The world needs workers with more and better skills. Conventional apprenticeships and old methods of professional training are not providing enough skilled workers, so governments, companies and colleges are all using open and distance learning to fill these gaps.

This unique international review of experience looks at the policies needed in both the private and the public sector for effective vocational education and training at all levels – from basic skills to continuing professional education. It goes on to examine the new roles of information and communication technologies, establishing what we know about their performance, and identifying the choices to be made in applying technologies to vocational education and training.

The book will help senior institutional managers and policy makers to understand and appreciate:

- the role distance education can play in increasing skills levels in young people and the existing workforce;
- the potential advantages and disadvantages of using technology, and therefore make better-informed choices about technology use;
- how to integrate distance education with traditional educational models and approaches.

Louise Moran is director of an education consulting practice in Australia. Greville Rumble is an independent consultant in the UK.
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World review of distance education and open learning: Volume 5
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The world review of distance education and open learning is published on behalf of the Commonwealth of Learning.

The Commonwealth of Learning is an international organisation established by Commonwealth governments in 1988. Its purpose is to create and widen opportunities for learning, through Commonwealth co-operation in distance education and open learning. It works closely with governments, colleges and universities with the overall aim of strengthening the capacities of Commonwealth member countries in developing the human resources required for their economic and social development.
Vocational Education and Training Through Open and Distance Learning

World review of distance education and open learning: Volume 5

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RoutledgeFalmer
Taylor & Francis Group
LONDON AND NEW YORK

THE COMMONWEALTH OF LEARNING
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There are some two billion people engaged in the global workplace. Most are found in low-income countries. Large proportions of them are unskilled or under-skilled and earn less than a dollar a day as reward for their labour. Without intervention, the cycle of poverty, deprivation and destitution can only worsen as world economies move increasingly to and overwhelmingly into knowledge-driven and knowledge-based ones. Workplace education and retraining for newer and higher skills and livelihood may perhaps be the only way to break this poverty trap and vicious cycle. Not surprisingly, reducing poverty by up to 50 per cent from current levels by 2015 is one of the eight millennial development goals set by the United Nations.

Educating and training citizens for both preparatory and in-service purposes is a huge and expensive venture. This is further compounded when the training has to do with technical and vocational disciplines where often in the poorer nations the necessary assets to deliver the training is in short supply. Traditional systems of delivering training therefore may not meet the current or anticipated demand. Innovations in delivery systems must be a part and parcel of the solution, requiring further exploration. The use of distance and open learning methodologies is one such innovation.

Over the last three decades trainers and educators have come to appreciate the usefulness and value of using open and distance learning to provide especially continuous and ‘just-in-time training’ for workers in a range of fields from farming to electronics, health to engineering, animal husbandry to information technology. Often these ventures have been carried out by the enthusiasm of individuals, departments of larger institutions and in some rare occasions by clearly enunciated policy directives from governments. From the little evidence we have it is becoming clear that where there are clear and unambiguous policy directives governing the application of open and distance learning, sustainability and success have been remarkable; and where these were not there, failures have been high.

This volume is the fifth in the World Review of Distance Education and Open Learning series, and attempts to capture by scholars, the experience
gained by pioneers who have applied distance and open learning in skills development. It is meant for practitioners but more importantly also to policy makers and government officials who are concerned with the development of the human resource. The 13 chapters cover a wide range of topics written by experts in their field. To all of these contributors, the Commonwealth of Learning expresses its sincerest appreciation. We are also grateful to the editors of this volume, Dr Greville Rumble and Dr Louise Moran, as well as to the managing editor of the series, Dr H. Perraton.

Gajaraj Dhanarajan
President and Chief Executive Officer
The Commonwealth of Learning
The editors wish to acknowledge the assistance received from the Commonwealth of Learning and its Editorial Advisory Board in the development of the plan of this book. They also acknowledge with thanks the patience and understanding of the various authors during the editorial process. Finally, they are particularly indebted to Dr Hilary Perraton who, as Series Editor, helped them define the book, identified some possible authors, and undertook the final editing of the work prior to its submission to RoutledgeFalmer.
Vocational education and training (VET) occupies a central place in social and economic policy throughout the world. The last 25 years have seen a dramatic transformation in the world of work, changing not only the foundations of economies and social life but also the knowledge, skills and competencies that people require in almost every field of endeavour.

The driving forces are familiar: dramatic shifts from agrarian or industrial eras to a knowledge age, accompanied by equally dramatic changes in the nature and structure of work; the progressive globalisation of trade and communications; technological advances that encourage constant and rapid change in economic and social life; and demographic changes resulting from improvements in health and social conditions.

As the world moves ineluctably into a technology-dominated knowledge age the nature of work is changing profoundly. The skills of learning, the ability to process information, and the capacity to adapt rapidly to change, are fast becoming determining factors in personal, corporate and national survival and prosperity.

The constant state of turbulence in employment and the world of work, means that education systems cannot educate and train people in the expectation that their work activities will remain stable or that they will remain in the one job throughout their working life. The half-life of knowledge and skills is increasingly short in any job requiring skills – be they a farmer, shipbuilder, health worker, environmental engineer, plumber, manager or accountant. Lifelong learning has become an imperative strategy for meeting the challenges faced by contemporary societies. As the former British Secretary of State for Education and Employment put it:

For all of us the task is to get that message across: that learning is for life; that we can renew our skills; that (learning) gives us greater security in employment; but it also equips our nations to be able to take on the scourge of unemployment; to be able to equip ourselves for competitiveness.

(Blunkett 1998)
Training is by no means the only answer to a society’s imperatives for economic prosperity but VET has become a major plank in governments’ search for solutions. A recent World Bank study finds that governments often have unrealistically high expectations of their VET systems, which have led to substantial public sector involvement in VET but a disappointing record of achievement:

Governments have perceived an increased demand for training if the labor supply shows rapid growth, if employment grows quickly, or if unemployment increases significantly. They have called upon VET systems to help unemployed young people and older workers get jobs, to reduce the burden on higher education, to attract foreign investment, to ensure rapid growth of earnings and employment, to reduce the inequality of earnings between the rich and poor, and so on.

(Gill et al. 2000: 1)

Governments have responded by expanding the resources they put into vocational education and training, and reforming the ways in which it is planned, co-ordinated and implemented. Larger employers and corporations are responding by expanding their in-house training and workplace learning activities. Small and medium-sized businesses generally must rely on government-funded or commercial training opportunities. In many jurisdictions, commercial providers of training have increased their market share where publicly funded providers lack the capacity to respond quickly or precisely to rapidly changing demand.

Reform of VET systems or design of new ones has become a significant preoccupation of government and institutional policy makers alike. A primary challenge is to find ways to improve access to VET, particularly for those who are already in the workforce, are unemployed or seeking a first job, and/or are unable to participate in training opportunities because of financial, family or other constraints. A closely related challenge for policy makers and providers is to improve the quality of training to meet changing and rising demands for skilled and technical workers.

The search for effective methods of delivering training has intensified as the acquisition of knowledge, skills and competencies relevant to modernising and rapidly changing workplaces becomes a constant feature of labour-market and educational policies and business investment strategies. The philosophies, methods and technologies making up distance education are becoming central to government policy and institutional strategies for delivering training in the workplace as well as on campus or at home.

The purpose of this book is to report on how developing and industrialised countries are using distance-education methods and information technologies to provide vocational education and training for young people
and adults. It is a book about policy choices and their outcomes, a review of contemporary aspirations and experience from which readers may draw conclusions to guide their own policy making and practice.

The book examines the nexus between VET and distance education at several levels of policy and practice: from trans-national programmes to national policy, and on to institutional and programme models that use distance-education methods and technologies to support VET. In order to do this, we have commissioned chapters and case studies that report on the features unique to each case, but also illuminate trends, problems and solutions that will resonate with educators and policy makers elsewhere. The diversity of the examples reinforces the view that vocational education and training is interpreted in a multiplicity of ways.

One area we have deliberately eschewed is that of teacher education – a quintessentially vocational area of education. Instead we refer readers to Volume 3 in this series of World Reviews: *Teacher Education through Open and Distance Learning*, edited by Bernadette Robinson and Colin Latchem (RoutledgeFalmer 2002).

In this introductory chapter we are concerned with three questions:

- What is vocational education and training?
- Why is VET important, and to whom?
- How is VET organised, and where does distance education fit into the equation?

## DEFINING VOCATIONAL EDUCATION AND TRAINING

In this book we use the term ‘vocational education and training’, or VET, to describe the acquisition of knowledge, skills and competences for job performance. VET is, however, an imprecise and problematic term. There is no universally understood meaning of ‘VET’ such as there is of school education. Even a cursory examination of the literature shows significant variations around the world in how VET is defined, funded and delivered in national and institutional settings. Some analysis is warranted to set the context for the chapters and case studies that follow.

‘Vocational education and training’ is the preferred appellation of bodies such as the World Bank and the European Union but is only one of several terms in common use. In countries such as South Africa and the United Kingdom, the phrase ‘further education and training’ predominates. ‘Technical and further education’ or TAFE is an Australian variant, while ‘technical and vocational education and training’ is used in the Pacific. Elsewhere, terms such as ‘technical education’ and ‘training’, or other combinations of the above terms, are common.
It is hard to pin down an explicit description of the field. The complexity of VET is well outlined by Descy and Tessaring in their report on vocational education and training in Europe:

...(V)ocational education and training (VET) comprises all more or less organised or structured activities – whether or not they lead to a recognised qualification – which aim to provide people with knowledge, skills and competences that are necessary and sufficient in order to perform a job or set of jobs. Trainees in initial or continuing training thus undertake work preparation or adapt their skills to changing requirements. VET is independent of its venue, of the age or other characteristics of participants, and of their previous level of qualification. The content of VET could be job-specific, directed to a broader range of jobs or occupations, or a mixture of both; VET may also include general education elements.

(Dercy and Tessaring 2001: 3)

WHY IS VOCATIONAL EDUCATION AND TRAINING IMPORTANT?

A recurring theme in this book is that VET occupies an increasingly central place in social and economic policy world-wide. It matters to individuals, employers and governments of every political persuasion, in societies both rich and poor. This is not surprising. Education *per se* is widely seen as a necessary precondition for economic growth within the knowledge-driven economies of the late twentieth and early twenty-first centuries. Although Wolf has recently questioned the link between it and economic growth (Wolf 2002: 24), there is a clear connection between education and private benefit as measured by the rate of return. As she concludes, for individuals “‘Get educated, get richer” seems like sound advice’ (Wolf 2002: 21). Moreover, in some countries (notably the United States and the United Kingdom), wage differentials between the educated and the under-educated are widening. Rational teenagers and their parents know that without a qualification, an individual is increasingly unlikely to be considered for a job, whatever the qualifications *actually* (as opposed to *formally*) required to do it (Wolf 2002: 177).

Our first conclusion, then, is that education matters to individuals. As long as individuals (and their parents) understand that educational qualifications matter when it comes to securing any, let alone well-paid, employment, there will be a continuing demand for education. It is not, therefore, surprising that public rhetoric also stresses the value of education to individuals and society.
The next question is: What kind of education is most important? The first pre-requisite is the possession of basic academic skills. As Wolf comments, ‘Poor literacy and numeracy – especially the latter – have a devastating effect on people’s chances of well-paid and stable employment’ (Wolf 2002: 34). At the other end of the spectrum, there is a clear pay-back from the possession of higher-level qualifications, although at the top end of the qualifications scale, the wage-premium enjoyed by graduates varies depending upon the subject studied. In between is a vast array of qualifications more or less directly tied to vocational outcomes.

At the public-policy level there has been a significant shift in thinking over the last 30 years as policy makers and politicians have come to argue that the real purpose of education is to prepare people for the world of work, and to promote economic growth. In this context it is increasingly argued that spending on education needs to be properly targeted to develop the skills and knowledge that modern economies require.

The competency-based qualification movement – especially evident in the United Kingdom and Australia – has been a forceful response to the desire to link VET tightly to job performance. In Australia, notwithstanding some difficult teething problems, the competency-based system of training packages is now an integral part of a nationally consistent qualifications framework and quality-assurance system, and this is also true of the UK where it is increasingly employer led. However, Wolf believes that in the UK the National Vocational Qualifications system has largely failed because young people and their parents have recognised that highly specific, narrowly defined, competence-based qualifications are no qualification in a labour market that demands flexibility above all else (Wolf 2002: 85). The issue of certification and its value to the various stakeholders is taken up by several contributors to this book, including Rennie (Chapter 11) and Ryan (Chapter 10).

One conclusion that we take from this discussion is that the credibility and status of the qualifications offered through vocational education and training matter a great deal. They may well be more important than the means of delivery adopted. Those who consume education and training – vocational or otherwise – are careful not to waste their time and money on meaningless qualifications, and on qualifications that, however relevant to what they are doing now, may lose their relevance as they change jobs and careers within an increasingly flexible labour market.

It is curious, then, that VET nevertheless remains a relatively invisible poor relation in the eyes of many policy makers and educators. Moodie (2001) argues that vocational education is traditionally defined by reference to the occupational level of its graduates, and that this in turn is related to class. Thus, while in practice vocational education comprises both trade and technician qualifications and professional and post-professional
qualifications, it is typically equated with the former as a lower-status form of education.

Where this happens, the invisibility and lower status accorded to training can compound the challenges for governments of providing vocational education as, where, and when it is most needed. As Kennedy remarks about the British system:

Despite the formidable role played by further education, it is the least understood and celebrated part of the learning tapestry. Further education suffers because of prevailing British attitudes ... There remains a very carefully calibrated hierarchy of worthwhile achievement, which has clearly established routes and which privileges academic success well above any other accomplishment.

(Kennedy 1997: 1)

In the nineteenth century, technical education was viewed as ‘the training of the hand rather than an education of the mind’ (Moodie 2001: 3). This distinction threaded through a century of debate about the differences between a ‘liberal’ and a utilitarian or vocational education, and is still evident today in the separation of theory (higher status) from practice (lower status). It is evident that many universities have been able to take advantage of this hierarchy of achievement so that today they are multi-level institutions confidently providing both vocational and liberal education. However, there is also evidence among educators of a certain unease about incorporating lower (especially sub-degree) levels of training into a university curriculum. Some seek to resolve this by creating separate organisational structures (the university–college nexus), which inevitably develop their own cultures and values that may be hard to bridge (Schofield 1998). Others have preferred to elevate courses concerned primarily with skills and competences to degree level even though it may leave the university vulnerable to challenge in relation to standards. It says much for the courage of their leaders that some distance-teaching universities – for example, those in Bangladesh, India and Pakistan – have recognised that they should capitalise on their ability to deliver education across educational levels and across the education/training divide, without becoming too hung up on issues about what a ‘university’ is.

**HOW IS VOCATIONAL EDUCATION AND TRAINING ORGANISED?**

If conceptions of vocational education and training are varied, the ways in which it is structured and managed are equally diverse. Government has traditionally played a dominant role in planning, funding and managing
the provision of VET, but in practice it is financed by both the public and private sectors and provided by a great range of organisations. Most chapters in this book concern policies and programmes sponsored by the public purse – national governments and/or international agencies. This should not mask, however, the huge number and variety of employer-sponsored VET activities, and the provision of technical and vocational courses by private providers, as reported by Ryan in Chapter 10. Nor should it mask the increasing trends to collaboration among governments, educational providers, and industry and, in many countries, an increasing contribution by students themselves to the cost of their training (Butterfield 1999; Gill et al. 2000).

VET is not simply a form of education confined to one educational sector or a particular type of organisation. The eclectic range of models and frameworks reported in this book testifies to the complexity of approaches to vocational education and training, from Scotland’s University of the Highlands and Islands to corporate models in the United States, to agricultural training in Bangladesh, or job skills for marginalised youth in Mongolia.

The World Bank divides VET into three groups: VET in schools, pre-employment vocational training, and in-service training for workers (Gill and Fluitman 1998: 3). Although VET occupies a large share of secondary enrolments in many countries, this book focuses mostly on the latter two groups where distance education is proving to be an effective strategy for improving access to learning opportunities in the workplace or at home, as well as on campus.

At the opposite end of the educational spectrum from initial education in schools, VET increasingly encompasses continuing or lifelong education, both in formal educational settings and the workplace, as the half-life of job-related knowledge and skills continues relentlessly to diminish. Professional continuing education has long been a major feature of services for members of professional associations in fields as varied as medicine, accounting, librarianship and engineering. In recent years there has been a sharp increase in the number of associations requiring members to maintain and demonstrate currency in their field as a condition of continued membership or registration. Butterfield (1999) argues that this has contributed to a proliferation in the range of qualifications and a trend to programmes more tightly targeted to the needs of particular groups or organisations.

In between, VET is also a predominant aspect of university education, regardless of the level of the qualification. Nearly 30 years ago, the Kangan Committee in Australia pointed out that ‘the intensive vocational training of technologists – such as engineers, dentists, physicists and medicos – by universities, … destroys the myth, too long perpetuated, that a university education necessarily excludes vocational training as one of its aims’
This myth still pervades university education but even a cursory examination of almost any university’s curriculum reveals its emphasis on professional vocational preparation and training. Consequently, we have chosen in this book to interpret VET broadly, but realistically, and many of the examples are drawn from university programmes.

In some jurisdictions, vocational education is less of an organised system of educational provision and more of an eclectic mixture of public and private providers. In such cases, quality is hard to define and harder still to supervise, as Ryan demonstrates in her analysis (Chapter 10) of private-sector models in the United States and elsewhere.

Others have responded to demands for pre-employment and in-service education and training of the workforce by creating a discrete, publicly funded VET system. Until recently this has mostly been a feature of advanced economies where links between government, education and the requirements of economic sectors have been long established. Mature national VET systems are evident, for example, in Western Europe, Canada, Singapore, Australia and New Zealand. In South Africa, as Bester reports in Chapter 8, the public further education and training system, established in the days of apartheid, is undergoing massive reform. There are signs, however, that some governments (Botswana is just one example) are moving to create national systems of VET institutions as a means of exerting greater influence over economic and social policy. In China, a new (2003) Education Act will give effect to the government’s desire to achieve large increases in the post-secondary education participation rate and establish the start of a quality-assurance framework within which public and private VET providers will operate.

Globalisation has tended, thus far, to be seen particularly in terms of opening up economies to trade in commodities, and expansion in the speed and reach of communications. The current round of World Trade Organisation negotiations – the General Agreement on Trade in Services (GATS) – will have major implications for liberalisation of trade in educational services over the next decade. There are already signs that VET providers are moving rapidly into international waters and new delivery models are emerging based on quasi-distance delivery methods and partnerships between local and international providers (Moran, in press). Several contributors to this book write about the issues involved in such cross-border activities. We suspect that liberalisation of access will also influence governments to take stronger control over quality and accreditation – India, for example, has recently relaxed rules controlling access to Indian markets for foreign VET providers and, at the same time, is establishing a more stringent set of quality controls within which they must operate. The quality of the curriculum, assessment and accreditation is one set of issues; the delivery processes are another.
WHY DISTANCE LEARNING?

In distance education the teacher and student are separated (entirely or mostly) in time and/or space, and therefore have to use a variety of media to communicate with each other.

Distance education has been used for well over 150 years for vocational, professional and technical education. Initially, distance education was largely provided by commercial correspondence schools and colleges and focused in particular on the teaching of commercial, business-related, and language skills.

Towards the end of the nineteenth century, schools were also being established to provide an education to those who could not attend regular schools, or who were cramming for their university entrance. Colleges were also established to help those students who enrolled as University of London external students following the University’s removal in 1856 of the restriction that teaching had to be provided through one of its constituent colleges. While all of these were private ventures, they paved the way for later state-sponsored out-of-school initiatives at schools level.

In Australia the correspondence-school system in Victoria dates from 1914, with other states bringing in their own systems quickly thereafter. Similar programmes were then introduced in British Columbia, Canada (1919) (followed rapidly by the other provinces), and New Zealand (1922) (Rumble 1986: 40–62 passim).

In the United States universities began to set up extension departments using correspondence teaching methods to serve the needs of remote students. The pattern was copied elsewhere by universities that felt they had a mission to reach out to students beyond the campus, including Queen’s University in Ontario, Canada (1889), the University of Queensland (1913), and the correspondence directorates of various Moscow-based Russian universities and institutes between 1923 and 1929. This approach began to accelerate in the 1950s, 1960s and 1970s in the eastern-bloc countries, Australia, the United States, India, Latin America, Africa, and eventually the United Kingdom – so that by the 1990s it was becoming increasingly the norm for a university to have some kind of distance-teaching programme embedded within it (Rumble 1986: 40–62 passim). Moreover, as universities began to educate an increasingly wide range of professional and higher technical personnel, so many of these programmes had a vocational element.

Meanwhile the use of mass media began to influence thinking. The Schools of the Air were set up in 1951 in Australia to provide support to home learners. In the 1960s and 1970s a number of large-scale educational television projects were set up aimed at supporting remote classrooms. At the same time there was widespread use of educational radio in smaller projects. The ETV systems operated in the main at secondary level in third-
world countries (e.g. El Salvador, Ivory Coast, Brazil and Mexico); radiophonic schools were set up in Latin America where some survive long after most of the large-scale ETV systems have disappeared. Major factors in these developments were the challenges of de-colonisation coupled with the impact of modernisation theorists who argued that low-income countries were in an earlier stage of development than high-income countries but that their development would follow a similar pattern, and could be accelerated by transferring capital and technology from high- to low-income countries, and by investing in mass education systems (Rumble 1986: 40–62 passim). Some of the earliest radio systems were used in rural and community development projects aimed at adults, and involved a vocational element. Residual traces of that kind of thinking can be seen in the early conceptions of the Open College in the UK (Chapter 9).

Using the same technological framework, at the higher education level the remote classroom-based Central Broadcasting and Television University was set up in China and continues to serve many hundreds of thousands of students. A technologically similar approach is used by the National Technological University in the USA, although the scale, purpose and organisational structure of this project is very different.

The next development was the setting up of proper distance-teaching universities. The establishment in 1883 of a Correspondence University (which would have been the world’s first distance-teaching university) at Ithaca, New York State, foundered when the university collapsed, and another 45 years were to pass before the first wave of distance-teaching university foundations appeared in the Union of Soviet Socialist Republics with the setting up of the various regional and All-Union correspondence polytechnics between 1929 and 1932. In 1951, the University of South Africa, which had begun to teach by correspondence in 1946, was established as a distance-teaching university – that is, a university mandated to teach only or almost entirely at a distance. Neither of these developments had an immediate impact elsewhere – the former because they were embedded within the Stalinist system in the Soviet Union, the latter because it became tainted by the apartheid regime – so it was not until the foundation of the Open University in the United Kingdom (1969) that this model took off.

‘For some not-easily-defined reason, the Open University instantly became a world-wide topic of concern …’ (Houle 1974: 35) – in part because it was bringing together a range of technology (print, radio, television, home experiment kits, correspondence and study-centre based tuition) to teach, and in part because of the audacious scale of the project (25,000 students enrolled on the first four courses offered in 1971). Open universities were rapidly established elsewhere – in Spain, Germany, Venezuela, Costa Rica, Iran, Pakistan, India, Japan, Bangladesh, etc. The 11 largest of these institutions (each with over 100,000 students) came to be classed as mega-universities, and by the mid-1990s were enrolling over 2.8 million
students (Daniel 1996). From the very beginning a number of these universities were conceived as preparing students for a job (notably those operating in the Hispanic tradition), while the Indira Gandhi National Open University sought in the early 1990s to vocationalise its curriculum in response to Indian government policy. Others, including those in Pakistan and Bangladesh, adopted an additional rural and community development role – and almost all sought to train teachers.

In spite of their lower profile, it has been the proliferation of so-called ‘dual-mode’ systems rather than the distance-teaching universities that has been the norm. With this has come an increasing tendency to stress the benefits of ‘flexible’ and ‘blended’ learning approaches that draw on the whole range of media (print, video, audio, face-to-face, and computing), rather than to lay stress – as happened in the 1980s – on the differences between face-to-face and distance education (for an example of this thinking, see Keegan 1986: 6). One factor influencing this development has been the need for traditional classroom-based systems to embrace technology-based learning and independent-study approaches in order to enhance their productivity in the face of rising rolls and falling budgets (Rumble 1994a). Paradoxically, this has suggested that while distance education can be cheaper per student than face-to-face teaching (though it is not necessarily so), blended learning approaches can be even cheaper (Rumble 1992, 1994b).

The emergence of the personal computer and the internet as key elements in any educational programme has done much to underline this development. With the steady growth in adoption of electronic technologies in the 1990s, distinctions between on-campus face-to-face teaching and off-campus distance teaching have become increasingly blurred. The methods and technologies that distance educators have perfected over the last quarter century or more are being blended with traditional classroom strategies and technologies (Moran 1997, 2001; Moran and Myringer 1999).

The main drivers of blended learning approaches have been access and flexibility. There is abundant evidence that distance education can be an effective mechanism for increasing access to education and training for people whose work, family and social commitments limit their ability to attend classes, for people who cannot afford the time or financial costs of leaving work for extended periods to undertake study, and for people who do not meet traditional entry criteria. Secondly, distance-education methods and online technologies are increasingly being adopted within campus-based teaching as demand increases for more flexible approaches to the time, place and methods of delivery. Employers and corporations are coming to recognise that distance-education methods and online technologies offer flexible ways of providing in-house training or enabling employees to undertake study while limiting the time away from work.
Throughout all this the issue of quality has remained important – not just in itself, but in the way in which perceptions of quality have affected the view taken of distance education. There are those – Noble is perhaps the most vociferous of recent critics (Noble 1997, 1999) – who believe that distance education lacks quality. It is certainly true that some providers of distance education – both private and public – have been extremely poor, but against this there are those who see the application of technology as enhancing quality, not just by improving the delivery of information to the student (which was the real success of the 1970s and 1980s), but by providing better teacher–student and student–student communications through computer-mediated communications.

With the explosion in distance education programmes and enrolments through the 1980s and 1990s, and the recognition that the quality of distance education can be at least as good as that of face-to-face education, it became clear that distance education was going to play an important role in any future educational provision. It has also become clear that distance education methods and technologies are particularly well suited to the acquisition of job-related knowledge, skills and competences. With imaginative and appropriate use of technologies and teaching–learning strategies, the range of subjects and skills that can be taught is limited only by resources and infrastructure capability.

However, as the ensuing chapters and case studies amply demonstrate, distance education is by no means easy to design and deliver and is not necessarily cheaper than traditional forms of education, at least for the provider. Also there is evidence that on-line education is more expensive than traditional forms of distance education, both for the provider and for the consumer (Rumble 2001). In making choices about integrating distance education methods and technologies into VET systems and courses, policy makers and educators need constantly to juggle a fine balance between demand for knowledge and skills, appropriate responses and technologies for learning, and costs and infrastructure support. This book explores how these challenges are being met.

**STRUCTURE OF THE BOOK**

The chapters and case studies fall into three groups, each preceded by a brief outline.

The first group addresses trans-national uses of distance education to meet similar needs for vocational education and training in two or more countries. The second group reports on national models and frameworks through which governments, their agencies and public policy makers are meeting the challenges of providing vocational education and training for young and adult workers through distance education. The third group
moves below national systemic frameworks to consider organisational and educational models that have been implemented at institutional level to provide vocational education and training at a distance. Some chapters explore policy issues in only one context while in others, one author has acted as a narrator weaving together themes from several case studies.

In the final chapter we reflect on the rich array of experiences presented by our contributors, to draw some conclusions for policy makers and VET providers facing a world that has changed considerably in recent years. We examine the demand for learning in and for the workplace, and consider the arguments – and challenges – in using educational technologies and distance education to deliver VET. We conclude by identifying policies that lead to successful outcomes and directions to avoid.

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