

Choosing and Using Technologies in Education and Training

Resources in Good Practice and Planning

Further Reading

Alexander, Shirley

1996, '[Teaching and learning on the World Wide Web](#)', paper delivered at AusWeb95 conference.

<http://www.scu.edu.au/sponsored/ausweb/ausweb95/papers/education2/alexander/> Site accessed June 1997.

A thoughtful analysis of the way new applications of technology begin with a roar and fade with a whimper, with sound advice on establishing what teachers want their students to learn, and designing Web-based instruction and interaction accordingly.

Bates, A. W.

1997, 'The impact of technological change on open and distance learning', *Distance Education*, Vol. 18, No. 1, pp. 93-109.

Bates is a leading writer about technology-mediated education. Here he outlines the major structural and conceptual changes required in both dual mode and dedicated open learning institutions to achieve the most cost effective use of the new technologies.

Browell, Sue

1997, 'Open learning and multimedia - the legal issues', *Open Learning*, Vol. 12, No. 1, February, pp. 52-57.

Australia has a statutory licensing system which simplifies copyright clearance for most types of resource-based learning materials, but there are many complex issues of copyright and intellectual property in multimedia and online teaching which have not yet been solved. While its emphasis is the British legal situation, this article describes very well many of the issues managers and teachers in Australia should take into account in technology-mediated teaching.

Brown, Stephen (ed.)

1997, *Open and Distance Learning: Case Studies from Industry and Education*, London, Routledge.

A book aimed at educators and managers considering how to introduce forms of technology-based flexible learning into a conventional, face-to-face setting, or grappling with the problems of doing so. It comprises 14 case studies from industry, commerce and education in Britain and Australia which show that the main issues tend to be related to human and educational factors rather than technical ones or even cost.

The case studies cover topics such as: costing models and investment strategies; user expectations and reactions; role of the tutor/trainer; methods of integration of technologies and flexible learning; leadership and the role of champions in introducing flexible learning; dissemination of expertise; staff development and student learning support systems; cultural change and vested interests; scalability and rates of change; evaluation strategies and techniques; collaboration and competition; and models for priority setting, planning and resource allocation. They also cover a range of old and new technologies, including print-based materials and video, stand-alone computer-based learning, and a variety of electronic and Web-based approaches.

The final chapter, by Stephen Brown, is a useful synthesis of the lessons learned in the diverse settings of the case studies, especially in relation to technology, human factors, and institutional cultural change. He argues that there is no one best practice, but each proposed innovation must take into account issues such as whether to set up an internal design and development team or outsource the specialist services; centralised versus distributed models of development and support; growth and integration of the innovation into the mainstream; learning support; and costing models.

Chambers, Ellie

1994, 'Collaborative publishing in distance education: economics and pedagogy', in *Economics of Distance Education*, eds. G. Dhanarajan, P. K. Ip, K. S. Yuen, & C. Swales, Hong Kong: Open Learning Institute Press.

Co-publishing of learning resources by institutions and commercial publishers is becoming more common as a way of improving quality, achieving cost effectiveness, and opening up new markets. Chambers outlines how the British Open University is pursuing this, and the effects on internal planning and restructuring of materials.

Commonwealth of Learning

1997, 'Remote delivery of courses: guidelines for students and institutions', *Distance Education*, Vol. 18, No. 1, pp. 198-203.
<http://www.col.org/>

The Commonwealth of Learning (COL) is an international agency fostering cooperation among Commonwealth nations in course development and delivery through the use of distance education and flexible learning. These guidelines are succinct pointers for students making decisions about enrolling in courses (especially those offered internationally), and institutions collaborating in developing and offering such courses. The bottom line is the quality of the education and training provided, and ensuring successful student outcomes.

Cukier, Judith,

1997, 'Cost-benefit analysis of telelearning: developing a methodology framework', *Distance Education*, Vol. 18, no. 1, pp. 137-152.

A clear, easy to read, summary of the four main methodologies for cost-benefit analysis of technology-mediated education and training - values, mathematical models, comparative studies, and return on investment approaches - and an argument for an integrated methodology for evaluation of educational technologies.

Flexible Delivery Working Party

1993, *A Guide to Implementing Flexible Delivery*, Flexible Delivery Working Party, Brisbane.

A Guide for practitioners and managers on the issues which should be taken into account in implementing a flexible learning program. Each section includes a 'toolbox' (checklists, references, pro-formas, inventories and so on) to assist the user. Sections cover planning and management decisions and structures, staff development, determining the market and learners' needs, developing and delivery flexible courses, and administering flexible delivery. The Guide takes the learner as the key focus for each aspect of flexible delivery. It is one of six resources developed by the National Flexible Delivery Working Party and assists implementation of the National Training Reform Agenda.

Flexible Delivery Working Party

1993, *Appropriate Technologies for Flexible Delivery - a Decision Making Framework*, Flexible Delivery Working Party, Brisbane.

This package of book and computer discs provides a computer-assisted decision making framework to support managers and teachers in selecting appropriate technologies for the delivery of vocational education and training. The framework comprises a process which is not bound to any particular technology or learning outcomes, so that it may be used for emerging technologies and changing goals. The user is assisted to identify and act on choices, gains, risks and goals, and to review results. The package is one of six resources developed by the National Flexible Delivery Working Party and assists implementation of the National Training Reform Agenda.

Flexible Delivery Working Party

1993, *Cost Benefit for Flexible Delivery - Operating Manual*, Flexible Delivery Working Party, Brisbane.

A package of text and computer disks which is designed to assist providers of vocational education and training to implement approaches to teaching/learning which are flexible, cost-effective and responsive to the needs of clients. The user is guided through a process of identifying the context within which technology choice is made - including the institutional and learning objectives and constraints - and then using the computer program to match these with appropriate technologies. The package is one of six resources developed by the National Flexible Delivery Working Party and assists implementation of the National Training Reform Agenda.

Franklin, Nancy, Yoakam, Michael, Warren, Ron

1996, [Distance Learning: a Guide to System Planning and Implementation](#). Indiana University.

<http://www.indiana.edu/~scs/dlprimer.html> Site accessed July 1997.

A 'primer' for those planning and managing distance or flexible learning systems, which provides an introduction to flexible delivery, the technologies and keys to success. It covers needs assessment, technology selection, design and implementation of a distance learning system, management issues, training of teachers and support staff, and evaluation. The site provides information on how to order a hard copy of the 135 page guide.

Gilbert, Cheryl

1996, [Teaching and learning on the web at Queensland University of Technology](#), Paper presented at AusWeb96 Conference, Southern Cross University.

<http://elmo.scu.edu.au/sponsored/ausweb/ausweb96/educn/gilbert/paper.html> Site accessed July 1997.

A report on ways in which Web technologies are being used in teaching a variety of science and social science subjects at QUT, recognising that most teachers presently see the web as 'foreign technology' and are concerned about its effectiveness. Gilbert describes a QUT professional development initiative to help overcome this problem. QUT has set up a Webworkers group of staff from 27 different Faculty schools and service areas to share information and collaborate in designing, teaching and evaluating web-based learning.

Hesketh, Beryl, Gosper, Maree, Andrews, John & Sabaz, Mark

1996, *Computer-mediated Communication in University Teaching*, Evaluations & Investigations Program, Department of Employment, Education, Training & Youth Affairs, Canberra, AGPS.

Report of a project to estimate the extent to which computer-mediated communication is likely to penetrate traditional instruction in the next 3-5 years, and to identify barriers to introduction of new technologies in higher education. It shows that, despite public rhetoric, 'there is no groundswell of movement towards the use of technology; only patches of enthusiasm', and proposes ways of resolving this. It will be of particular interest to educational managers developing policy and allocating resources in relation to electronic technologies for teaching/learning.

Ivanoff, George & Clarke, Justine

1996, Sept. [The use of the World Wide Web for teaching - things to consider before putting materials online](#). Paper presented at Australian Communication Conference on Teaching Communication Skills in a Technological Era. Monash University.

<http://www.ola.edu.au/paper4.htm> Site accessed July 1997.

Practical advice to teachers on ways of putting materials online and teaching through the Web. IT covers access issues, skills of users, the importance of good design (and advice on that), maintenance of content and design standards, and intellectual property matters.

James, Richard, & Beattie, Kate

1995, *Expanding Option: Delivery Technologies and Postgraduate Coursework*, Evaluations & Investigations Program, Department of Employment, Education & Training, Canberra, AGPS.

This investigation of the practicalities of using various technologies and 'delivery' methods to create flexible and effective postgraduate learning environments is equally relevant to other areas of education and training. Practitioners will find particularly useful: Chapter 5 on delivery modes and practice - classroom interactions, computer-mediated communications and instructional techniques, audiovisual and print strategies, and other techniques. Managers will also find Chapter 8 on implementation and integration useful - covering administrative structures and support, cost comparisons, and copyright. Chapter 9 deals with changing teaching roles and staff development needs

Laurillard, Diana

1993, *Rethinking University Teaching: a Framework for the Effective Use of Educational Technology*, London, Routledge.

This book, written by a leading UK Open University academic, has greatly influenced approaches to staff development in Australian universities in recent years. Laurillard sets out a framework to help teachers think about the nature and processes of learning and how best to use and combine new and established media in their teaching. Part 1 explores students' learning, and what it is that they need from educational technology. Part 11 looks at individual teaching methods and media, including non-interactive media (lectures, print, audio), hypermedia (CD-Rom and the Web), and interactive media (simulations, modelling programs). Part 111 examines design methodology, designing learning activities, setting up the learning context, and maintaining quality.

Lewis, Justus H. & Romiszowski, Alexander

1996, November, '[Networking and the learning organisation: networking issues and scenarios for the 21st century](#)', *Journal of Instructional Science and Technology*, Vol. 1, No. 4.
<http://www.usq.edu.au/electpub/e-jist/vol1no4/lewis.htm> Site accessed June 1997.

The concept of the learning organisation which constantly updates the skills of its members and, in the process, is itself transformed, has become an important idea in management and planning theory in recent times. Lewis and Romiszowski apply this concept to distance and other educational institutions in Singapore, Europe and the Americas, which have taken up new technologies, especially those involving networking through computer-mediated communications (CMC). They argue that knowledge of the technology is insufficient in itself for the kinds of organisational transformation desired, while the use of CMC in a learning environment changes the dynamics of the teaching/learning process and thence the decision-making and management processes which underpin it.

Lundin, Roy

1993, *Overseas Experience in Non-traditional Modes of Delivery in Higher Education*

using State-of-the-Art Technologies, Occasional Paper Series, Department of Employment, Education & Training, Canberra, AGPS

A survey of best practice in North America, Europe and Asia, covering pressures leading to the projects being established, their effectiveness, the elements of 'best practice', major trends, and applicability to Australian education and training.

Mason, Robin & Kaye, Anthony (eds.)

1989. [Mindweave: Communication, Computers and Distance Education](#). Oxford, Pergamon Press.

<http://www-icdl.open.ac.uk/mindweave/mindweave.html>

A classic text, now out of print but available electronically for research/study purposes. The book comprises 20 chapters on a wide range of issues under the broad headings of themes and issues to do with computer-mediated communications (CMC) and distance education; computer conferencing and mass distance education; applications of CMC in education; and reflections on CMC as a medium for education.

Mitchell, John & Bluer, Robert

1997, [A Planning Model for Innovation: New Learning Technologies](#), report commissioned by Office of Training and Further Education, Department of Education, Victoria.

http://www.otfe.vic.gov.au/vet_vic/model/ Available in hard copy and online.

A study of whether, and under what circumstances, technologies such as computer-mediated communication, audiographics, computer conferencing and videoconferencing lead to improved learning outcomes in vocational education and training. It provides eight Australian case studies. It is a sober, realistic report which finds that learning outcomes have not been the strongest criterion for success in many Australian studies to date; that attitudes of teachers and students to new learning technologies is variable and sometimes idealised; that access remains a difficult issue; and that returns on investment must be evaluated not only in terms of cost savings but also in terms of access and learning outcomes. Mitchell and Bluer set out a planning model for optimal use of new learning technologies, based on performance indicators and staged implementation.

Moore, Michael G. & Kearsley, Greg

1996, *Distance Education: a Systems View*, California: Kearsley, Wadsworth Publishing Co.

For practitioners, the most useful chapters are those on technologies and media, course design and development, teaching and tutoring, and the distance education student. Managers will find the chapters on fundamentals of distance education, and administration, management and policy particularly useful overviews of the present environment and requirements. In addition, the book includes an extensive set of sources on published material, online networks, journals and databases.

Moran, Louise

Open and Distance Learning: Case Studies from Industry and Education, ed. Stephen Brown, London: Routledge.

A case study of a whole-of-institution approach to converging face-to-face and distance methods. The aim is a comprehensive transformation of teaching and learning, in which the use of appropriate technologies and learning resources plays a key role. The study outlines strategies for corporate planning, quality assurance and management of the processes involved.

National Board of Employment, Education and Training

1995 (Nov.), *Converging Technology, Work and Learning*, Report to NBEET from Employment and Skills Formation Council, Canberra, AGPS.

A report on identification of the skills and attributes required by the workforce as a result of the growth in converging technologies. It includes a good brief review of technology developments, plus sections on the need to develop a 'learning society' and the role of the various education and training sectors in relation to technology convergence. Section 7 on linking technology with teaching and learning indicates the areas of information literacy and professional development required by students and teachers alike.

Oliver, Ron

1995, *Networks Into the 21st Century: an Evaluation of the Western Australian Telecentre Network*. Report commissioned by the Western Australia Department of Training. Perth.

A comprehensive evaluation of a vibrant, highly successful organisation comprising (in 1995) 68 linked Telecentres providing enhanced access to education, training, communication and enterprise for rural communities in Western Australia. While the evaluation's purpose was to consider future organisational arrangements for the Network, the report also provides valuable data on how such access centres can/should be set up and run to support technology-mediated education and training in harmony with other entrepreneurial activities.

Oliver, Ron & Grant, Mike

1994, *Distance Education Technologies: a Review of Instructional Technologies for Distance Education and Open Learning*. Perth: InTech Research, Edith Cowan University.

A highly practical and very useable guide to the various instructional technologies that can be used to support distance teaching and flexible learning. Four groups of technology are outlined - telelearning (including various forms of television and teleconferencing); computer mediated communications; computer mediated instruction; and print and other 'hard copy' materials. Each section briefly describes the technology, its instructional applications and learning opportunities, its relative strengths and weaknesses as a delivery medium, the costs and equipment required to support its use, and information on groups and organisations able to provide services and assistance to providers of education and training.

Race, Phil

1993 (2nd ed.), *The Open Learning Handbook*, London: Kogan Page.

A down-to-earth handbook for teachers and specialist staff involved in resource-based learning delivered on campus, at home and at work. The approach and style exemplify Race's views about good practice in designing and presenting material and the book is very easy and practical to use. Regardless of the mode of delivery, practitioners will find helpful the chapters on designing for flexible learning, the preparation of 'study guides', learning outcomes, assessment, tutor-marked assignments, tone and style, tutoring and mentoring. Chapter 7 covers computer marked assignments (design, scoring, feedback, etc), while Chapter 10 deals with flexible learning in traditional classroom settings.

Ramsden, Paul

1992, *Learning to Teach in Higher Education*, London: Routledge.

This well researched, thoughtful book by a leading Australian academic addresses the problem of how best to evaluate and improve the standard of teaching in a climate of accountability and appraisal. Designed for practitioners, it links educational theory and the practical realities of teaching, arguing for a more professional approach to teaching.

Ramsden outlines the experience of learning and teaching from the student's point of view, sets out a set of principles for effective teaching. He then considers these principles in the light of four problems commonly encountered by teachers - organising course content, selecting teaching methods, assessing student learning, and evaluating the effectiveness of teaching. Case studies of good practice are used to link theory and practice, and the book concludes with examination of appraisal, performance indicators of teaching, accountability, and educational development and training.

Rowntree, Derek

1992, *Exploring Open and Distance Learning*, London: Kogan Page.

An easy to read 'how-to' book written for teachers, trainers and managers in education, industry and public sector organisations on improving practice and professional competence as teachers. In addition to good chapters on media choice and use, and the role of the 'learning package', Rowntree covers issues of openness, who learners are, fostering their autonomy and ways of providing support, costs and costing methods, evaluation, and management of change.

Rowntree, Derek

1993, *Preparing Materials for Open, Distance and Flexible Learning*, London, Kogan Page.

Rowntree guides the reader through all the key stages of planning and developing learning materials, no matter which medium they will be provided in. He includes sections on profiling your learners, agreeing on aims and objectives, deciding context and sequence, making materials user-friendly. A text to keep close to the elbow when developing curricula based on learning resources.

Rumble, Greville

1997, *The Costs and Economics of Open and Distance Learning*, London, Kogan Page.

Rumble uses examples from around the world to dissect the costs and economics of flexible delivery, and builds on his earlier work in this area. He is one of the leading writers on distance education systems and economics, and this book will be of particular use to policy makers and program managers.

Taylor, James, Kemp, James E., & Burgess, James V.

1993, *Mixed-Mode Approaches to Industry Training: Staff Attitudes & Cost Effectiveness*, Evaluations & Investigations Program, Department of Employment, Education & Training, Canberra, AGPS.

An analysis of the cost effectiveness of a variety of teaching methods and technologies in workplace-based industrial training provided by the University of Southern Queensland on contract to two organisations - the Queensland Fire Service, and Woodside Offshore Petroleum Pty. Ltd. It is one of the most comprehensive Australian cost effectiveness studies presently available.

Taylor, Peter G., Lopez, Lucy & Quadrelli, Carol

1996 (Dec.). [Flexibility, Technology and Academics' Practices: Tantalising Tales and Muddy Maps](http://www.anu.edu.au/uniserve/eip/muddy/muddy.html). Evaluations & Investigations Program, Department of Employment, Education, Training & Youth Affairs, Canberra, AGPS.

<http://www.anu.edu.au/uniserve/eip/muddy/muddy.html> Site accessed August 1997.

A project which investigated the relationships between diversification in modes of delivery, use of information and communications technologies, and academics' teaching practices, and the context in which those practices are employed. The investigation used three sites in Brisbane - education and law at the Queensland University of Technology, and humanities at Griffith University. The project found that flexible modes of delivery can be educationally defensible and professionally satisfying, and that the attitudes and beliefs of academics, managers and support staff about teaching and learning can represent formidable barriers to change. The report proposes ways of creating conditions conducive to change. It also provides seven case studies drawn from the three sites.

Tinkler, Don, Smith, Tony, Ellyard, Peter, & Cohen, David

1994, *Effectiveness and Potential of State-of-the-Art Technologies in the Delivery of Higher Education*, Occasional Paper Series, Department of Employment, Education and Training, Canberra, AGPS.

The technical 'state-of-the-art' has moved on since this report was published, but it continues to provide a valuable set of examples of good practice across a wide range of subjects and technology types, mainly from Australian universities. The report also canvasses at some depth the effectiveness and potential of computer-based technologies, and desirable frameworks for policy and budgetary initiatives.

Tkal, Lucy (Series editor)

1997, *Technology Survey Report* (3rd ed.), Open Training and Education Network, NSW

TAFE.

A deservedly popular and eminently useable introduction to the communications technologies available for flexible learning, the Report is a handy reference to keep at one's elbow. Technologies covered include the range of teleconferencing, computer mediated communications, computer managed learning, broadcasting, and online technologies. Each section describes the technology, its applications, equipment and service requirements, its advantages and disadvantages, and cost factors.

Watt, Enid

[The Learning Manager](#): a Tool for Effectively Integrating Information Technologies into the best Practices in Instructional Design and Delivery, Southern Alberta Institute of Technology, Calgary, Canada.

http://sunsite.unc.edu/horizon/mono/CD/Technological_Tools/Watt.html Site accessed August 1997.

Report on the way the Southern Alberta Institute of Technology has adopted the Windows application, The Learning Manager, as the engine to drive curriculum design, media resource management, learning delivery, assessment, tracking, and reporting in a campus-wide development project which will integrate current and future information technologies within a framework of sound curriculum design

Willis, Barry

[Distance Education at a Glance](#).

<http://www.uidaho.edu/evo/distgla.html>. Site accessed July 1997.

A set of 14 concise, well-presented guides on distance learning, covering an overview, teaching strategies, instructional development, evaluation, instructional television, instructional audio, computers in distance education, print in distance education, learning strategies, distance education research, interactive videoconferencing, the worldwide web, copyright, and a glossary of terms. The guides can be downloaded free.

Yetton, Philip et al

1996, *Managing the Introduction of Technology in the Delivery and Administration of Higher Education*, Evaluations & Investigations Program, Department of Employment, Education & Youth Affairs, Canberra, AGPS.

Report of a project conducted by a team coordinated by the Australian Graduate School of Management at the University of NSW. The project investigated how Australian universities are managing the introduction of technology to delivery and administer higher education, studying 12 universities in some detail, and another eight in follow-up studies. It examined five factors - strategy, developing new roles and skills in staff, management processes and evaluating IT investments, IT management structures, and managing change and IT integration, and outlines three emerging models of the university of the future.