asia, Africa, Latin America and Eastern Europe who are migrating to the United States. If educators can more effectively integrate studies and appreciation of many cultures, then co-operative pluralism can thrive.

Surely we must educate youngsters to appreciate what people of other lands bring to the United States. We must exchange with them philosophically and practically. But, typically, the way we train our teachers to deal with other cultures is to offer a course called Multicultural Education. One course is patently not enough. Broadened

cultural perspectives should be developed throughout the professional education of teachers.

Language is one of the best means of cross-cultural understanding. When one studies a foreign language, one must learn something about the country or countries where the language developed, its culture and values. Conversely, children coming from other countries must be fluent in their first language in order to learn the language of their adopted country. Cropley, a British researcher, has shown that in England, immigrant children aged 10 and older, who attended school regularly, learned English better if they had already mastered their first language. This research supports the importance of bilingual teachers. Yet we have very limited bilingual training for teachers in the United States.

In the United Kingdom, educational researchers have found that multicultural education must not rely on a single course but rather on a change of attitude. Cultural pluralism should permeate the education and preparation of teachers. Teachers must become aware that there are cultures of people moving across the earth, migrating from one place to another, participating in various economies. Young teachers require a cultural awareness that simply cannot be embraced in a single course called Multicultural Education.

In 1916 John Dewey, an American philosopher and educator, wrote this about education in the United States: 'Change puts a definite responsibility upon the schools to sustain our true national democratic spirit. The virtues of mutual esteem, human forbearance and well-wishing, which in our earlier days were unconscious products of circumstances, must now be the conscious root of an education which forms the deepest springs of character.' Dewey's words can guide us today as we work to design educational programmes for the pluralist societies of the twenty-first century. Multicultural education must be realized sensibly, sensitively and with a large dose of substantive learning.

The second issue I consider to be crucial in education today is the effect of mass media, especially television, on youth all over the world. In any nation where television is ubiquitous, this pulsing electronic, visual and sound medium shapes the background from which young people come to school. In the United States thousands upon thousands of young people come to school with an experience at home that is not so much from their family but from the hours and hours they spend viewing television. The average daily viewing time in the United States for all ages is approximately seven hours. How does this affect education?

There are sometimes good effects. Television provides needed information and common visual and emotional experiences to millions of people. It also provides common language usage. In this way it can bring us together. So there is some contribution to social cohesion. But there are negative effects as well. One of these is consumerism. The glorification of things, objects or products, many that we really do not need, is so well done and so pervasive that it creates a great gulf between those who cannot easily afford these things and others who can. There is a problem of values here. Consumerism cannot replace the core human values of democracy, equity and civility. One experience we get from television is a separation of the haves and have-nots. If educators and media professionals could collaborate and create higher-quality programming, it would be a start towards bringing our people together instead of pushing them apart.

One of my projects for the years 1993 and 1994 was to develop 'collaboratives' for teacher education between journalists and professors working with teachers. The purpose of these collaboratives is to explore what the public news media can provide for the education of young people today. Journalists do not often think of themselves as educators, but they are, whether they want to be or not. This idea expands education beyond school buildings into the society. It also expands the perception of television beyond information source and entertainment source to a form of public education.

If we are going to use television as a means of education, we must confront its commercial nature in the United States. Educators will have to work jointly with people who develop the programming to see that the medium better serves education on public affairs. Video transmission is very fast, episodic, very colourful and often has emotional music and sound. Classroom teaching cannot really compete with that. Rather, teachers must integrate studies of the society's media into the curriculum.

Violence is another media issue. Researchers (Eron and Huesmann, for example) have found that persistent violence in the entertainment media has made violence an acceptable social response to young people. Advertising agencies know that the programmes with the most excitement (and often the most violence) are usually the programmes that sell their products best. This is a sad commentary on our society. However, I think that we can deal with the violence on television if the teacher is well prepared to discuss critically and analytically with students the television shows they watch. If teachers are equipped to do critical analysis themselves, then they in turn can teach their students

to be critics of what they are viewing, hearing and reading. Critical analysis must be part of the teacher-training curriculum. Because the mass media constitute a powerful and pervasive force, educators must guide students in a review of the electronic media and their effects on individuals and society.

In any event, the teacher is key. I think it is true that the education of teachers determines not only their effectiveness, but how the tapestry of cultures in a multicultural education system is woven. Teacher education for the twenty-first century must include languages, sensitivity to other cultures, training in critical analysis, conflict resolution and some co-operative interaction with media professionals.

History teaching and citizenship

René Rémond

The importance accorded to history teaching in curricula differs from country to country, and its status varies greatly: in some cases it is a basic, compulsory subject, sometimes accredited by written final examinations, while in others it is an optional course of study. There is thus no consensus as to the usefulness of history teaching and as to what is expected of it, in terms either of individuals' general culture or of their training in citizenship and their integration into society or, more generally, as a means of initiating the young into questions of society, politics and democracy.

There is a strong temptation to adopt a non-scientific approach to history, bolstering the sense of national identity by emphasizing differences in relation to other peoples or indeed whipping up feelings of superiority. This temptation has been rightly criticized, and the teaching of history has, as we know, often been blamed for its possible role in conflicts between peoples. Paul Valéry regarded history as 'the most dangerous chemistry produced by the intellect' because of the way it perpetuates prejudices, foments discord and fuels animosity. We can see almost daily examples of this in conflicts such as those in the former Yugoslavia, in which appeals to history play an important part.

There can, therefore, be no question of subordinating history to any extraneous purposes whatever and intellectual independence must be observed in its teaching. How, then, is this intellectual independence to be squared with the social utility of history? The two things are not, in my opinion, irreconcilable, since it is precisely by respecting

the truth and observing the rules of historical method that the propagation of history and of the findings of research can help to strengthen social cohesion, bring different peoples closer together and transmit values, all of which pressing requirements seem to me to correspond to the ultimate aims of any education system. To clarify just what benefits history can offer, I shall confine myself to putting forward a few pointers to why, in my view, history has an important place in the education and training of the citizens of the twenty-first century.

History can, firstly, help us to a clearer understanding of the place of the individual in society. The conclusion most frequently drawn from it tends to be one of scepticism or pessimism, on the lines of Voltaire's *Essai sur les mœurs*: history demonstrates human beings' inability to overcome conflicts, wars and misfortunes, and it is no doubt useful to realize that humans have an inherent capacity for causing harm which justifies the constraints and rules imposed by society. I believe, however, that it is equally possible to derive from history a feeling of respect and even admiration for all that humankind has been capable of inventing, creating and constructing, whether in the realms of technology, of culture, or of law, the state being as much a product of human genius as writing or the discovery of fire. It is essential that the significance of this collective experience, which is also a tale of generosity and dedication, should be put into plain language for the benefit of the young.

I also believe in the need to assert that, contrary to any determinist or fatalistic outlook, it is men and women who make history, even though they may not always know what history it is they are making and even if it is not always the history they intended to make. Whether it be a case of causing disasters or avoiding them, it is they who bear the responsibility. The Second World War was not written in the stars; it could have been avoided. Conversely, the examples of the reconciliation that has taken place between peoples that long were adversaries – Germany and Poland, Germany and France – and the building of a united Europe go to show that it is indeed possible for people to control the course of destiny and make history. There is, it seems to me, an indispensable practical lesson to be drawn from this, one which could act as a corrective to the all-too-widespread feeling that the complexity of the situations involved leaves humanity relatively powerless: the development of anti-democratic tendencies is, in the final analysis, less damaging for the future of democracy than individuals' uncertainty as to their own ability to deal with the

problems facing them, an uncertainty that is in danger of causing future generations to adopt the same attitude of resignation as that of our ancestors towards the elements and to natural and other disasters.

Our relatively advanced and complex societies are, furthermore, the end-product of a long history and the transition from a situation of violence to one where the rule of law at least to some extent prevails is an outcome of history; that outcome nevertheless remains insecure. Societies are vulnerable entities, threatened from within as well as from without. To preserve what has been achieved and to survive, they need not only the acquiescence but the support and active participation of each of their members. There is therefore no need to twist history or make it say anything other than what the objective study of human societies demonstrates, namely that what they have achieved is something magnificent but at the same time fragile and insecure.

No other subject teaches so well as history the diversity of humankind. Human groups, peoples, nations and continents are not all alike, and that simple fact compels us to look beyond our immediate experience, to accept and acknowledge our differences, and to discover that other peoples also have a history that is rich and instructive. No other subject can, to the same extent, deter us from wishing to reduce all cultures to a single model. History thus helps to define a pluralist education.

Have historians any right to inculcate values? Does their function stop short at story-telling and explaining, or can it extend to understanding and passing judgement? Although no one should pass judgement before having understood, understanding and explaining do not necessarily mean excusing, let alone absolving. Something would be missing from historical research, and even more from the teaching of history, if historians refrained from making value judgements. They must describe actions for what they are and, if necessary, point the finger of blame, thus distancing themselves both from a certain positivist tradition which denied itself the right to judge and from a certain contemporary attitude to cultural identities which verges on relativism. Acceptance of otherness and diversity does not boil down to saying that everything is of equal value: some judgements and values are, to coin a phrase, more universal than others. Some experiments succeed, some actions merit condemnation, some practices are reprehensible and history cannot remain absolutely neutral; moreover, there exists a sufficiently substantial body of

standard-setting instruments to provide a frame of reference for judging conduct and actions. Seen in this light, history has a specific, irreplaceable contribution to offer.

Teachers, however, are ill-prepared for making such judgements. They are not sure of being entitled to do so, as their own judgement is often unsound and lacking in firmness. Hence the basic problem is to train teachers in such a way that they will be able to draw out from history the lessons it furnishes. An education system that fails to provide teachers with such training is clearly failing in its duty by neglecting not only to give instruction in citizenship but also to develop abilities and aptitudes in individuals that are part and parcel of their personalities.

Replies to a series of questions on the difficulty of drawing lessons from history

History must not be allowed to become a means of indoctrination or conditioning, and it is not for governments or the state to decide what is to be taught or what lessons are to be drawn; on the contrary, there must be freedom for reflection and for dialogue between historians and politicians. As a general rule, the education system must be shielded against any outside attempt to dictate to it, since its primary purpose is that of forming human beings, individuals, that is to say forming freedom of judgement, even if other, secondary purposes such as efficiency, economic performance or social cohesion may be assigned to it.

A certain consensus has to be arrived at if teachers are to be allowed the freedom to reflect. The main obstacle at present seems to me to be teachers' tendency to take too modest a view of their role, to see it as one of dispensing factual knowledge, when in fact there are vital contributions they can make to a deeper reflection upon social or political philosophy. History only becomes interesting when it ceases to be merely a string of facts and provides an opportunity for thinking about philosophy and society.

History also teaches respect for complexity. It serves as a safeguard against the simplistic, demagogic delusion that straightforward solutions can be found to complicated problems: an analysis of history that takes account of the complex nature of the facts shows that nothing is simple and several explanations are simultaneously possible, and it thus counteracts the systematist outlook, since no system can account completely for historical reality. It also provides the best introduction to politics, inasmuch as all political actions are a gamble whose

consequences are unforeseeable since they bring a multiplicity of parameters and factors into play. Social complexity is of a different order from the complexity of the physical or natural world: it is inherent in the life of societies and irreducible either by historians' analyses or political action. The discovery of this complexity thus forms part of basic training in citizenship.

Time and duration are the stuff of history, and this is enough to differentiate it from the physical sciences, for which time consists of homogeneous, identical, interchangeable units. In social life, time is non-uniform and can pass at different speeds: at some periods it almost stands still, and later generations more or less reiterate the practices of earlier ones; other periods, on the contrary, witness abrupt accelerations, and one of the benefits of the teaching of history would be to encourage reflection, however elementary, on the relationship between the actions of a community and time. This makes it possible, among other things, to avoid two equally mistaken viewpoints, one that regards the present as merely the recurrence of the past and the other that believes that there is nothing in common between what our predecessors had to deal with and the problems of the present. The truth lies somewhere in between: it is changeable and varies according to the period under consideration. A knowledge of history is therefore useful to people engaged in action, enabling them to differentiate between that which has been inherited from the past, that which is permanent and that which is subject to change. This is where the historian comes in, helping people to form a relative judgement, taking into consideration what has gone before and hence to assess the scope of the changes. Politicians and members of society in general cannot overlook this essential given the collective memory, or even the collective unconscious, of peoples. This memory helps each of us to see where we fit in, to look at events differently, standing back from them a little, and to situate them in a continuous sequence, without excluding whatever interrupts that sequence. Basically, history enables us to establish a reasonable individual and collective relationship with duration and change.

History shows the way to a pluralist outlook; it provides, so to speak, the means for consciously accepting other 'varieties of humankind', for stepping outside of our own. We are no longer imprisoned within our own traditions but discover that, in one and the same country, there are schools of thought and intellectual, philosophical, cultural and political traditions other than our own and deserving of consideration. This first lesson in citizenship, confined

to a single country, should then be extended and opened out to take in the history and culture of other peoples.

Nothing in history is as objectively evident as in the realm of physical realities. Social indicators are not always reliable; a margin of error subsists and it has to be admitted in the course of teaching that different, sometimes complementary, constructions may be placed on the same social reality. We nevertheless do possess – thanks precisely to the work of historians – objective data; we cannot equally well assert one thing and its opposite, nor can we formulate untruths. Those who, as in the case of the arguments of revisionist historians, contest this body of objective data by so doing place themselves outside the pale of their own discipline and are guilty of sinning against the truth. It is, however, an intellectual sin and not a political offence, and any law making the state the arbiter of truth would create confusion between political and intellectual authority. The debate must remain open, since not everything that is asserted is true and since, out of respect for the truth, the error of whatever contradicts that which is generally agreed by the specialists must be exposed.

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