

# Technology, E-learning and Distance Education

Second edition

A. W. (Tony) Bates

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# Technology, E-learning and Distance Education

Second edition

*Technology, E-Learning and Distance Education* is the essential guide for anyone wanting advice on how to choose the right technology at the right cost for a course or flexible learning programme.

The underlying principle of this new second edition is unchanged from the first – technology is not inherently good or bad for teaching – it's the way that teachers and administrators use it that matters.

Fully updated to include all the latest technologies in this fast-moving field, this second edition presents a user-friendly model to help you to make your decisions, and explores the spectrum of media available, including print, radio, video, online learning and synchronous conferencing. Exploring the strengths and weaknesses of each medium, the book considers issues such as cost, pedagogy and usability.

*Technology, E-Learning and Distance Education* will be a valued tool for any teacher, educator, trainer manager or administrator wanting to ensure that they provide a learning programme that is tailored to the needs of their learners.

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# Preface to the second edition

Harold Wilson once said: 'A week is a long time in politics.' Ten years is an eternity in educational technology. For example, the first edition of *Technology, Open Learning and Distance Education*, published in 1995, makes no reference to the World Wide Web. It is hard to believe that there were no educational programmes using the Web before 1996. What is more remarkable about the first edition though is that it has continued to sell steadily over all this period. There lies an important lesson.

Technology is constantly changing and new technological developments can have profound effects on education, as in the case of the Web. Nevertheless, there are underlying constants in educational technology that do not change, and which, if understood, can help decision makers in their choice and use of technology for teaching. This book re-examines and applies the fundamentals discussed in the first edition in the light of new technology developments since that book was first published.

All books are hard to write and this one is no exception. The main challenge has been deciding what to keep from the old edition and what to add, without making the book so long that it would be unreadable. Should we forget about television, radio, audio-cassettes and print, now that the Internet and the World Wide Web are seen as the future of distance education? The examples and data used in the first edition are sometimes over 20 years old. Does it make any sense to include them now?

Certainly, much of this book is completely new. Five chapters, one an overview of developments in distance education and e-learning in the last ten years, two on Web-based learning, and two on synchronous conferencing technologies, are completely new. Four chapters, on print, television, and radio and audio cassettes, and the final chapter (previously the executive summary), have been revised. Two chapters, the introduction, and the chapter on selecting technologies, have been edited and slightly revised, but are basically unchanged.

I have resisted the post-modernist tendency to believe that everything new is good and that there are no lessons to be learned from the past. Indeed, I believe quite the opposite. There are many useful lessons from the past that

apply with as much force to new educational technology developments, and we ignore those lessons at our peril. Chapter 2 illustrates that point in particular. Furthermore, this book is really about a methodology for decision making. If the method stands the test of time, and works just as well for new technologies as for old, then it has strong validity.

Then there is the choice of title. I have substituted 'e-Learning' for 'Open Learning' with some regret, because over the last ten years, distance education has become more closely identified with the commercialization of e-learning than with open access. E-learning has had a dramatic effect on both campus-based teaching and distance education. However, I wanted to address in particular the confusion between e-learning and distance education in many people's minds. Neither distance education nor e-learning is dead. Despite what critics say, both are thriving, but although there is considerable synergy between them, they are different concepts.

The acknowledgements in the first edition still apply, but I want to add my thanks to others. I will always be indebted to Lord Perry of Walton, the first Vice-Chancellor of the Open University, and Glenn Farrell, former President of the Open Learning Agency. I would also like to acknowledge the contributions of my former colleagues in the A/V Media Research Group at the Open University, and later colleagues at the Distance Education and Technology unit at the University of British Columbia. Special thanks go to Janice Picard, without whose substantial contribution I could not have written the chapters on synchronous conferencing technologies. Also, I must give thanks to a series of editors at Routledge who have shown amazing patience with my continual procrastination in getting this revised edition finished. Lastly, my wife, Pat Porter, has had to suffer continuously from my frustration and bad temper when I have been stuck or unable to do the writing for this edition. Thank you, Pat, for sticking with me!

# 1 Emerging trends: convergence and specialization in distance education

## THE DIVERSITY OF DISTANCE EDUCATION

Sunni is a 12 year old Kutchi nomad, with her family travelling an ancient dirt road between Bamian and Mazar-i-Sharif in Afghanistan. She is walking beside one of the family's mules. She is listening to a recording of Ali Dhost, one of Afghanistan's most popular singers, on her brother's portable CD player. Between two of the songs, she hears a short, humorous 'message' from Ali about the need to boil well or river water for at least five minutes for drinking. The message is part of a UNICEF health campaign.

Frank McGuinness is sitting in a ballroom on a Saturday morning in the Hotel Vancouver in Vancouver, Canada, with six other fellow students, watching a video-conference of a business professor lecturing and demonstrating marketing techniques from Queen's University in Kingston, Ontario, 3,000 kilometres away. Frank is paying C\$44,000 to take an executive MBA from Queen's, while he works as an electrical transmission engineer for the local power company.

Gloria Gonzales Roca is a 24 year old wife and mother, with two young children, living in Tonalá, a small town just outside Guadalajara, Mexico. She has taken two years off teaching, but is planning to return next year. She is working on her computer, studying a master's program in educational technology jointly offered by Tec de Monterrey in Mexico and the University of British Columbia in Canada. She is working online with two other students, one in Canada and one in Slovakia, Europe, on a group assignment.

Chandra Arasaratnam is a student in the city of Ratnapura, Sri Lanka. He is studying a Bachelor of Technology (Civil) run by the Open University of Sri Lanka. He studies mainly at home through a combination of print materials, audio-cassettes, and a four-week practical course taken on site in Colombo. He has access to computing facilities in his local study centre. He hopes to get a job as a road engineer with the city once he has completed his studies.

Sharon Geibert is a first year sociology student at Indiana University-Purdue University at Indianapolis, United States of America. She is one of over 2,000

## 2 *Emerging trends: convergence and specialization*

students taking Introductory Sociology. Although technically a full-time, on-campus student, she studies a good deal of this course from home, as most of her study is done online, combining textbook reading, Web searches, and online small group discussion forums. She drives to the campus about twice a week for her face-to-face Introductory Sociology class, to meet fellow students, to use the library and to take face-to-face classes in other subjects.

All these are students learning wholly or partly at a distance. All are using technology. All are enjoying their studies and expect to succeed. At the same time, the organizations providing their education are facing many challenges. What technologies should we invest in? What are the educational benefits or limitations? What will it cost to teach with technology? Is it sustainable? How will students and professors react? Is there any real difference between technology-enhanced classroom teaching and technology-based distance education? Can teachers do this without help? How do we organize and manage teaching with technology?

These are some of the issues I try to address in this book. In particular, I want to look at how the world of distance education and learning is changing, and the implications of this both for conventional institutions and for well-established distance teaching universities.

## TECHNOLOGY AND DECISION MAKING

This book is primarily about decision making: making choices and implementing them. I will show that technology is neither good nor bad in itself but it is the way that it is used that matters. To make good decisions then about technology in education, we need to understand the relative educational strengths and weaknesses of different technologies, and what needs to be done to use technologies effectively.

Good decision making is particularly important given the rapid development in technology, and especially communications technologies. Hardly a conference on education goes by without a major part being devoted to technological change. Those who invested heavily in technology for teaching even five years ago are seeing cheaper, more powerful and more functional technology arriving every day. Technology indeed provides educators and governments with the capacity to transform radically our whole education system and nowhere is this truer than in the area of flexible and distance learning. Furthermore, the technology continues to change.

However, the focus in discussions of educational technology tends to be more on the actual technology itself, the information highway, the hardware, new software, and the potential for change. It is certainly important to understand the technology, but even more important to understand its strengths and weaknesses in terms of its actual applications. Also important is an understanding of managerial, administrative and operational requirements for the successful use of technology in distance education and training.

Although this book should appeal to experienced distance education practitioners, its main targets are key decision makers in education and training. For instance, a school superintendent, wondering how best to provide science courses to upper grade students in small rural high schools. Or a Dean of Humanities in a university, wondering how to take back the administration of Arts undergraduate distance education programmes from the Division of Continuing Education, now that student tuition fees are increasing. Or a World Bank team, wondering how to deliver quality education into remote rural regions of poor, developing countries. Or a university Vice-Chancellor, wondering how to increase enrolments without losing quality, but with no extra funding from government. Or a college head of department, wondering how to respond to demands from faculty and students for more online courses. Or a State Commissioner for Higher Education, who has received a request from the state university for \$20 million to enhance and update its state-wide campus video-conferencing infrastructure, but who feels in his bones that this is not the right investment at this time. Or a politician and her civil servants seeking ways to meet the growing demand for access to higher education, but faced with pressure from the Minister of Finance to reduce expenditure.

All these key people are being faced with choice and decisions about distance education technologies and systems. Technology is the infrastructure, the bones, of distance education. The book then is not so much about technology-based curriculum design (see Bates and Poole, 2003 for this), as about decision making regarding technology *systems* for distance teaching and learning, including human, economic and organizational factors.

After reading this book, you will know what distance education is, how it differs from e-learning, and why it will remain relevant in the twenty-first century. You will be able to select and use different technologies in relation to your educational goals and local circumstances. You will have a set of questions or criteria to protect yourself and your organization from the temptations of vendors selling the latest breakthrough in learning technology. You will understand some of the barriers to the adoption of technologies for distance teaching and learning, and what needs to be done to remove those barriers. Perhaps even more importantly, when you have read this book, you should be able to deal with rapid technological change and have a clear vision of how to deliver quality education and training to learners, wherever they may be.

One of the basic premises of this book is that newer technologies such as the World Wide Web are not necessarily better (or worse) for teaching or learning than older technologies such as print or video-conferencing. New technologies are just different, and we need to understand the differences and the appropriate circumstances for applying various technologies for effective distance teaching and learning. The choice of technology should be driven not by its novelty but by the needs of the learners and the context in which we are working.

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Another premise is that lessons learned in the past from research into some of the older technologies are often still relevant for the newer technologies. Whenever a new technology emerges in education people in general ignore what has been learned in previous contexts. In most cases, though, many of the lessons learned from previous applications of technology are just as relevant for the new technology application, yet the same mistakes are made. For instance, the need to reorganize and redesign teaching to exploit fully a new technology is often ignored. We shall see that the failure to learn from prior experience in distance education has led to many costly disasters in online learning in the last few years.

A third major premise is that there is a direct link between the use of technology and different ideologies of teaching and learning. The effectiveness of a technology cannot be judged without making some basic assumptions about what constitutes effective teaching and learning, and the goals and purposes of education and training. Therefore some space is taken in the early part of the book to discuss some of the basic differences in approach to education and training, and how these relate to the use of different technologies.

Lastly, it is easy to be seduced by the excitement of the latest technology, but technologies do not roll out evenly and all at once. Even in more advanced industrial countries, there will still be some target groups who will have access only to print, television and possibly the telephone. In developing countries, many of the newer technologies, for instance, the Internet, will be beyond the reach of most of the target group for distance education for many years to come.

Distance education is one of the few areas of education where for over 30 years technology has been central to the teaching task. A feature of distance education institutions is that they are deliberately designed and structured to exploit the cost and educational benefits of technology. Distance education has therefore provided a valuable test bed for understanding the potential and limitations of a wide range of technologies in education. At the same time, one of the main conclusions reached in this book is that while distance education has historically been at the leading edge in applying technology to education, recent technological advances are making the distinction between conventional and distance education more and more blurred. Technology is dramatically affecting *all* educational institutions.

First though we need to address the issue of distance education itself, and whether this remains a useful concept in the twenty-first century.

### **DEFINING OPEN LEARNING, FLEXIBLE LEARNING AND DISTANCE EDUCATION**

Although these three terms are often used to mean the same thing, there are significant differences.

## **Open learning**

Open learning is primarily a *goal*, or an *educational policy*. An essential characteristic of open learning is the removal of barriers to learning. This means no prior qualifications to study, and for students with disabilities, a determined effort to provide education in a suitable form that overcomes the disability (for example, audio tapes for students who are visually impaired). Ideally, no-one should be denied access to an open learning programme. Thus open learning must be scalable as well as flexible. Openness has particular implications for the use of technology. If no one is to be denied access, then technologies that are available to everyone need to be used.

## **Distance education**

Distance education, on the other hand, is less a philosophy and more a *method* of education. Students can study in their own time, at the place of their choice (home, work or learning centre), and without face-to-face contact with a teacher. Technology is a critical element of distance education.

## **Flexible learning**

Flexible learning is the provision of learning in a flexible manner, built around the geographical, social and time constraints of individual learners, rather than those of an educational institution. Flexible learning may include distance education, but it also may include delivering face-to-face training in the workplace or opening the campus longer hours or organizing weekend or summer schools. Like distance education, it is more of a method than a philosophy, although like distance education, it is often associated with increased access and hence more openness.

## **Differences and similarities**

Open learning may include distance education, or it may depend on other flexible forms of learning, including admission to open-access face-to-face programmes. However, distance education programmes may not be open. That is certainly the case at the University of British Columbia (UBC). Students who wish to take distance courses and receive a UBC degree must meet UBC's admission requirements (which are set very high), and take the necessary course pre-requisites. For undergraduate education, at least half the programme must be done 'in residence', that is, by taking face-to-face classes on campus. Thus in practice students who live out of province or in foreign countries cannot obtain a UBC undergraduate degree wholly at a distance.

At the same time, the same distance courses at UBC may also be partly open to students in other institutions. Approximately 20 per cent of UBC's distance students – over 1,000 course enrolments – are registered with other



## 6 *Emerging trends: convergence and specialization*

institutions (mainly the Open Learning Agency). Students pay the course tuition fee (which more than covers the marginal cost of an extra student) to UBC, even if registered with another institution. Such students can take any UBC distance education course without meeting UBC admission standards (so long as sufficient instructors can be found). However, to obtain a degree, students taking these courses who do not meet UBC admission standards must transfer the credits from the UBC course into another institution's programme and receive qualifications from that institution (that institution also has to agree to this). Thus it is more accurate to say that UBC distance courses are partly open to non-UBC students, so long as they can find an institution willing to accept the UBC course credits.

If an institution is deliberately selective in its students, it has more flexibility with regard to choice of technology for distance education. It can for instance require all students who wish to take a distance education programme to have their own computer. It cannot do that if its mandate is to be open to all students.

Both openness and distance are rarely found in their 'purest' forms. No teaching system is completely open (minimum levels of literacy are required, for instance), and few students ever study in complete isolation. Thus there are degrees of openness and 'distance'.

Indeed, distance is more likely to be psychological or social, rather than geographical, in most cases. For instance, the vast majority of UBC undergraduate distance education students are not truly distant. The majority (83 per cent) live in the Greater Vancouver Region, and almost half within the City of Vancouver. Only 6 per cent of the undergraduate enrolments in 1999–2000 were from outside the province (because of the residential requirement). On the other hand, two thirds of UBC's distance students (67 per cent) were working. The main reason for most UBC students taking distance courses is the flexibility they provide, given the work and family commitments of students and the difficulty caused by timetable conflicts for face-to-face classes. Only 17 per cent gave reasons to do with distance or travel (Distance Education and Technology, 2001).

Although open learning and distance education can mean different things, the one thing they both have in common is an attempt to provide alternative means of high quality education or training for those who either cannot take conventional, campus-based programmes, or choose not to.

### **Three generations of distance education**

It has been argued (Kaufman, 1989; Nipper, 1989) that there are three generations of distance education. The *first generation* is characterized by the predominant use of a single technology, and lack of direct student interaction with the institution providing the teaching or awarding accreditation. Although educational television and radio would also fit this description, the main form of first generation distance education was print-based correspondence education.

Typically a private company would provide reading lists of books and articles to students who would study independently. The company would hire tutors or instructors mainly to mark assignments and possibly to give feedback to students, before the students took a competitive examination from a recognized or accredited institution.

*Second generation* distance education is characterized by a deliberately integrated multiple-media 'print + broadcasting' approach, with learning materials specifically designed for study at a distance, but with communication with students mediated by a third person (a tutor, rather than the originator of the teaching material). Second generation distance education is sometimes described as industrial in nature (see Peters, 1983). Second generation distance education institutions can serve very large numbers of students. Daniel (1996) describes those with over 100,000 students as mega-universities.

Quality design of materials, highly centralized production and delivery, one way transmission of information modified by independent learner activities aimed at student cognitive development, large bureaucratic systems, and very cost-effective results are typical characteristics of second generation distance education. They are considered industrial in nature because they use methods of mass production and delivery of standardized products. Autonomous distance teaching universities such as the British Open University, the Anadolu Open University in Turkey, and the Universidad Nacional de Educación a Distancia in Spain are examples of second generation distance education.

*Third generation* distance education is based on two-way communications media such as the Internet or video-conferencing that enable interaction between the teacher who originates the instruction and the remote student. Perhaps even more importantly, communication is facilitated *among* students, either individually or as groups, but at a distance. Third generation technologies result in a much more equal distribution of communication between student and teacher (and also among students).

Third generation systems are sometimes described as knowledge-based or post-industrial (see Campion and Renner, 1992, and Farnes, 1993). Small, relatively autonomous teams manage course design, development and delivery. Often but not exclusively more constructivist approaches to teaching and learning, dependent on student dialogue and discussion, and relatively flexible Web-based administrative services, are found in third generation distance education. Third generation distance education is characterized by economies of scope – customized courses, quickly produced, for relatively low initial investment (although operating costs can be substantial). Examples of third generation distance education are often found in conventional universities with a distance education operation (dual mode institutions), and in some of the smaller training organizations.

Kaufman (1989) characterizes the three generations as a progressive increase in learner control, opportunities for dialogue and emphasis on thinking skills rather than on mere comprehension. More significantly, third generation

distance learning is leading to new types of organization, discussed in more detail in Chapter 2.

### **Online learning and e-learning**

The main reason for the growth of third generation distance education is the rapid expansion of the Internet and in particular the World Wide Web. However, this is influencing not only distance but also conventional education. The World Wide Web is a particular component of the Internet, allowing digital materials to be created, stored, accessed and interacted with over the Internet. The Internet also includes e-mail, bulletin boards and digital video-conferencing, either separate from or combined with the World Wide Web. The terms e-learning and online learning are often used interchangeably, although e-learning can encompass any form of telecommunications and computer-based learning, while online learning means using specifically the Internet and the Web.

### **E-learning, distributed learning, mixed mode, blended and hybrid courses**

Distributed learning is a term that usually encompasses both on-campus and distance courses delivered online (from the computer term, 'distributed intelligence' (Twigg, 2001)). Mixed mode, hybrid and blended are all terms used to designate a combination of face-to-face and online teaching. However, I prefer to use the term 'mixed mode' in the specific context of a reduction in class time to accommodate more time spent studying online, whereas hybrid or blended could mean just adding online teaching to regular class time (or to print-based correspondence courses). However, there is no consistency yet in terminology.

At the same time as classroom teachers were moving to online components of their teaching, so too were many print-based distance education operations. Many institutions started adding e-mail, online Web articles and online discussion forums to their already existing print-based courses. Often these additional online activities are optional, so as not to reduce access to students without Internet facilities.

It can be seen then that defining an online course is not straightforward. Institutions often claim they are offering online courses when all they have done is merely added an online component to what is basically a face-to-face, print-based or broadcast-based course. However, even courses designed from scratch as 'online' courses will often contain printed readings, either in the form of required textbooks or as collections of printed articles distributed to students by mail. Some mainly online courses require attendance at a summer institute or weekend classes.

These are not just issues of terminology. Governments and institutions are increasingly requiring institutions to report on how many online or e-learning

courses have been produced or delivered, without any clear definition of what constitutes an online course. I don't believe that there is any particular virtue in being fully online. Choice of technology should be driven by the needs of the subject matter and of the students. However, there is a tendency by many institutions to over-inflate their claims to being an online learning institution, so we need to define our terms.

Therefore, for the sake of clarity I use the term '*fully online*' if the students must have access to a computer and the Internet to do the course, and can take the course without having to attend any face-to-face classes. In other words, fully online courses are distance courses. In this definition, students may also need to read printed books and articles, and may attend face-to-face classes on an optional basis. I use the term '*e-learning*' where courses may have anything from a relatively small Web-based component of a course or program to a fully online offering.

Bates and Poole (2003) have described these developments graphically in Figure 1.1.

Thus new developments require new terminology. However, the use of terminology by those who believe they are inventing something new is not always helpful. 'Virtual' has been used to describe so many different forms of online provision that it is now virtually meaningless. Distributed learning is useful only as long as it is not seen as being the same as distance education. Blended, hybrid and mixed mode are useful descriptors for campus-based e-learning, but again we need to be clear whether this is merely adding to regular classroom teaching or actually replacing or transforming it.

It can be seen then that distance education can operate with or without online learning. E-learning encompasses a wider range of activities than distance education. Distance education students tend to have quite different characteristics, such as being older, more independent learners and requiring specialist learning support. We shall see that there are significant pedagogical differences between distance education and classroom teaching or even mixed mode instruction. Thus even though there is convergence in the use of technology between classroom-based teaching and distance education, distance education remains a dynamic and distinct form of education.

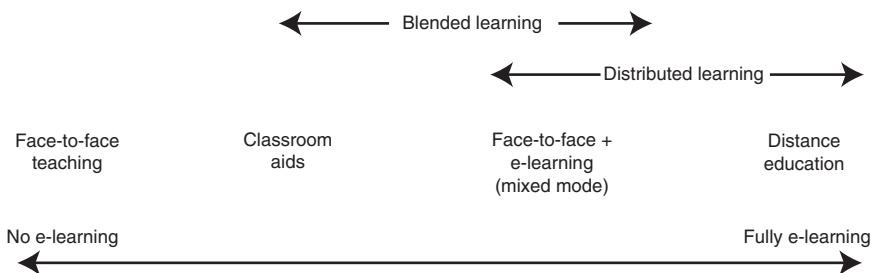


Figure 1.1 The continuum of technology-based learning (from Bates and Poole, 2003, p.127)

## WHY E-LEARNING, OPEN AND DISTANCE LEARNING?

There are several quite different reasons why governments, the private sector and individual students have given strong support to open and distance learning, and to e-learning:

### **Economic competitiveness**

Governments in economically advanced countries in particular have recognized the importance of knowledge-based economies. Unable to compete with low labour costs in developing countries, more advanced economies are trying to create highly productive (and high wage) knowledge-based industries, such as computing, telecommunications, financial systems, and education itself. Such industries depend on a highly educated work force, thus leveraging an advantage over less economically advanced countries.

Governments see two quite distinct roles for e-learning. They see e-learning as a new knowledge-based industry, able to lever the advantage of advanced educational systems to create educational products and services that can be marketed internationally. The second role is to use e-learning to improve the quality of education and to produce technology-savvy graduates, able to use new technologies in the new economy.

Business also sees a value in e-learning as a way of increasing competitiveness through ensuring that the work-force is continually learning and improving, without the high costs of travel and time away from work. In particular, e-learning is seen as an essential component of knowledge management, allowing companies to become 'learning organizations' (see Senge, 1990, and Rosenberg, 2001).

### **Lifelong learning**

Vocational training is undergoing radical change. For the last 50 years, there have been three main methods of vocational training: on-the-job 'apprenticeship' (essentially learning at work with a master craftsman); public sector classroom teaching (either as day release or evening classes); and company-organized, in-house training (seminars/ courses). These three methods are all primarily based on personal contact between teacher and taught, and are hence time and place dependent. They are all also costly to employers, if there are travel and accommodation costs or employees are away from regular work while training. Such methods are also inflexible, from a learner's perspective.

In the last few years, though, e-learning in particular has been applied on a large scale in vocational training. There are several reasons for this. First is the changing nature of work. Because of rapid developments in technology, the idea of being trained as a youth for the same job for life – as, for example, through the apprenticeship system – is becoming less and less tenable. Most

people are likely to change careers at least two or three times. Within a particular job, the need for continuing training is rapidly increasing.

Job mobility is increasing, especially across national frontiers. An employee of a large company in Europe can increasingly expect to move around Europe, or at least within his or her own country. This makes the provision of continuing education difficult through traditional means, if at one time you are in Frankfurt, a year later in Toulouse, and the next back in the United Kingdom.

Lastly, because training is costly, efforts are being made to find more cost-effective ways to train. Open learning centres, where employees can 'drop-in' for training during breaks, after work, or during slack periods at work, or e-learning, where employees can learn either at home, or at their desk or work-place, both suggest greater flexibility and lower costs. In particular, a wide range of companies and institutions has been created to provide e-learning for the workforce.

Open and distance learning provide the flexibility needed for adults to continue their education or training while still working or with family responsibilities. Some governments and employers have stressed the importance of lifelong learning and distance education for increased economic productivity. Companies in particular see the value of employees learning in their own time. Individuals see the value of having flexibility and access to learning, without sacrificing time away from home. In particular, in a volatile job market (especially in the knowledge-based industries), individuals feel the pressure to continue their education. Lastly, the rapid growth of knowledge in areas such as health, technology, and management require people working in these areas to continue to study and learn, just to keep up with the knowledge base of the job. E-learning and distance education are ideal methods of lifelong learning.

## **Social equity and access**

Many adults are unable to enter or complete higher education on leaving the school system for academic, personal or economic reasons. Open learning gives a second chance to such people by removing the barriers of access to higher education. The more selective, restricted or expensive the conventional education system, the greater the need for open educational provision. Distance education fits well the needs of those wanting open access but are working or who have family responsibilities.

## **Better education**

The arrival of the Web as an educational tool in the mid 1990s coincided with pressure from some influential educational theorists in North America to move away from an emphasis on the transmission of knowledge to the social construction of knowledge. Online discussion forums enable discussion,

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reflection and dialogue over time and in different places, all functions supporting the social construction of knowledge. The link between different theories of learning and the use of technology will be discussed in more detail throughout the book, but one argument often put forward by proponents of e-learning is that it facilitates better than traditional classroom teaching the kind of learning outcomes needed in a knowledge-based society.

### **Cost effectiveness**

In many countries, demand for places in the conventional education system far exceeds the supply. Under the right circumstances, open and distance learning systems have proved that they can provide quality education and training to large numbers at lower unit costs than conventional education systems. The jury is still out on the cost-effectiveness of e-learning. However, there is often a belief by key policy makers that in the long term, e-learning must be more cost-effective, because it will replace high labour costs with low-cost technology.

### **Geography**

In geographically remote or sparsely populated areas, it is not economically possible to provide a full range of educational and training opportunities through conventional institutions. Distance education enables learning and training to be delivered more effectively and economically in such communities.

### **Commercialization of education**

There has been a very strong movement in the United States to develop e-learning as a commercial activity. Wall Street analysts (particularly Michael Moe and Henry Blodgett of Merrill Lynch) projected a vast untapped new dot.com business in e-learning. As a result, not only private companies but also several major universities invested very heavily in online education businesses. We shall see in the next chapter that this was a grossly over-optimistic scenario, which came crashing down in the dot.com bust of 2000–1. Nevertheless, the pressure on public institutions to diversify their sources of funding, and the drive by some major American companies to offer private educational services, has resulted in e-learning still being considered a potential moneymaker.

### **Are these arguments true?**

The validity and evidence for such arguments will be assessed as we go through the book. In a sense though it does not matter whether they are true; it is what policy makers believe that drives action. In reality, it is not so much any

single argument as the combination and range of arguments that have led to the rapid and ongoing development of e-learning and distance education.

It should be noted though how varied and contradictory are some of these arguments. From a decision-making perspective, it is essential to be clear as to the main motives for using technology for teaching in education, and in particular to be clear whether it is e-learning, open access or distance education that is the most appropriate solution for the problem under question.

## THE GROWTH OF DISTANCE EDUCATION

In the last 30 years, 'second generation' open and distance learning has spread to many countries, and become an important part of most modern educational systems. Since 1996, 'third generation' distance education has spread rapidly in economically advanced countries, and even to niche markets in developing countries. Open learning and distance education projects now exist at school and career, technical and vocational, and college and university levels, as well as in the private sector, in the form of work-based training. There are now examples of thriving open and distance education initiatives operating across all subject areas, at all academic levels, and in every continent. The same is increasingly true for e-learning.

It might be thought that the demand for distance access would start to decline in countries such as the United States and Canada, where over half the high school graduates now go on to post-secondary education. Also, the Open University in Britain has felt the pressure as the proportion of the high school graduates going to conventional universities increased from around 10 per cent in the 1970s to 35 per cent by the year 2000. At the same time, conventional universities, especially the former polytechnics, have moved aggressively into online learning in the United Kingdom. Nevertheless, despite increasing competition from other universities, the British Open University's enrolments figures have remained remarkably stable at around 150,000 to 180,000 students a year.

We shall see in the next chapter that the commercial market for e-learning was badly overestimated at the end of the 1990s. Nevertheless, several institutions in different countries have been tracking their distance education enrolments over a number of years. Their data suggest that in the United States, Canada and some countries in Western Europe, demand for degree programmes, continuing professional education, and workplace training delivered by distance methods has been steadily increasing by an average of around 10 per cent per year since 1996. This compares with enrolment increases in traditional education of around 2 to 5 per cent per year. These trends have been quite consistent since the advent of Web-based online learning in 1996.

Most of the growth in distance education in these countries has been in online learning. Thus increasing access to conventional education is being



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more than offset by increased demand for flexibility and for lifelong learning, and especially for online learning. It seems that third generation distance education will continue to grow in these economically advanced countries, although it will be interesting to see how increased use of e-learning on the campus will affect fully online distance education enrolments in dual-mode institutions.

In countries such as Pakistan, Turkey, Venezuela, the Philippines or Indonesia, where only a small proportion of high school graduates can access public post-secondary education or even high schools, the demand for distance education will continue to increase, mainly through their large public national autonomous universities. Online learning though will still be mainly a marginal or niche market for some time to come.

In rapidly developing countries such as Malaysia, Mexico, India, Thailand, Singapore, South Korea, Taiwan, Brazil and the new European Union entrants from Eastern Europe, online and distance learning will grow even more quickly over the next ten years. This is because their prosperous middle classes are developing faster than their conventional education systems. It is in these countries particularly that we are likely to see new models of education emerging based on e-learning and distance education, with private and for-profit education playing a much larger role than in the most economically advanced countries. We will also see more failures and disappointments in these countries. It will also be interesting to see the impact of these e-learning developments on the enrolments in the large autonomous open universities in some of these countries.

## CONCLUSIONS

Distance education illustrates well the relationship between the use of technology and the need to reorganize to maximize its benefits. Distance education, when properly organized and structured, also illustrates the capacity to reach new target groups and to expand the range of educational provision through the use of technology. Distance education is also being revolutionized by the development of the Internet.

Open and distance learning – or at least the provision of education and training in more flexible ways than regular, full-time attendance at a single campus-based institution – are growing rapidly. Technology is an essential component of most (but not all) open learning initiatives. The quite parallel online developments in distance and classroom teaching, leading to convergence of at least some activities common to both classroom and distance teaching, therefore raise a number of questions.

Is distance education any longer a different or separate activity from classroom teaching? Is distance education an obsolete concept, now incorporated into distributed learning? This argument is often put forward by strong advocates of e-learning, who see e-learning as an educational paradigm shift, making