Reviews

edited by Philip Barker

Brian Clegg, *Mining The Internet – Information Gathering and Research on the Net*, Kogan Page: London, 1999. ISBN: 0-7494-3025-7. Paperback, 147 pages, £9.99.

Nowadays, in this current era of the Web, searching the Internet is probably as important (if not more so) as using conventional libraries and the facilities that they contain in order to locate sources of sought-after information. Indeed, the Internet (as an information resource) is now so important that virtually all students (both in schools and colleges) are given some exposure to it at some stage during their education. Because of its importance, there is a 'veritable multitude' of books on searching the Internet. For me, this book is a particularly attractive one because of its low cost, its scope and coverage and, most importantly, the style in which it is written.

The author has organized the eleven chapters contained in this book into two basic types: skills and focus. The seven 'skills chapters' (namely, 1 to 6 and 11) are intended to provide helpful information on how to find things on the Internet. The four 'focus chapters' (7 to 10) are then used to offer help with specific information topics such as quick reference, locating people, expertise, archives, and so on. Throughout the book the author employs four different types of display box (these are labelled Zoom In, Try It, Sample Sites and Miner's Tales) in order to provide useful additional, sometimes anecdotal, material to accompany (and amplify) that contained in the main textual narrative. At the end of the book there is a useful appendix entitled 'Getting onto the Internet'. This discusses connection techniques (modems, ISDN, and so on) and the type of software that is needed in order to use the Internet.

Because of their introductory nature, the first three chapters of the book are aimed at newcomers to the Internet and the Web. These chapters describe what the Internet is (and is not), how and when to use it (using a Web browser, ftp and Telnet) and some of its important attractions and limitations. The real substance of the book commences in Chapter 4 (entitled 'Search Engines and Indexes'). This chapter discusses the basic ideas underlying Web-based information retrieval using both portals and specific search tools. As well as outlining techniques for improving the quality of a search, the author describes many of the pitfalls to be wary of. Chapter 5 ('Agents and Ferrets') discusses meta-searching and various tools to support this activity (such as *DogPile*, *MetaCrawler* and *Ask Jeeves*) while Chapter 6 ('Information from People') homes in to the use of electronic mail, newsgroups, conferences and online chatting for gleaning information from other people. The final 'skills chapter' (Chapter 11 – 'Getting Launched') acts as a sort of 'super recap' which pulls together the various key aspects of the material that was presented in previous parts of the book.

The 'focus chapters' commence at Chapter 7. The first of these – 'Quick Reference and News' – describes the Web as the world's 'largest

encyclopaedia' and then goes on to discuss how to obtain reference information from various sources such as electronic books, virtual newspapers, e-magazines ('e-mags') and broadcasters' sites (containing TV and radio listings). For some reason, even though e-mags are described, the use of electronic journals is not considered – either in this section of the book or in the later part that deals with education. In the following chapter the author focuses his attention on finding people (by looking for contact details such as email addresses), locating places (by using online maps) and obtaining details of organizations (primarily, businesses and educational establishments). The focus of Chapter 9 is on locating and using Web-based expertise and archives. This chapter contains a useful section on 'digital libraries' as sources of multimedia information such as photographs (and other forms of static image), sound files and video clips. The section concludes with a cautionary reminder about the complexity of copyright law with respect to Web-based resources. Chapter 10 (entitled 'Buy, Buy, Buy') is the final focus chapter. Here the author discusses electronic commerce – that is, buying and selling on the Web. Some of the important issues discussed in this chapter include: techniques for locating items of interest (for purchase); security issues relating to using credit cards with a Web browser; buying software packages from the Net; and, of course, virus protection.

Overall, this is a very useful book, which I commend very highly. However, I do have some minor reservations about the limited depth to which some of the topics are covered. Indeed, I believe that many readers, having been through this book, would probably want to graduate on to a more advanced treatment of Web searching – that could build on the basic introductory material that Clegg's book presents. Therefore, for anyone who might want to seek out some 'follow up' reading on Internet searching, I would strongly recommend the 'Web search engines' book by Randolph Hock. Hock's text would be a very useful supplement to this book as it goes into the underlying mechanisms of search engines in considerable depth. Details of Hock's book can be found at *http://www.onstrat.com.*

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Danny Saunders and Jackie Severn (eds.), *The International Simulation and Gaming Research Yearbook, Volume 7: Simulations and Games for Strategy and Policy Planning*, London: Kogan Page, London, 1999. Hardback, ISBN: 0-7494-2956-9, xiii+284 pages, £35.00.

This is the latest in a series of yearbooks supported by SAGSET, the Society for Interactive Learning. SAGSET is a professional organization, which aims to develop the use of games and simulations in education and training.

The editors' introduction provides essential information on a variety of definitions for the terms 'simulations' and 'games' and an overview of the book's contents. This book contains six sections with twenty-five articles called chapters. Each chapter has accompanying biographical information and either references or recommendations for further reading.

Section 1 deals with theory and strategy; it consists of five chapters, the first of which looks specifically at strategic planning in higher education. The use of simulations to deal with real-life scenarios is dealt with in a simple straightforward manner. The second chapter looks at the use of games and simulations in education, training and research whilst providing a theoretical model and framework for a taxonomy on gaming. It covers a breadth of information and places the use of games and simulations into a structured framework. Chapter 3 focuses on a case study to link the theory and practice of simulation, whilst Chapter 4 uses the case study to develop hypotheses regarding the contribution that gaming and simulation can offer in a research context. Chapters 3 and 4 use examples from educational settings to provide believable, practical articles. The final chapter in this section, in contrast to the first four, looks at an interactive procedure used by the gaming machine industry called HI-LO. The results of a survey on the probability of winning using either a rational or irrational play strategy are given.

Section 2 looks at business and commerce within five chapters, numbered six to ten. Chapter 6 is concerned with student expectations of a computer-simulated business exercise in the service management industry. It is easy to read, using real-life case study examples. It looks at the realism of the simulation exercise and how students made use of their past theoretical knowledge. Chapter 7 provides an evaluation of

a specific expert system to assist in high-level strategic decision-making. The expert system is thoroughly reviewed through the development of a prototype and feedback received from students using it. Chapter 8 focuses on the design and authoring of two CD-ROMs for business education. It considers the needs of the learners and the appropriate context mix required, and then states the experiences of the author in its implementation. Chapter 9 outlines a game designed for the licensed trade industry. It describes how the system was developed and its practical uses. A list of the type of team decisions available and past participants' responses are given. Chapter 10 outlines the use of an activity called a 'war game'. This mechanism is used to pre-test a product prior to its launch to assess the potential effects that the product or service will have in the market place. Students, working in groups, undertook a range of roles and became involved in the 'war' either to attack or to defend the company. Specific case studies are illustrated and evaluated in terms of the game's usefulness as a learning activity.

Section 3 looks at communication and culture, subdivided into three chapters numbered eleven to thirteen. Chapter 11 outlines a game that attempts to cross language barriers. During the game players cannot use known languages as the game emphasizes communication issues to create a neutral language platform. An outline of the game's philosophy, direction and development provides intensely interesting food for thought. Chapter 12 looks at the teaching of psychology using the Internet, not as an information store, but as a tool for developing critical questioning and discussion skills. It concludes that the Internet is a valuable tool for student reflection as it encourages discussion. Chapter 13 provides instructions for a card game and an insight into the benefits that may be achieved by playing it. The setting is politics but the game could be used effectively in other situations. The chapters in this section form an extremely important part of the yearbook as they describe and analyse real games and simulations in context.

Section 4, covering Chapters 14 to 18, looks at management and group processes. Chapter 14 describes the rationale and the results of the use of a game within a large organization wishing to effect change. Chapter 15 provides a critical evaluation of how simulations can be used by the business community to consider organizational change and effectiveness strategies. In Chapters 16 and 17 simulations are used to assist in problem-solving and decision-making situations. Both chapters highlight the use of a project management plan to facilitate group problem-solving activities in organizations. Chapter 18 examines how different role-play experiences can be de-briefed. It uses particular theories and practices taken from a theatre arts background.

Section 5 covers Chapters 19 to 23 and looks at the areas of science, engineering and technology. These chapters describe the application of games and simulations within specific environments. Chapter 19 looks at a business environment using case studies to enable the acquisition of skills and knowledge to improve communication, numeracy and learning how to learn. Chapter 20 uses simulations within a nursing context where simulations are a safe and effective training vehicle. Chapter 21 outlines the use of games and simulations for management decision-making in a microcomputer-based information system to support teaching and team-building in an interactive scenario. The TV show 'Countdown' is the main focus for Chapter 22 where, using artificial intelligence, a mental arithmetic game is modelled. In Chapter 23 two approaches to address the need for a changing curriculum, where usable professional and social skills are required for graduate construction managers, are outlined. These approaches involved integrating simulations into project work and introducing problem-based learning techniques.

The final section of the book provides yearbook information in two chapters. The first details relevant recent articles and the second provides contact addresses and sources for further information.

This yearbook provides a breadth of information on games and simulations. It will appeal to those currently researching this area and to organizations wishing to use effective learning tools. Educational researchers and lecturers will find much of interest in this easy to read and practical handbook.

Anne M. Brown, Heriot-Watt University

Tim Russell, *Effective Feedback Skills, Second Edition*, London: Kogan Page, 1998. ISBN 0-7494-2569-5. Paperback, 155 pages, £16.99.

Assessment remains one of the least researched areas of further and higher education practice. Assessment might be seen to have a number of functions, for example to:

- provide evidence of academic quality at a range of levels;
- provide data to support judgements about an individuals academic attainment or vocational competence;
- support learners understand and apply relevant academic or vocational standards, knowledge or competence;
- establish a context for, and evidence to support, meaningful feedback to encourage subsequent learning.

Feedback from tutors, peers and through mechanisms of self-review and reflection are essential if effective learning is to facilitated. This view of the importance of feedback is explicit in Tim Russell's informative and practice-orientated book: 'Feedback is an essential skill for learning knowledge and skills and there are many different circumstances when feedback will be given within a training and teaching context' (p. 33).

This quote also offers a concise insight into the specific orientation and focus of the text. The book itself is part of the Kogan Page 'Practical Trainer Series' and offers a practical review of 'feedback' as something the 'trainer' provides to the 'trainee'. As such, it is an essentially unidirectional process designed to support the acquisition of competence: 'Probably the single most important skill for any trainer is being able to give feedback to trainees on their performance. Unless trainees can find out what they are doing right, they will not know how to do it again. Unless they can find out what they are doing wrong, they will see no need to change. Unless they are shown the correct way to operate, they will not know how to change . . . If we give too much of the wrong sort of feedback, we can sour the relationship between trainee and trainer, if not the whole concept of training for life' (p. 10).

Within this context the book offers a number of short chapters focusing on aspects of feedback and debriefing, a more problematic concept for Russell and intriguingly employed in 'areas of training where there is no right or wrong', the purpose of debriefing being 'to explore options rather than confirm any particular course of action' (p. 11). Specifically the book explores:

- issues and terms, with a particular focus on how people can and do learn and on defining the 'feedback' and 'debriefing';
- summary analysis based on experience of the contexts for feedback, how to give feedback, how people might receive such feedback, and how feedback might be turned into a debriefing;
- summary analysis of the contexts for and the means of delivering a debriefing session;
- and finally, practical advice on reporting back.

All of this is presented in 153 pages of text, checklists for trainers, figures and illustrative training documentation.

The one-side summary on page 154 repeats and reinforces the focus and rationale for the text. Specifically, that feedback 'is probably the most important of all trainer skills . . . the content of the message might affect the rest of a person's life'.

The list of suggestions for further reading identifies a number of the better-known texts in the field but lacks a contemporary feel, the most recent text identified being another from the Kogan Page stable published in 1993.

There is much of value in this book. It explains its subject matter with commendable clarity and is clearly based on extensive practical training experience. It is focused, practical and concise. There are clearly complexities within learning and assessment on which the author is silent. The uniqueness of, and the idiosyncrasies typified by, any individual leaning interaction tend in the writing to be subsumed into the established wisdom of training practice. Feedback, for Russell, is either 'right' or 'wrong' – no post-modern ambiguities here! Certainly, the reader seeking a more critical and learner-focused exploration of the topic will need to look elsewhere. However, those readers who are seeking a short, introductory text designed to 'train the trainer' could do far worse than start with Tim Russell's readable guide.

Peter Funnell, Suffolk College

Graham Chapman (ed.), *Computer-Based Learning in Science – Proceedings of the CBLIS 99 International Conference*, University of Ostrava, Czech Republic, 1999. ISBN: 80-7042-144-4. Hardback, 600 pages, £20.00.

Computer-Based Learning (CBL) is by no means a new topic, however, its scope and complexity have ensured the subject remains at the forefront of academic discussion. It is expected, therefore, that this extensive edited

work, comprising 63 fully refereed conference papers, will be of interest to many within the sciences. Contributors are drawn from fifteen nations and although the majority are from the Czech Republic and central Europe, there are a number from as far afield as China, Australia, USA and Canada. Thus, the volume's contents can be considered as a reasonably wide representation of academic research and opinion in the field of CBL. The papers were presented at the fourth international conference for Computer-Based Learning in Science, CBLIS '99, held at the University of Twente, Enschede, The Netherlands. Focusing on 'developments in computer technology to assist learning in science', the articles within this publication cover many aspects of this subject. Reflecting this, Computer-Based Learning in Science is divided into a general section and eight topical sections, namely teaching and learning, intelligent software, teaching packages, simulation packages, virtual reality and laboratory *in science* teaching, multimedia techniques, distance learning, and evaluation and monitoring of performance.

'The computer promises my students an endless supply of information, but what good will that do if they can't make sense of any of it? Technology promises to help my students express their ideas better, but what good is that if they don't have any ideas to express?' (Lowell Monke). This quote is given by Jana Kapounova, in *An Approach to Information Education of Teachers*. This and the paper by Peter J. Wright are the two that perhaps best set the scene and reflect the title of this book. In total there are four articles that discuss background issues contained within the initial, general section, which also contains two more specifically directed papers.

The teaching and learning chapter contains eight papers. Those more general in nature discuss the integration of CBL within the Polish education system, the practical adaptation of traditional courseware into Web-based instruction to afford multifunction teaching in China and the development of automatic auditing within viable learning systems. The more directed papers report on the implementation of specific CBL examples, including problem-solving, databases and computer knowledge. These tend to focus rather more on the practical aspects of teaching than on the evaluation of use and outcome. A further three papers can be found in the related intelligent software section.

Indicative of the ever-growing influence of CBL is the chapter on teaching packages that contains 16 papers. Not only are many nationalities represented, but so too are many fields. Topics are indeed wide-ranging, covering, for example, geometry, soil mechanics, stock price forecasting, biology and digital photogrammetry. Some packages discussed are now in educational use, while others are still in the developmental stage. The reports vary in scope from those that are purely descriptive regarding the nature of implementation of a particular package, to specific case studies providing examples of use and those reporting on usability and evaluations of learning. Findings by and large, suggest students responded favourably to the introduction and use of these packages, especially for those that offered students active engagement within simulations and models. In addition, there were some indications that learning could be enhanced, albeit where measurement was in terms of pass rates and times to complete for short questions. However, such extraneous effects as motivation levels and increased study time were not eliminated from the results.

Four simulation packages are next described. Each focus on the construction of interactive applications with a high degree of 'real-world' topical relevance, for example air pollutant dispersion, optics and logistics. In a similar vein the following section describes four case studies using virtual reality or virtual laboratories.

The chapter on multimedia techniques features seven articles. Wide-ranging in nature, they discuss both background issues and individual case studies. The use of the Web for material delivery and assessment is reviewed and the design implications of large file sizes, common in multimedia, are considered. Case studies report on the use of computer graphics, transferral of a *ToolBook* development to the Web, computer-based instruction in *Matlab*, the integration of subject-specific features within a general framework and a tool for implementing object- orientated models.

As well as a general review of information technology in social sciences, the distance-learning section includes papers on the development of design frameworks for situational and/or networked learning, the use of CBL for seminar preparation, a database course and an evaluation of teamwork and video-conferencing within two international projects.

The final chapter contains seven papers regarding evaluation and performance monitoring. Most

studies used questionnaires to obtain student feedback; however, a few provided evaluations based upon increases in learning as determined by pre and post test results. Perhaps of most interest to lecturers are the findings relating to comparisons between computer and paper-based materials. Gosper and Love reported higher response levels for online questionnaires, but content was not the same as that for the paper version. Learning using the ESP programme versus paper-based instruction was reported by Oliver and Oliphant. A slight advantage (statistical significance not given) was recorded for ESP. Educational content was deemed the same; however, details regarding such aspects as course structure and integrated questions and answer sections were not provided.

Any publication aiming to provide comprehensive coverage of computer-based learning requires consideration of, and reflection on, not only the computer/technological tools used to facilitate learning, but also the cognitive processes of learning. That this work does not neglect the latter creates a rather more balanced view of this topic than is frequently achieved through conference compilations. Aspects that detract to some extent from the overall presentation, are the lack of consistency in text formatting and style of referencing, the rather low print quality for many of the figures and some observed difficulties in translation. The sixty-three papers not only suggest a variety of ways in which computer-based learning can be used effectively, but also highlight areas of developmental overlap and indicate many future directions and enhancements to teaching and learning. The proceedings comprise a mixture of background or topic review papers, evaluation studies, empirical research reports and instructive reports; consequently the strength of theoretical underpinning varies considerably from paper to paper. Notwithstanding this diversity, there is much to interest the computers-in-teaching enthusiast and much to encourage those still not totally convinced of the benefits of using computer technology in science teaching.

Kate Garland, University of Bristol

Leslie Rae, *Using Evaluation in Training and Development*, London: Kogan Page, 1999. ISBN: 0-7494-2805-8. Paperback, xi+243 pages, £19.99.

Leslie Rae's latest handbook aims to provide everything a trainer needs to evaluate training, from the design of the evaluation process to the use of particular types of test. In typically readable fashion, Rae produces practical guidelines for the busy professional which quietly broaden perspectives and challenge assumptions. His style is succinct and his text liberally interspersed with boxed lists, diagrams and summaries.

Rae's main concern is to bring a more considered and professional approach to evaluation, which he believes is one of the least practised subjects in training. Despite the potential cost and time of his proposals, he regards evaluation as essential to demonstrating the effectiveness of training and the amount invested in it. His audience are the trainers and managers he believes have a stake in evaluation. He also caters for those working towards Investors in People or Training and Development NVQs. In an era of accountability, anybody preparing and presenting data about training should find Using Evaluation in Training and Development a valuable source of ideas and evidence.

The book offers a range of practical ways for embedding evaluation in the training cycle. Rae's focus is broad and the frameworks he presents build on the work of influential authors like Kirkpatrick, Honey and Newby. He considers evaluative measures that take place before, during and after training, including long-term follow-up. He offers guidelines and practical resources for the wide range of people responsible for the success of the training process. He deals with direct training, self-instruction, open, distance and programmed learning. Although he is not concerned with the evaluation of education programmes, many of the techniques Rae outlines are adaptable for education or training.

The opening chapters discuss the place and function of evaluation and rehearse familiar reasons for its neglect. These range from an over-reliance on end of course 'happiness sheets', to a failure of stakeholders to take responsibility for their role. To address this, Rae underlines the need actively to involve key players in all stages of the cycle. Line managers, for instance, should help establish learning outcomes and play more part in briefing learners before and after programmes.

Chapters 4, 5 and 6 are some of the most interesting in the book. They begin by introducing non-specialists to current approaches to testing. Rae outlines a variety of techniques

including the use of Likert and Thurstone scales in multiple-choice tests. Complementary methods of assessing knowledge and application are explored. His insights often strike a chord. His advice against using experts to set practical tests will be familiar to those who have tried to elicit knowledge from experts who suggest short cuts which do not correspond to complete and agreed practice. Once or twice his touch deserts him – experienced educators may cringe, for instance, at the advice to avoid using notice boards to publish league tables of test results.

He regains his poise as he considers tools for observing interpersonal behaviour in groups. By devoting almost a chapter to Behaviour Analysis, he introduces tools for the quantitative and qualitative profiling of individual activity in groups. He covers simple contribution scoring, directional sociograms and reflective, self-reporting techniques. He handles the area well and, though he avoids being drawn into conceptual debate, his approach to group interaction is lively and provides useful background for those keen to research it. It is a chapter to return to.

Chapters 7, 8 and 9 cover evaluations which take place during and after training programmes. I enjoyed reading about thermometers, speedometers and progressive blob reviews. The limitations of end-of-course reactionnaires which fail to illuminate the extent of learning or its transfer to the workplace are underlined well. The chapter on Interim Evaluations contains the sensible advice to avoid undertaking them unless you are prepared to address the issues they raise. It also presents some thoughtful variations on learning logs.

Educational developers will probably find the chapter on evaluating open and distance learning disappointing. It runs to just ten pages and focuses on instructional packages. Although the absence of frameworks for evaluating networked learning or the quality of dialogues for iterative design is understandable, it is perhaps surprising that Rae's earlier interest in group dynamics does not prompt him to look at asynchronous, collaborative work. The short section on media-based learning offers less to the learning technologist than the dedicated tools we now have available through LTDI and TLTP. Even at ten years old, the reliable MEDA materials offer a richer framework for evaluating educational software.

Despite this, like most of Leslie Rae's books, *Using Evaluation in Training and Development* is very readable. It offers those new to training a framework for evaluation and experienced trainers practical solutions, using tested resources. It supplies staff or educational developers with materials that can supplement increasingly specialized resources. It provides a sound evidence base for those putting together portfolios for accreditation. Its great strength is to suggest ways of evaluating staff development interventions more strategically by involving a wider number of stake-holders. In a busy world, including all members of Rae's Training Quintet (learner, trainer, line manager, training manager and senior manager) may be unrealistic but, for organizations with the time, he provides the tools to do so.

Using Evaluation in Training and Development is a useful addition to the trainer's bookshelf.

Paul Haslam, King Alfred's, Winchester

Alistair Inglis, Peter Ling and Vera Joosten, *Delivering Digitally: Managing the Transition to the Knowledge Media,* London: Kogan Page, 1999. ISBN: 0-7494-2933-X. Hardback, xiv+210 pages, £35-00.

Delivering Digitally 'is designed for those with responsibilities for managing the transition from traditional approaches to education and training – whether face to face or at a distance – to forms of digital delivery. This includes everyone from the chief executive officers of educational and training organisations to heads of departments, course co-ordinators and technical and educational specialists' (p. xii). The book is divided into four sections: 'Context', 'Implementation', 'Quality Assurance' and 'The Future'. Each of these sections is intended to stand on it own; and, indeed, most of the book's thirteen chapters are reasonably self-contained and each provides valuable insights into managing this process of change.

In an industry that is changing as rapidly as that of digital educational media, it is not surprising that the first section of the book, 'Context', is not its strongest section. None the less the initial three chapters do contain some useful material. In these chapters the authors seek to contextualize the issues and provide a foundation upon which policy can be built. In the first chapter, 'The Origins of the Knowledge Media', they set forth a definition of digital media that is perhaps a little too computer-centric. The phrase 'knowledge media' was coined by Marc Eisenstadt at

the UK's Open University (p. xiii). They, like Eisentstadt, use it to refer to Web and CD-ROM based material. Given the convergence of digital broadcasting with Web and other computer-based media, this perhaps needlessly narrows the book's perspective, but doesn't detract too much from its central focus on managing the process of change.

As the title suggests, the second chapter, 'Social Forces Driving Educational Change', examines the role of the university in modern society and considers how that role has evolved from Cardinal Newman's rather élitist view in the nineteenthth century to the more populist, market-driven model of the present. The chapter also contains a series of useful tables that set forth a series of premises and policy implications with respect to managing the change to digital media. Indeed, one of the book's greatest strengths is the inclusion of a range of tables, flow diagrams, checklists, and so on, that can serve as valuable models to inform decision- making.

The final chapter in the opening section, 'Learning in an Electronic Environment', unsurprisingly, offers a fairly 'constructivist' view of education and considers what an ideal virtual learning environment (VLE) should be like. Significantly and, to this reviewer's mind, rightly, they argue that a VLE should include a full range of teaching, learning and administrative functions. They list these as: 'enrolment/ registration of students; provision of course advice; provision of course materials; provision of feedback; provision of responses to administrative and academic queries; conduct of assessment; [and] provision of assessment results' (p. 37). This list alone should suggest to managers just how great is the scale of change implicit in the digital delivery of higher education.

The second section, 'Implementation' is by the far the largest. Its eight chapters occupy more than half the book and in their titles provide a reasonably comprehensive list of the issues facing management in this period of change. The first two chapters, 'Counting the Cost' and 'A Cost or an Investment?' make a number of valuable points about the cost implications of digital delivery. By no means the least important of these points are that managers need to be careful to count the hidden costs as well as the more obvious ones and that the case for 'economies of scale' is by no means transparent. However, the most important point in these two chapters is that financial management in higher education needs to become more adept at recognizing when an expenditure is a 'cost' and when it is an 'investment'. The expense involved in migrating to digital delivery is as much an investment in the future of higher education as is the creation and maintenance of the building stock; and will similarly require continuous maintenance in the future.

The next four chapters, 'Re-engineering Technological Infrastructure', 'Reskilling and Supporting Staff', 'Reorienting the Teaching Programme' and 'Redesigning Learner Support Services', address in detail some of the more obvious things that need to be considered. The first emphasizes the importance of establishing clear and manageable targets for the re-implementation of the technical infrastructure. For example, it is pointless adopting a VLE, however good, that cannot run over key systems. The crucial issues of staff development and support are addressed in the next of these chapters. Digital delivery is novel and staff will need to be trained to exploit it; and, even when trained, they will require new levels of support. Still further this staff development process might be described as a 'bootstrapping' one. As the authors put it, 'You can't recruit experience in tomorrow's technology' (p. 85).

The next of these four chapters addresses the issue of how far institutions should engage in courseware development and provides some useful guidance about how to choose material that is not created in-house. Although this is a very useful chapter in many ways, it should perhaps be noted that it takes little account of the good work in this area that has been done in the UK in recent years. However, it does make one very important point that harks back to the issue mentioned in the last paragraph. This is to do with the corporate memory. Not only are universities going to need to create the experience and expertise to exploit digital delivery, they are also going to need to find ways of keeping that expertise within the university community. The last of these four chapters considers the wider impact that digital delivery will have on learners and on those, from librarians to student counsellors, who provide them with supportive services. The impact on these services is easily overlooked, but by no means any less important.

The last two chapters of this section as well as the single chapter in Section 3, 'Quality

Assurance', address the issues of evaluation, change management and quality control. Both 'Developing an *Evaluation* Strategy' and 'Managing the Transition' provide a range of checklists and other instruments that can be used by managers (and others) to measure how effective the process has been and how far an institution has progressed along the path from traditional to digital modes of delivery. The third of these chapters looks at how one maintains standards during this process and offers, as the title suggests, 'A quality assurance framework for achieving best practice in new learning technologies'.

The single chapter in the final section, 'Anticipating Tomorrow's Innovations', is, like the opening chapter and for much the same reasons, a little disappointing. However, this does not take away from the book's real strengths. 'Delivering Digitally' provides an insightful overview of the managerial issues involved in meeting the challenges of the digital age; and, still more importantly, it provides a range of practical instruments to support managers engaged in meeting those challenges.

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A. H. Miller, B. W. Imrie and K. Cox, *Student Assessment in Higher Education – A Handbook for Assessing Performance*, London: Kogan Page, 1998. ISBN: 0-7494-2797-3. Paperback, 288 pages, £19.99.

Assessment is such a ubiquitous concept. It is helpful to know that this book only addresses 'student' assessment in 'higher education'. Of course, if we are to understand what assessment is and how it can be used, we really need to generalize to some extent. Higher education does have its peculiar attributes. Standards and progression vie with subject mastery and transferable skills. The isolation of 'students', with regard to assessment, is illusory. Higher education is a complex community where teachers help learners assess their own and each others' performance, and students provide useful evidence for staff who need to show their developing professionalism for accreditation. This applies throughout education. A final thought, as a prologue – the book suggests it is a 'handbook' for assessing 'performance'. I will deliberately ignore the definitive and practical nature of a 'handbook' and comment that 'performance' is probably the most misunderstood concept, apart from 'competence', used in higher education. I still find that the assessment of what some call intellectual skills is excluded from the ambit of 'performance'. Students perform activities, tasks, and even duties – but seldom is performance attributed to intellectual skills. It seems to me from what I hear, that subject knowledge is not 'performed' and is therefore invisible to scrutiny by assessment. Perhaps the book will help clarify this point – if so, it will serve this reviewer well as I have my *suspicions*.

What is the book about? The authors, part of the 'Aussie Mafia' who have made such an important contribution to curriculum design, professional development and communications and information technology (CIT) over the last two decades, are well known for their writing in innovation, curriculum matters and student learning. The aim of the book is to provide an authoritative reference to relevant assessment literature. It is also for those reflective teachers who are dissatisfied with their current practices. Maybe it is part of the reading list for a 'fast track' to Institute of Learning and Teaching accreditation.

The book falls into three parts – a broad brush pedagogic background; a more practical 'How it is done' section that includes a good chapter on theses; and an 'issues' section that even includes matter such as ethics and plagiarism (see below). So the cloth is broad – but, is it well-cut? The best way to test this is twofold. First, ask a question and see if the book provides an answer that is authoritative, useful and that generates reflection in the reader. Second, allow the authors to offer something that the reader did not know he/ she did not know they did not know! In other words a proactive question and a reflective response. The question first: 'Do examinations hinder student learning?' If one is to be honest, this is not a question that is often heard in common rooms and 'quality assurance' visits. Rather, it is implicit in many of the comments made *sotto voce* on these occasions. One hears of the efforts that go into making sure that grades are as reliable as possible; that self-assessment is an 'off the wall idea' – best consigned to the 'soft sciences'; or that the use of CIT will revolutionize marking by removing the tyranny of the examination paper and freeing up so much precious academic time!

The trouble with books is that authors do not necessarily think of answers in the way readers pose questions. I think the answer to my

question is there. Chapter 3 offers some guidance. Apart from the usual citations to the Marton *et al.* work along with Entwistle, the authors offer a brief guide to a serialist vs. holist dichotomy they infer from Gordon Pask. While accurately reporting the essence of this oft cited distinction, they miss the range of approaches to learning that Pask recorded – for example, 'globetrotting as a pathological' approach. I do not think there is too much mileage in this analysis – in a book on assessment. They need to consider the tasks that bring about the response identified. I don't think the authors suggest that approaches or styles are stable – which would be a fallacy; rather they tell me about a classification related to learning (e.g. Bloom – again!) without explaining how this is effected by assessment tasks. On the other hand they drew my attention to the work of another Australian writer John Bowden. The citation on page 43 which reads 'unfortunately there is a good deal of recent evidence to suggest that the quality of student learning . . . is adversely affected by inappropriate assessment methods' rings a bell! It suggests that the issue is about the 'quality' of learning – as opposed to a fixed or static style, and the interaction of this with different methods. As a reader, I will follow up the Bowden surveys and analysis and I take seriously the advice offered by the authors (p. 45): 'involving students in discussions of learning style and learning strategy would provide a sound basis for both students' intellectual development and quality assurance of the teaching program'. So, I am encouraged by the book's response to my question. I reason that there is some interaction between the methods used in assessment ('examinations') and the quality of the learning that occurs. A good start. Now, what can I learn from the authors and what does it mean to me?

I am going to take the issue of 'academic (dis)honesty' (Chapter 15, pp. 241–52). I really had not thought too much about this until the authors stopped me in my tracks and made me wonder how I would answer a quality assessment style of question ' . . . umm . . . can you tell us . . . umm . . . what procedures you have in place to make sure that the judgement you make of student abilities are . . . umm . . . indeed judgement of abilities rather than judgements on what the students have found out?' We need to consider the ethics and codes of conduct and procedures by which those involved in assessment come to a valid conclusion on performance. CIT and the ubiquitous Internet – when it is working! – are forcing us to consider 'what does an assignment handed in by a student tell us about that student's cognitive abilities – rather than his/her abilities to find an appropriate essay and pay for it?' The authors are right to identify the 'qualified trust' (cf. Dearing) that needs to operate between society and institutions with regard to student abilities. I take away from the book an idea and some useful citations plus a nice twist on the interesting idea 'copy from one, it's plagiarism; copy from two, it's research' (citing Wilson Mizner (1876 –1933)). I judge the book to be useful and stimulating. It gave me answers to questions I posed and it offers ideas I had not thought about. So, this is a book to be recommended.

Thinking of assessment, I would offer Kogan Page some advice on the Index. Too short with insufficient cross-indexing – a beta minus on my personal utility scale!

As a final question – I wonder what criteria the authors set themselves in order that they could evaluate the success of this book? Any self-assessment question is at the heart of effective learning and assessment. If students are unable to know the criteria that are being used in order to make a judgement or if teachers are not explicit in what they value – so that students know what is valued – we have a system that will not develop or improve. Self-assessment must be one of the under valued issues in higher education and what is now called personal development.

Now, where in the book did the authors make reference to this issue . . .umm . . .?

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David Lowe and Wendy Hall, *Hypermedia and the Web – An Engineering Approach*, Chichester: John Wiley & Sons, 1999. ISBN: 0-471-98312-8. Paperback, xxiv+597 pages, £27.50.

Hypermedia authoring software such as *ToolBook*, *Director* or *FrontPage*, can appear all too easy to use. The temptation to design and develop, using a visual interface, at the computer monitor, can prove too strong for many. This book emphasizes the need for a systematic approach to development, particularly of large-scale hypermedia. It suggests that there is a crisis in the development of hypermedia, which – like the 'software crisis' identified in 1968 – requires the formulation of 'engineering' approaches. Concepts from software engineering are brought

together with several abstract reference models specifically for hypermedia. Three sections deal in turn with hypermedia Fundamentals, Practice and Research.

Hypermedia development is assumed to be so distinct from software development that software engineering is referred to analogously, as something that, serendipitously, may hold lessons for the 'emerging discipline' of 'hypermedia engineering'. While the requirements of hypermedia information models are acknowledged to be 'similar' to those of general application development, hypermedia is apparently different enough to spark off its own 'hypermedia crisis', and to necessitate the new discipline of hypermedia engineering. A substantial amount of the material covered, however, reflects standard software development, and aspires towards software engineering qualities and characteristics of maintainability, modularity, adaptability, portability and abstraction.

The combination of visually driven development environments, often inherently irregular and exploratory structures, and disparate and dynamic media types, would certainly appear to require new and different approaches. The earlier chapters contain some illuminating taxonomies and nuanced definitions in relation to hypermedia. And the most cogent parts of the book – mainly, but not exclusively, located in the substantial Research section – are those that set out design methods and reference models that are specific to hypermedia. The overview of several key reference models is both representative and clearly summarized, as is the Relationship Management Methodology (which adapts entity-relationship design from software engineering, and does not necessarily lend itself to educational hypermedia). Among others, the Dexter reference model and the Amsterdam model are covered, along with valuable insights from the authors' own Microcosm and Matilda projects. Each of these research development chapters adopts the same structure, following up the product and process issues identified in the preceding section. This helps to sharpen the focus on these issues, and allows the reader to compare and synthesize the different approaches. The material presented constitutes a useful theoretical resource, particularly given the rapidly expanding role of hypermedia in the form of the Web and of computer-based learning.

Rigorous models and methods are necessitated by the size of projects. In the taxonomy of what is large and not large, educational material is generally considered to be 'large'. As such, ad hoc approaches are rejected in favour of abstract models of node and link structures. Also sidelined are less formal constructivist approaches that so often inform the development of interactive educational material. There is little recognition of a need to 'engineer' correct algorithmic content for user activity and other functionality within nodes or components. It is the links that are said to give functionality to hypermedia, rather than anything inside the nodes, which are seen essentially as information units within a browsable document database. An indication of how a document-based psychology might constrain expectations of the analytical functionality of non-textual media, is perhaps given in the use of image-maps as an example of an operation that analyses pictures (rather than as a means of interactive presentation). For educational material – where the functional and interactive richness of media should ideally take particular precedence over their presentational role – a hierarchical structure, enhanced by 'links to a glossary and references', is said to be suitable.

In spite of the acknowledged debt to software engineering, assumptions are made about the prevalence of hacking in software development that appear to overlook thirty years of applied method: where the 'product model' is based on a programming language, it is claimed that there is no means of visualizing the information structure; that it would be difficult to maintain; and that it will be coded 'from scratch' by isolated individuals. The implications of hypermedia production paradigms that combine screen-driven authoring with scripting and programming could be explored. With visual authoring software packages, the comments regarding their inability to separate information from interface implementation are not strictly applicable to Macromedia Director. And while not capable of Microcosm's full decoupling of link information from data, with a little scripting effort at a high level – and a program-engineering approach – *ToolBook*, for example, can facilitate a significant degree of generic associative and navigational linking.

The book is, at 600 pages, long. There is a narrative tendency to ask questions (What is hypermedia? What is hypermedia engineering? How is material to be structured and accessed?) on several occasions, and to defer answering them until later. Indeed, several important chunks of text are

repeated verbatim at different points. This – and the numerous apostrophe and typo errors – is a reflection on the copy-editing rather than the authoring of the book.

This book is visionary rather than prescriptive – pointing in directions rather than giving directions. Concerned with large-scale hypermedia development principles in general (rather than hypermedia-assisted learning in particular), it will be particularly useful for academics teaching hypermedia design; for researchers seeking an introduction to the theory of hypermedia development methodology; and for developers – including Web developers – who wish to gain a theoretical understanding of high-level development issues in order to move towards more systematic methods for the design and development of hypermedia.

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Brian Tucker (ed.), *Handbook of Technology-based Training*, Aldershot: Gower, 1997. ISBN: 0-566-07809-0. Hardback, x+437 pages, £75.00.

The use of technology in training (and learning) is a constantly changing field continuously affected by developments in various applicable fields of technology. This handbook provides both a description of the history and development of technology-based training (TBT) and a compendium of available courses.

The handbook consists of two parts. The first of these addresses technology-based training and the second comprises cross-indexed listings of TBT courses available.

The nine chapters in Part 1 contain a description of Tucker's view of technology-based training and some real-life examples of its use. The case studies are useful in defining the context and main thrust of the handbook – training staff using self-paced and automated computer-based techniques.

Chapter 1 introduces and defines TBT, Chapter 2 discusses possible organizational benefits of utilizing TBT, and Chapter 3 comments on the possibilities for implementing TBT. How to use TBT in distance learning, pre-course work, course work, and post-course work is outlined in Chapter 4. It is not possible to generalize effectively in relation to TBT; indeed almost all applications in this field have their own specialities and require careful consideration with respect to customization of pre-packaged (generic) solutions.

Generic training is covered in Chapter 5, whilst Chapter 6 addresses bespoke training issues such as in-house versus outsourcing. Chapter 7 provides guidance for the evaluation of TBT, and includes considerations of other factors that may be considered in course appraisal. One way to gauge the suitability of TBT solutions may be to analyse carefully the requirements, leading to the generation of a requirements specification. This process would benefit markedly from the inclusion of factors described in Part 1 of the TBT Handbook.

The future of training utilizing technology is the subject of Chapter 8, while Chapter 9 sets out case studies from large organizations which have implemented successful TBT programmes. I found the case studies most useful for a number of reasons. Firstly, some measure of confidence is gained in reading about successful implementations of TBT; and secondly, actual cases serve to put the handbook into a real-life perspective. By comparing case studies to a particular need, the reader may be able to access their own needs and include relevant factors that may have otherwise been overlooked.

Part 1 is, in places, a little thin on the discussion of issues, but does provide an excellent overview to TBT by listing readily categorized areas that must be considered.

Part 2 lists some 700 generic courseware titles indexed by category, alphabetically, by delivery method and by supplier. Each course is summarized in a template format, providing information under the following headings: Title, Purpose, Suitable for, Prerequisites, Description, Delivery method, Minimum hardware requirement, Price and Supplier. This is an excellent format, as it provides a basis for comparing possible outcomes from each course.

An address is included to allow TBT producers to add their courseware to the handbook's database for future releases. With the type of material contained in this handbook being so dependent on currently available courseware, it is apparent that regular updates will be essential to ensure its ongoing appeal.

Overall the book is a good starting point for someone in the market for pre-packaged TBT courses. By addressing some of the best points, and some of the limitations, the handbook prepares the reader to evaluate the courseware titles listed in the directory section of the book. Most of the commercial packages listed would

appeal to larger organizations, and in some cases, they could provide flexible cost-effective TBT in broad areas such as management, customer services, induction training and the like. The reader would at the very least be able to ascertain the availability of material, and be at a point to commence negotiations with suppliers for courseware to suit their particular needs.

Lindsay Offer, Anglia Polytechnic University

Erratum for Volume 8, Number 1

We apologize for not including an appropriate acknowledgement to the publisher of ActivStats in the paper entitled 'Active learning of statistics: a case study', by Erica Morris and Eileen Scanlon, which appeared in Volume 8, Number 1 of this journal. ActivStats is published by Longman Software Publishing. The ActivStats screen shots shown in Figure 2, Figure 3 and Figure 4 of that article are reproduced by permission of Longman Software Publishing.