
Reviews

edited by Philip Barker

***Web-Teaching – A Guide to Interactive Teaching for the World-Wide Web* by David W. Brooks, New York: Plenum, 1997. ISBN: 0-306-45552-8. Paperback, 214 pages. \$30.**

As a result of various paradigm shifts, the World Wide Web (the Web) is changing both what we teach and how we teach it. Consequently, from the point of view of distributing resources, we are now experiencing a significant change of emphasis – from instructor push towards student pull. *Web-Teaching* is a book about teaching, especially interactive teaching, using the Web as a communications medium. It deals with the kinds of hardware, software and networks commonly used on the Web to deliver and support instruction and learning. Overall, it has two basic thrusts: first, it gives descriptions of what is possible on the Web; second, it identifies instructional strategies that are likely to be effective.

The book is organized into fourteen chapters, a reference section, a glossary, a software list and a set of URLs that are cited in various parts of the text. Chapter 1 offers a basic introduction, both to the contents of the book and to Web technology. In Chapter 2 the author reviews relevant dimensions of learning theory and discusses potentially useful research on teaching and learning. Chapters 3 to 7 provide an overview of what is currently possible on the Web. These chapters are intended for those readers who are starting out without much knowledge about technology beyond word-processing and email. The topics covered include

multimedia, Web-ready materials, and using images, movies and other media.

Unfortunately, using the Web for teaching and learning does not automatically guard against the creation of purely passive learning resources. Therefore, those wishing to use this type of technology to best advantage need to become aware of strategies for introducing interactivity. Chapters 8 to 10 address some of the major issues involved in developing interactive learning. Chapter 8 focuses on strategies for supporting both student-student and student-teacher discussion and debate via the Web. Chapter 9 describes the use of HTML (HyperText Markup Language) forms for the support of automated interactive assessment, while Chapter 10 deals with mechanisms for the promotion of self-regulated learning (or student-managed learning).

In the following three chapters (11 to 13), the author focuses on various management topics related to the creation and maintenance of Web sites. As well as treating hardware and software issues, in these chapters he discusses the use of CD-ROM, intranets for electronic course delivery, access control and security, and protection of a Web site. The final chapter deals with ways to use Web software to create multimedia lectures for in-class use, and provides many useful suggestions for setting up multimedia rooms.

According to the author, the intended audience for the book includes teachers and trainers in

high school, college, graduate school, in-service education, professional development, adult education and industry. One would therefore expect it not to be over-technical, and indeed this is the case. But it contains a lot of useful information, and is easily readable. In fact, its only (minor) shortcoming from the point of view of Windows users is that all the discussion and examples relate to the Apple Macintosh. Despite this, I am sure that Windows users will find the techniques and principles of interest.

Philip Barker, University of Teesside

Designing Competence-Based Training by Shirley Fletcher, London: Kogan Page, second edition, 1997. ISBN: 0-7494-2196-7. Paperback, 86 pages. £15.99.

This book makes an excellent, provocative addition to Kogan Page's Practical Trainer Series. It is aimed at trainers who 'want to take a fresh approach and move away from traditional forms of training and development', and there is much to gain from it, for both the novice and the already-committed.

For trainers and training manager it identifies opportunities to focus programmes on training outcomes rather than the delivery of content. It also offers practical frameworks to develop programmes using a functional analysis approach rather than traditional task analyses. The functional approach concentrates on 'identifying the purpose of the organisation and its occupational roles together with the standards expected of individual job holders'. The results are that the responsibility for training is moved onto the individual trainee. Implications are that the training has to take into account learning styles, learning strategies and individualized learning programmes.

One of the strengths of outcome-based training and development is that it is possible to employ as much or as little as you want at any time to augment existing courses or change whole programmes. This book is a first-rate example of such a flexible approach, making individual processes simple enough to understand and apply but treating them with sufficiently thoroughness to facilitate the development of whole frameworks. It is essential reading for anyone who is planning to adopt competence-based training techniques in an organization. It is also excellent reading for those who wish to find out about such training, whether they require in-depth procedures for implementation

or an overview of the whole topic.

The book is carefully structured, guiding the reader through five chapters beginning with 'What is competence-based training?', continuing with chapters addressing standards and training design, and finishing with 'Assessment, evaluation and accreditation'. Each chapter is headed by what the book terms a 'summary', but which is really a list of expected outcomes for the chapter. A far better summary is provided by the 'review' at the end of every chapter. I can highly recommend the excellent Foreword and Preface.

Some of the early chapters pack an astonishing amount of information into just a few pages: several scans might be required to assimilate some of this material, particularly if you are unfamiliar with the jargon (there is a glossary at the end of the book). Chapters 1 and 2 provide solid background information, essential to the understanding of the rest of the book. Chapter 2 includes some interesting comparisons between US and European systems, and a brief discussion of credit and credit accumulation in the context of the qualification framework. Chapter 3 introduces some useful examples of real competence-based systems, and devotes much space to explaining how to carry out a functional analysis to arrive at your own competence standards. Such detail makes heavy going for newcomers; although a certain amount of explanation is necessary, more emphasis might perhaps have been placed on applying the existing, nationally recognized standards now available for many occupational areas. Some large organizations (for instance, BT) use these national standards but augment them with their own and therefore make extensive use of functional analyses. Chapter 3 is rounded off with two case studies featuring Whitbread (Cellar Service) and BT. These case studies are invaluable, and I was disappointed not to see others used elsewhere.

Throughout the text there are numerous bulleted lists of activities and topics for consideration but only in Chapters 2 and 4 are proper checklists supplied. The provision of such checklists should have been more consistent as there are very many useful activities buried in the text as bullet points. If you are embarking on the development of competency-based training systems, I would recommend the extraction of all these lists in their appropriate context. Chapter 4 contains some examples of the sorts

of paperwork that can be used to develop and support competence-based training systems. In particular, the 'training design' and 'training method' matrices looked useful, but I confess to being a bit confused about their exact implementation.

As with Chapter 4, Chapter 5 on assessment, evaluation and accreditation, could have usefully been enhanced with more examples of the resources which can be employed to enable these activities. Although the final impression might be one of burgeoning paperwork, the underpinning structure provided by the use of (for example) planning and evaluation forms is critical to competence-based training systems. The discussion of evaluation in Chapter 5 is so critical to the whole ethos of competence-based systems that I was surprised that the chapter was so short. Evaluation is also missing completely from the key Figure 1.1 in Chapter 1, 'Model for competence-based training design'. This is rather unfortunate since, without evaluation, there is no test of competence and therefore no complete justification of the system! As the author herself states, training is only effective if it produces results. Evaluation against the expected outcomes of the training is the only way to measure results. This demands a clear understanding of the expected outcomes (why are you doing the training, how is it going to be applied) and a workable method of evaluation. Once the standards are clear and recording mechanisms are in place, assessment and accreditation can be offered as an integrated option. The NVQ system in the UK can work well within this context, despite some bad PR.

There is much interest in competence-based systems, not necessarily under that name, particularly in the higher-education sector with the recent NCIHE report recommending the integration into academic curricula of key skills and planning and recording of achievement. From page 1 this book helps dispel some potent myths about competence-based training which may help propagate its use not just in a work environment but also in higher education at all levels.

Clive Betts, University of Exeter

Adult Learning: A Reader edited by Peter Sutherland, London: Kogan Page, 1996. ISBN: 0-7494-1971-7. Hardback, 208 pages. £35.00.

The stated aim of this collection, edited by Peter

Sutherland who is a specialist in adult learning and cognitive development, is to explore approaches to teaching and learning appropriate to traditional and mature students in higher education. The contributions are arranged into six sections.

Section I (on cognitive processes) has three chapters. Jack Mezirow reviews contemporary paradigms of learning and the current debate on the nature and meaning of learning. Gillian Boulton-Lewis explores human information processing and aspects of memory, cognitive development with age and the implication for adult learning. Barry Dart considers metacognition and the use of metacognitive strategies by adult learners in higher education, stressing the importance of reflecting upon, understanding and controlling learning in the context of complex cognitive activities and self-directedness.

Section II (on learning and education) has four chapters. Paul Hettich reviews four epistemological theories of intellectual growth in adults. Ronald R Schmeck examines student individuality and orientation to work, and its influence on learning tactics, pedagogic and andragogic approaches to teaching. Glyn Owens looks at behaviourist approaches to adult learning. Peter Sutherland (the editor) argues that the concepts of constructivism ('constructing a version of reality from [...] experience') and experiential learning ('constructivism in an adult context') can be blended into a fruitful union, particularly where the teacher adopts andragogic strategies with students, negotiating assignment topics based on their prior experiences so as to enhance and extend established constructs.

Section III (on adult learning in small-group situations) contains only two contributions. Ian Mowatt and Gerda Siann promote the benefits of learning in small groups, advocating the consideration of knowledge, ability and skills of the group participants, the purpose to which the desired learning is directed, and the extent to which the needs of the individual members are met by the group dynamics, and emphasis on the role of the group as an instructional tool not as a recreational activity in determining the quality of the learning outcomes achieved. Keith Topping considers the increased interest in peer-tutoring in post-16 education and its effectiveness as an alternative to traditional curriculum delivery, and therefore as a strategy

for 'doing more with less'. Peer-tutoring is valuable tool in the repertoire of adult educators, promoting learner-managed learning and learner empowerment. Topping stresses the need for caution before seizing peer-tutoring as a universal, undifferentiated and instant panacea to the ills of higher education.

Section IV (on the context of education) also has only two contributions. Hitendra Pillay identifies employer expectations and requisite skills for effective performance in the workplace, and in particular the need for employees to be cross-skilled, high on up-skilling and able to engage in high-order thinking, a 'cocktail of abilities [...] known as *multi-skilling*' which can be developed through training programmes and which 'explicitly illustrate the connection of scientific principles and mathematical knowledge to work practice'. Loraine Blaxter, Christina Hughes and Malcolm Tight present as 'analytical vignettes' the results of two projects, one looking at part-time degree students, the at adults in six medium-to-large organisations. Three broad conclusions are reached: (i) that while many adults reject education in their early youth, full-time education later assumes a more important, even central, role; (ii) that the links between education and other aspects of life (work, family, leisure) are many and varied, and change over time, and while these links are influenced by others (employers, partners), the real meaning comes from the individual; (iii) that the success of cultivating a learning culture must be judged by the extent to which individual perceptions are changed.

Section V (on the particular context of the mature student in higher education) has four chapters. Elizabeth Beaty and colleagues explore interviews with female Open University students against a hierarchy of six different views of learning which culminate in personal transformation to achieve increased competence and capability, confidence through the adoption of multiple perspectives and personal control to 'take hold of life and make it go your way' – Mezirow's emancipation (Section I). There follow three papers with varied approaches to the issue of age as the dominant variable in the mythology of perceived differences between mature and traditional students in higher education. John Richardson rebuts the prevalent stereotype of mature students as inherently problematic on three grounds: that there is no evidence of a deficit of study skills in mature students; that the deep approaches to learning of mature students are in fact compatible with the mission of higher education; that there is no

evidence to support the idea of age-related deficits in the intellectual capacity requisite for higher education. James Hartley and Mark Trueman reinforce the view that mature students are as variable a commodity as any other students with differing goals for participation and social situations, all of which impact on performance. Stephen Newstead and colleagues identify three motivational categories to study (stop-gap, means to an end, personal development) which dominate age in influencing differences between mature and traditional students.

Section VI (on implications for teaching) contains just one contribution by Peter Sutherland himself. Drawing the collection together, Sutherland uses the dichotomous model of teacher as pedagogue and andragogue to explore the previous contributions in terms of their potential to develop metacognitive skills and deep learning, and seeks to identify techniques which promote reflection – learning diaries, peer tutoring, etc.

The mission of higher education is to develop deep approaches to learning, and requires the development of metacognitive strategies which mature learners participating for personal development are often able to demonstrate more easily than their traditional-age counterparts. Higher education today is played out against rising staff-student ratios and a decreasing unit of resource which mitigate against a focus on the individual student. This book seeks to promote understanding and awareness of some of the potential strategies by which educators of adults can seek to facilitate the connection between theory and practice that promotes adult learning and multi-skilling.

It is a reader, not a primer, and will, in part, be really useful only for those who have already started to consider the benefits and issues of interacting with mature students and who, even then, need to be equipped with a fairly powerful dictionary. *Adult Learning* is, however, as its dust cover suggests, 'an internationally accessible collection', and will undoubtedly benefit all those who teach adults.

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Design for Multimedia Learning by Tom Boyle, London: Prentice-Hall, 1997. ISBN: 0-13-242215-8. Hardback, 240 pages. £29.95.

Design for Multimedia Learning covers all aspects of the area from trends in multimedia

learning theory to conceptual and presentation design, along with information about multimedia-resources project development and evaluation. The book comes somewhere between a 'how to' technical manual and an overview of current academic thought in the field. In the area of multimedia design, a broad cover of subjects is inevitable, and getting the balance right between depth and breadth cannot have been easy, but this book manages it. Its four main parts addresses the principal elements of the subject in an informed manner.

Part 1 charts the background to the 'multimedia learning revolution', explaining the reasons why multimedia learning is a growth area. Developments in student-centred learning are cited, along with software developments such as the web and affordable multimedia hardware, as reasons for this.

Part 2 looks at strategic approaches to educational multimedia. A critique of current constructivist learning theory is made, and a history of its roots in the procedural-based approach of CAI (computer-aided instruction). The author asks if this new approach is 'too woolly', and provides an interesting discussion about the current conceptual design of multimedia learning environments, citing the establishment of context in learning environments as crucial for learning advances. Illuminating points are made about using paradigms from film and linguistics for multimedia. In film, for example, 'communication spaces' are linked in the 'temporal domain', and similar links can be used in multimedia. The complexity of interactive media, and the importance of maintaining coherence through user-centred design, are recognized. The chapter dealing with 'design action potential' approaches the structuring of content, and is the real heart of the book. It contains pertinent observations on what is perhaps the hardest part of constructing a multimedia learning environment: the structure, especially for the novice designer. Different ways of thinking about structure in terms of hierarchy, networks and competency are explored in some depth, with helpful diagrams. However, some of the discussion is made less elegant by the unfortunate term 'design action potential'. Action potential has a specific meaning in biology; in this context it has a very different meaning of 'potential for action'. Elsewhere, the author describes this as the available 'design options', which is perhaps a more helpful phrase.

In Part 3, a holistic perspective on presentation design recognizes the close interrelation of and the structuring and conceptual design of learning environments. Comments about the principles of composition in terms of tone, colour and balance are made, along with the importance of creating a 'flow' of attention for the user. The description of multimedia toolsets, media capture, editing and authoring tools will date much more rapidly than other parts of the book. It is, for instance, misleading for a new developer to read that 8 Mb of RAM is specified for a development machine (the specification cited is that of 1995). However, there is useful background information about the nature and use of sound and digital video which should be universally applicable.

Part 4 focuses on the area in which many multimedia projects fail: their management and the evaluation cycle. It outlines the iterative prototyping and evaluation process, and uses the example of the Dynamic Systems Development Method as a flexible method of project development. This involves the analysis and specification of objectives, a vital but difficult part of the process. Strategic views of evaluation are covered, there are notes on how to go about developing questionnaires, and observation methods are described. Delivery scenarios are explored in terms of the total environment that the software will be used in, and the importance of good packaging, installation and documentation are summarized.

This book, covering every aspect that a designer should consider, will be useful for anyone new to developing multimedia learning, although, the focus unfortunately tends to waver in places: some things are skirted over, and sometimes aspects that would be better placed in a technical manual are gone into in detail. On occasion, too, the figures and screen shots used to illustrate points are fairly dry, and sometimes even misleading. For example, in the chapter on presentation design, the importance of composition on the screen is discussed, along with important notions of directing and maintaining attention for the student. The importance of balance and the use of a screen grid to create consistency is addressed and a figure showing blocked out areas for two identical work areas on either side is used. Splitting the picture in half is visually difficult unless elements are balanced with stronger elements on one side or another. The author does mention balancing the screen using

pictures, but the example simplifies the notion of composition too much and could confuse the novice reader. The subsequent example from the DOVE program is better, with its use of real images. However, how the different elements interact through colour, movement, tone and proportion is not properly explained. Again, in the section on use of animation, the text accurately describes the importance of using animation in context to enhance the learning objectives, but the example given is poorly drawn and badly laid out. In fact, with the exception of the Liverpool John Moores Cytofocus program and some other examples, the illustrations in the book do not fully sample the now growing number of high-quality materials available in the education and commercial arena. Surely a book about good design should be an exemplar, and use only the best examples to inspire and illuminate this subject for multimedia designers old and new? But perhaps this is a harsh criticism of what is, on the whole, a very useful book, and one which will be a welcome addition to a learning technologist's bookshelf.

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Researching into Learning Resources in Colleges and Universities by Chris Higgins, Judy Reading and Paul Taylor, London: Kogan Page, 1996. ISBN: 0-7494-1771-4, Paperback, 156 pages. £14.99.

This book is part of The Practical Research Series edited by Kate Ashcroft, aimed at teachers in further and higher education who are starting research into various aspects of teaching and learning. It is designed to support both 'reflective practitioners', taking a critical look at their own professional work, and those evaluating and researching education more generally. The books in this series, according to the editor's introduction, combine practical advice in research methods and design along with suggestions for likely research topics. This means that this relatively slim volume combines some aspects of a research methods manual with an introduction to some of the educational literature pertinent to the use of learning resources.

The book starts with a lengthy introduction by the series editor in which she outlines the philosophy of the series. This is based on the idea of 'insider research' – researching the activities and institution in which one works (or is otherwise involved). While this brings many

advantages, such as good background knowledge and easy access, it also demands a certain distancing, an open-mindedness, and commitment and responsibility from the researcher. Often such research involves just one researcher, part-time, and the book essentially addresses the needs of such people. As Ashcroft points out, this commonly means the research is small-scale, and even 'quick and dirty', and it is important not to claim spurious objectivity for results. On the other hand, it can be treated as action research, in which results are fed back rapidly into (one's own) practice, and the research activity adjusted to accommodate the changes.

The following six chapters are the meat of the book. They cover the resource environment, the institutional context, the link between teaching and resources, the student as stakeholder, and evaluation of the resource environment. As can be seen from this list, the contents are examined in a framework derived from the subjects being researched, rather than – as is typical in research methods books – around specific methods and strategies. Throughout these chapters, there is copious use of boxes and sidebars which contain many practical suggestions for research and evaluation activities.

In Chapter 2, after introducing the concepts of resource-based, open, distance and flexible learning, the authors discuss a range of resources based on new communication and information technologies (C&IT), along with more traditional forms. The former includes the Internet, multimedia and conferencing; the latter, reading lists, laboratories, audio-visual materials and libraries. These are dealt with only in outline, but as in other chapters, there is good reference to further reading.

Chapter 3 examines the wider, institutional framework within which resources are delivered. In quick succession, the authors consider structure and culture in institutions and their responses to recent changes. They present three methods of analysis based on systems analysis, open systems and SWOT, and then discuss support staff, staff training and collaboration between institutions.

In contrast with the preceding chapter, Chapter 4, on resources and teaching issues, takes a more theoretical tack. It begins with a typology of CAL approaches which are explained by the following sections on various theories of learning, such as behaviourism, cognition and

learning styles. In consequence, the suggested research tasks are much better grounded and address real conceptual issues.

Chapter 5 turns attention to the student's view of things and, especially, to their needs and the availability of resources. Groups that receive particular attention are part-time students, distance learners and disabled students. This chapter contains the only (brief) reference to cost-effectiveness. This is a pity, given the emphasis now placed on the issue by many institutions and funding bodies, not least the Teaching and Learning Technology Programme phase III.

The last substantive chapter examines the more general resource environment. Rather oddly, this starts with a discussion of approaches to learning (deep, surface, etc.) which would seem to belong with the discussion of theories of learning in Chapter 4. There then follows a useful discussion of teaching strategies including reference to Laurillard's conversational approach.

The book ends with another substantial chapter by the series editor. This covers the issues of writing and submitting research for publication. The chapter contains a very useful listing of educational publishers, educational journals (including, of course, *ALT-J*) and other education-related journals.

Does the book succeed in its attempt to review of research approaches and to consider the substantive issues resource-based learning raises? In the end, my feeling is that it does a better job of the latter than the former. Although the authors make plenty of reference in the annotated reading lists, and in many of the boxes of research tasks, to further reading in research methods, I think that too often they give the impression that research is mere observation or data collection. There is little reference to careful analysis or to issues of reliability, validity, generalizability, and so on. This is in marked contrast with the last chapter which gives the impression that reflective practitioners, who seem to be the readers addressed by most of the book, should be getting their research published in academic journals. These journals are likely to demand more than the mere stories which many of the research task boxes refer to.

Perhaps, though, it is the last chapter that is out of line. Most of the book, in my view, forms an

excellent introduction to any teacher or lecturer reflecting on their practice for the first time, especially if they have no background in educational or learning theory. In fact, if the proposal of the Dearing Report for teacher training in higher education is acted upon, the book could be very timely in meeting the needs of teachers who might have to produce reflective portfolios for assessment.

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Facing up to Radical Changes in Universities and Colleges by Steve Armstrong, Gail Thompson and Sally Brown, London: Kogan Page, 1997. ISBN: 0-7494-2129-0, Paperback, 186 pages. £18.99.

The past 10 to 15 years have seen significant changes in higher education, and there have been many factors which have had (and continue to have) an impact on teaching and learning. Factors such as the level of national investment in education in real terms, huge growth in student numbers, the change in the type of student entering higher education, material being taught, unitization programmes, and the technology available for teaching, have all had an effect on the nature of teaching and learning. In fact, the change in the nature of higher education has meant that a veritable revolution has been taking place. The book is published as part of the Staff and Educational Development Association's (SEDA) development series, and it grasps the radical nature of the changes in higher education and tackles clearly and concisely issues very close to the heart of anyone working within it. There are problems and issues examined and discussed which will ring true with practitioners in higher education all over the country. One of the main benefits of texts like this one is the realization for the reader that he or she is not alone. That in itself is reassuring, and gives the book great value.

The book, organized into four main sections, has 18 chapters, each written by a different author, and the range of authors gives the book a valuable breadth of experiences and opinions. Taken as a whole, it provides an interesting spectrum of perspectives, all moving towards the central theme, namely that since there is a huge and significant change taking place in higher education, practitioners have much work to do in order to manage it. The book is clearly written, and the notes and reference sections at the end of each chapter are very useful as indicators for further study.

After a very perceptive introduction from Gail Thompson, who discussed the current situation in higher education in the UK, the first section (Chapters 2 to 5) deals with the use of technology to support teaching and learning. It examines many of the concepts and issues raised in the use of information technology as a means of dealing with the changes in higher education. The blend of chapters very nicely links practical examples with educational theory. The theme is positive throughout, and perhaps examination from another point of view (the dangers of information technology) would have given the section even more balance.

The second section (Chapters 6 to 10) deal with the strategies and policies in use in higher education. Again, there is an interesting mix of practical example and theoretical discussion, and Chapter 10 introduces an interesting perspective: that of education managers.

The third section (Chapters 11 to 14) concentrates on dealing with the changes in the student population. This is a fascinating topic of discussion, where a tremendous amount of work will need to be carried out in the next few years if higher education is to prosper. The contributors to this section offer an insight into many of the current student issues. The concept of an educator moving from an expert to a facilitator, tackled in Chapter 14 is particularly interesting.

In Chapters 15 to 17 (most of the final section) there is a discussion of some of the measures available to lecturers in coping with the changes in education. These are valuable insights based on experience. The concept that the radical changes in education will have to be met by radical changes in approach to teaching and learning is a message which should become very clear in the next few years. Chapter 18, by Sally Brown, nicely pulls the whole book together in an interesting and informative manner.

Overall, this book is an excellent addition to the growing library in the Staff and Educational Development series. It is readable, and tackles many of the issues and concerns shared by practitioners in UK higher education. The contributors have used their experience to discuss and analyse the current position of higher education, and to develop that understanding into a means of coping positively with a future fraught with hurdles and difficulties. It is a text everyone working in higher education should read if only to realize that the problems they are facing are faced by others, and that

people are putting forward ideas which will allow us to cope with radical change.

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Technology-Based Training – A Comprehensive Guide to Choosing, Managing, Implementing and Developing New Technologies in Training by Serge Ravet and Maureen Layte, London: Kogan Page, 1997. ISBN: 0-7494-1975-X. Hardback, 306 pages. £35.00.

'Technology' and 'Training' are words which are used in many and varied contexts. Therefore, the task of writing a single text to synthesize current information about the uses of technology in training is enormous, and brings to this book both its principal strength and its principal weakness. As a broad introduction to technology-based training (TBT), the coverage tackled by the authors is commendable, and there are plenty of pointers to examples and further information. There need to be. Anyone seeking depth of knowledge may feel disappointed and frustrated with the lack of detail.

The book has four sections, each divided into manageable chunks, with good use of tabulated summaries and illustrated with case studies or examples easily identified by their boxed presentation. But exactly what the authors intend or mean by training is not specified; the emphasis seems to be on training within a work context, but many examples and case studies are drawn from formal educational settings.

The first section looks at the context of technology and the impact it has on everyday life, and at its advantages as a training medium, the list presented being familiar and unadventurous. The term 'competence' is introduced to mean the competence of the computer to execute certain tasks.

Section 2 discusses the merits of using multimedia as a training medium. The Internet is described, and Chapter 5 includes a full-page introduction to hypertext aimed at novices, but by Chapter 7 the reader is expected to understand object-orientated programming, Java and virtual reality, each of which are discussed with little or no explanation beyond the terms themselves. Chapter 8, however, is most welcome, addressing issues so often omitted from texts in this area: using technology to empower and facilitate access to learning for individuals with disability.

The remaining two sections look at the issues surrounding the design and development of computer-based training packages. Important design factors are identified, and the skills needed among all members of a design team are clearly presented. Legal considerations, such as copyright and data protection, are mentioned in different chapters of this section, but once again detail is somewhat scarce. Chapter 14 describes a typical multimedia workstation, starting with definitions of the role of the CPU, ROM and RAM, moving on through modems (apparently the only means of getting access to the Internet) to a basic list of common input devices. The following chapter deals with network issues, mentioning bandwidth, computer conferencing and different network structures. Authoring tools are compared in general terms, and a checklist of useful features presented for consideration. In Section 4, on design principles and methods, five layers of TBT are defined and described: model, process, knowledge, resources and guide, which all interact with a user-interface. Each element is discussed in turn, with general issues, particularly simulations, being tackled at the end.

The book finishes with a series of short information sections: useful addresses (all but one in the UK), more than eight pages of useful URLs, grouped into sections (any list of this nature is always likely to be incomplete and out of date, but it seems peculiar that TLTP and CTI merit no more than a passing mention, and that there is only a single contribution under the heading of computer-assisted assessment); authoring and development tools (listing the principal features of each); a glossary of terms; a bibliography; and suggestions for further reading.

The case studies and examples presented throughout the book are generally useful additions, but I was frustrated by the attempt to cover both sides of the Atlantic. I found myself wondering whether the book is aimed at a US or a European market.

However, the book provides a useful introduction to the use of computers as a training medium (even if I remain to be convinced that TBT in education and commerce can really be tackled as a single issue). It is written in a clear, flowing and relaxed style, and is nicely laid out. It is likely to prove most appropriate to those with an early and general interest in the uses of technology for training, rather than those who already have a

professional involvement. The claim on the cover that it is 'a comprehensive guide to choosing, implementing, managing and developing new technologies in training' may be justified, but perhaps it would have more appropriate to present such a guide in four separate, detailed volumes, where the many serious and interesting issues could have been addressed in a more challenging – and more memorable – form.

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Implementing Computer-Supported Co-operative Learning by David McConnell, London: Kogan Page, 1994. ISBN: 0-7494-1237-2. Hardback, 220 pages. £34.00.

This book discusses the use of computers to create collaborative environments that support the process of learning – a very topical subject since, certainly within both further and higher education, there is a great deal of interest in how to support students who are learning independently or at a distance. The role that technology can play in independent learning is the subject of much debate, both in terms of the underpinning infrastructure needed and the pedagogy and educational approaches which it could enable. I was keen to see what this book, by someone with extensive experience in this area, could add to my understanding of the subject. I was somewhat disappointed, but this statement requires some qualification.

The book is nicely structured, and each chapter carefully introduces the topic to be developed in the context of what has gone before. The reader is never in any doubt where the specific chapter is going or how it relates to the rest of the book. I found this particularly helpful since the book itself is broad ranging and, at times, I wanted to be more selective about the topic I was following.

Chapter 1 introduces the concept of co-operative learning, not from a technology perspective, but focused on the learning process, the way in which individuals can work as a group, and the possible beneficial outcomes of making learning a group activity. There is a smattering of educationalist jargon, but not enough to make the thrust of the argument inaccessible to a lay reader.

The stage having been set, Chapter 2 goes on to discuss the technologies which can support co-operative learning, particularly group working.

McConnell discusses the possible classification of computer-supported co-operative learning (CSCL) into a number of different categories based on the form of the interaction, the geographical location of the users and the degree of structure imposed by the system. A point which McConnell makes, and with which I totally agree, is that the real costs of implementing CSCL lie in the development of the pedagogy and the development of materials rather than in the computers themselves. The weakness of this chapter, and also the later sections of other chapters that illustrate the use of the technology, is that the book was published in 1994 and the technologies referred to are already very out of date.

Chapter 3 looks at the way in which people work together in online environments, either as peer groups or in a tutor-student relationship. The chapter is based on the author's own experiences, and gives a useful insight into the dynamics of working in this way. Particularly interesting is the analytical comparison of the strengths and weaknesses of face-to-face and virtual student groups.

Having covered these important issues the author goes on, in Chapter 4, to discuss the different ways in which courses need to be designed in order to maximize their success when delivered using CSCL. This chapter draws heavily on research into the differences between traditional (didactic) and co-operative learning and, rightly, concentrates on examining the learning process in a generic way rather than using technology as the driving force for redesigning courses. The problem with this approach, however, is that McConnell is then in competition with other, more established, authorities who publish books on the learning process.

Chapter 5 allows the author to describe the use of CSCL within an open-learning MA in Management Learning. This case-study

approach allows us an insight into the attitudes and responses of the students engaged in the course, and is a clear and informative example of theory into practice. It also looks at the role of the online tutors and their experiences of teaching in this new medium. The limitation, again, is that the case study is based on out-of-date technology, although much of the discussion still has relevance.

For the same reason Chapter 6 is largely redundant, dealing as it does with 'recent' developments in the technologies for CSCL. The final chapter looks at ways of researching group-work in CSCL environments. The author, quite rightly, considers that there are a number of important questions about CSCL which need to be answered, and proposes a structure in which this could be accomplished. Granted, much of this has been attempted since the book was published, but it is interesting to look down the list of questions and note how many still do not have definitive answers.

So, I found this book interesting, but disappointing. The discussions concerning the way in which courses need to be designed for CSCL, and the underlying pedagogy of such an approach to open, independent learning are useful, but can largely be found in any of the recent books dealing with open and flexible learning. The discussions about the technology itself are now out of date and potentially misleading to the uninformed. The title of the book implies a practical guide to the use of CSCL although in reality it is a useful review of the issues surrounding its use. Of course, it is not fair to the author to be too critical of a book which published three years ago and which draws on work that he had previously published elsewhere the year before that. However, taken overall, I could not really recommend this text as a good starting point for someone interested in developing courses which use CSCL.

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