Taken as a whole, the book represents a plurality of approaches and different audiences may find different parts of relevance. Taking into account the price, the publishers and the editors should put more attention on straightening the English and avoiding references to missing tables and figures.

References

1. J. Phillimore (Ed.), *Local Matters: Perspectives on the Globalisation of Technology*, Institute for Science and Technology Policy, Murdoch University, Perth, 1995.

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Technology, Open Learning and Distance Education

A. W. (Tony) Bates

London and New York, Routledge, 1995, vii + 266 pp., AU$45.00 (pbk), ISBN 0 415 11682 1 (hbk), ISBN 0 415 12799 8 (pbk)

Espousing the view that '... technology is neither good nor bad in itself, but the way it is used that matters' (p. 20), Bates directs his book specifically at key decision-makers: in education and training (eg. the Dean of Humanities in a university under pressure from the Division of Continuing Education to fund technology-based courses, or the Vice-Chancellor endeavouring to take on more students for less cost); government officials in Higher Education grappling with the problem of whether to give a university a grant to upgrade its instructional television facility in the face of conflicting evidence about the utility of that technology at that time; and politicians and civil servants looking for ways and means of improving the quality of education in a climate of economic stringency. This book then is for those who, in searching for innovative and more cost-effective ways of providing a quality education and training for their students, have reason to believe that technology-based distance education and open learning might provide the best avenues for meeting those needs.

Underpinning many of the arguments put forward by Bates is the concept of Lifelong Learning and the evolution of a 'Learning Society'. In concert with the themes contained in Raggatt, Edwards and Small [1], Bates not only suggests that technology has changed the way we learn, but that technology-driven media have the potential to provide the kind of flexible, vocationally oriented learning in a diverse range of settings that include the workplace, study groups, and the home. Kirkup and Jones [2], in their chapter on New Technologies for Open Learning link open learning and distance education to the notion of the Learning Society. They point out, however, that distance education as a term is dated and that it is more meaningful to talk about open distance education (ODL) because it puts the emphasis on the learner; a dominant theme in a Learning Society. Bates, however, while acknowledging the separateness of the two terms also draws attention to a commonality: '... the one thing they have in common is an attempt to provide alternative means of high quality education and training for those who either cannot go to conventional, campus-based institutions, or do not want to.' (p. 27). As Bates sees it, in a generic sense it is more accurate to talk about 'open and distance education' rather than simply 'open distance education'.

In relation to the terms 'technology' and 'distance learning', Bates makes it clear that

Technology, Open Learning and Distance Education is not so much about technology-based curriculum design (even so there are useful systematic guidelines and basic organisational principles peppered throughout the book which are fundamental to good curriculum design), as it is about '... decision-making regarding technology systems for teaching and learning, including human, economic and organisational factors' (p. 21). Adopting a cost-benefit analysis approach to decision-making, Bates with his broad experience in the Open University in the United Kingdom and the Open Learning Agency in Canada, is able to convincingly demonstrate that the new technologies (computers and video conferencing) are no better (or worse) for teaching and learning, than the older technologies (print and broadcast television). They are, as he puts it, 'just different'. However, he goes on to say that '... we need to understand the differences and the appropriate circumstances for technology applications if we are to use technology effectively in teaching and learning. The choice of technology should be driven by the needs of learners and the context in which we are working, not by its novelty' (p. 21).

In terms of comparative costings, including associated educational, technical and organisation benefits, Bates argues that 'Despite the importance of computerised information storage and communication, print will continue to be a major teaching medium, and is likely to remain so well into the twenty-first century' (p. 136). In other words, the other five important media covered in his book (Direct Human Contact (only dealt with in passing), Text (including still graphics), Audio, Television, and Computing) are all complementary, and a variety of different technologies (for example, in television the delivery technologies might be satellites, cable, video cassettes, etc.) may be used to deliver these media to the learner. But, make no mistake, text will still remain a 'core' medium in any open learning and/or distance education course or programme in the near future.

Technology, Open Learning and Distance Education has some novel features in the way that it is structured. There is, for example, no introductory chapter where the author 'sets the scene' for the following chapters. Bates, starts off in Chapter 1 with an overview entitled 'Executive Summary: What Have We Learned About Technology, Open Learning and Decision-making?' (in other words, the first chapter is a kind of 'advanced organiser') where he invites the busy reader to browse before deciding whether to continue, or not. However, if the targeted decision-makers read the executive summary then they will have a very clear picture of not only where the author is coming from but what the book is all about. Similarly, with a reviewer in mind, Bates also provides a concise outline of the organisation of his book together with a concluding section on the value of technology in open and distance learning all in the Executive Summary.

While Chapter 2 on Technology, Decision-making and Open and Distance Learning is important, in that it demonstrates the relationship between technology, open learning and distance eduction, as the author sees it, it is Chapter 3, 'Selecting Technology: Sorting Out the Differences', that will prove to be of most use to those who read on passed the Executive Summary. It is here where Bates proposes his model for technology selection and application. The model, as one might suspect, is derived from the author's extensive experience in the United Kingdom and Canada and can be best described as the 'ACTIONS framework'. The acronym ACTIONS encompasses a set of key questions (criteria) decision-makers need to ask before using technology for education and training purposes:

A Access: how accessible is a particular technology for learners? How flexible is it for particular groups?

C Costs: what is the cost structure for each technology? What is the unit cost per learner?
T Teaching and learning: what kinds of learning are needed? What instructional approaches will best meet these needs? What are the best technologies for supporting this teaching and learning?
I Interactivity and user-friendliness: what kind of interaction does this technology enable? How easy is it to use?
O Organisational issues: what are the organisational requirements, and the barriers to be removed, before this technology can be used successfully? What changes in organisation need to be made?
N Novelty: how new is the technology?
S Speed: how quickly can courses be mounted with this technology? How quickly can materials be changed? (pp. 1–2)

To demonstrate the efficacy of his model, Bates uses it in each of his technology chapters (4–10). In this way he is able to examine each technology in detail, and with the judicious use of supporting research studies on teaching and learning, Bates is able to demonstrate that not only do all technologies have strengths and weaknesses but that decision-making about technology in relation to open and distance learning is really a very 'complex process'. Thus, in spite of the highly 'selective' case studies used in the book the reader is told that use of the ACTIONS model, together with an understanding of local contextual factors, can lead to the necessary 'intuitive' decisions about the use of technology in open and distance learning which are based more on valid objective evidence than on ill-informed and subjective 'gut feelings'.

After three early orientation chapters most of the remaining chapters in the book are organised in pairs around a selected medium, depending on whether they employ one- or two-way delivery technologies. Broadcast TV is examined in Chapter 4, and Instructional Two-way Television in Chapter 5. Print is examined in Chapter 6, One-way Audio in Chapter 7, and Two-way Audio in Chapter 8. Computer-based Learning and Multi-media are examined in Chapter 9, followed by Computer-mediated Communication in Chapter 10. While each of these technology chapters contains a wealth of information (which certainly warrants further investigation) perhaps the most impressive feature about them is the inclusion of the ACTIONS model and in particular its treatment of 'costs'.

Drawing attention to just one decision-making criterion in these chapters should not be taken to mean that the author is preoccupied with costs. Issues like access, teaching and learning, interactivity, novelty and speed are all important matters in a comprehensive examination of each medium and its associated technologies. Yet, the inability of institutions to adequately deal with the issue of 'real' costs is often why educational technology has had such a marginal impact on education and training to date. Even in the specialised area of distance education, 'core' technologies (print, audio, and television) have been used mainly for one-way delivery thereby limiting the educational effectiveness of this mode of instruction. This is largely due to ignorance about the relative costs and appropriate use of the various media and their associated technologies. Bates' book, paints not only a realistic picture of the possibilities of the different media technologies, but shows (in comparative terms) how much these are likely to cost on a per student basis.

As an example, in Chapter 4 (Television: Educational Broadcasting), the reader learns by way of an illustration from BBC-Open University productions, that costs cover

such things as 'fixed' costs, 'production' costs, 'transmission' costs, 'total' costs (production and transmission), costs 'per programme per year' and 'per student/study hour', the impact of using in-house production, and the 'relative' cost of BBC-OUP productions all with accompanying 'variable unit' cost graphs and charts. Impressive as this information is, the reader of *Technology, Open Learning and Distance Education* needs to be mindful that the costings provided are based upon a selected case. This is something the author is aware of, but he argues that while the '... actual costs will be lower for organisations using less expensive production facilities than the BBC-OUP, nevertheless their cost structures, i.e. the ratio between different types of costs (production, transmission, etc.) and the shape of their cost curves, will be very similar' (p. 85). Which leads Bates to conclude, in this case, that while high-quality broadcast television may be a complex medium, with both strong advantages and disadvantages, its potential is such that its use needs to be carefully examined, for the simple reason that '... when used well ... it can be one of the most powerful instructional media' (p. 87).

In his last chapter (11 Technology and the Future of Education), Bates makes the point that 'It is increasingly difficult to defend the current system of teaching, as it applies to what is now mass post-secondary education.' He argues that it is no longer appropriate to use 'old' methods of teaching based on the principles of small classes and frequent face-to-face contact. Nor, he says, is it appropriate to use a one-way 'mass' transmission model in autonomous distance education teaching institutions. Why is this? The clientele have changed: 'There is no longer a single mass market for adult continuing education, but an increasingly wider variety of needs, and increasingly smaller unique target groups' (p. 15). Changes in the workforce and the need to retrain a number of times during the lifetime of workers (a term used to encompass all those in gainful employment) means that those best served by open and distance learning are already in the workforce.

According to the author, access to information in the future will come mainly through telecommunications with teachers concentrating more upon developing skills associated with gathering, analysing and processing information for a varied student body who will not only have highly specialised personalised learning goals but who will demand particularised learning methods best suited to their needs. It will no longer be appropriate for education and training institutions (especially autonomous distance education providers) to 'add-on' technology to existing structures but there will need to be a concerted effort to redesign such institutions to make best use of media technologies for teaching and learning. The author believes this will be a survival necessity because: 'Economic development will depend as much on the success of creating and supporting such organisations, as on establishing the technological infrastructure. It is critical to get this right because those countries that harness the power of the multimedia communications for education and training purposes will be the economic powerhouses of the twenty-first century' (p. 249).

After reading *Technology, Open Learning and Distance Education*, one cannot help but be impressed with the broad range of experience and scholarship that the author has brought to the task of writing a book of this kind. From the structure of the book (which includes not only an extensive bibliography, but name and subject indexes) through to the information it contains it is hard, indeed impossible for the reviewer to find fault with Bates' approach to, or coverage of, his subject. It can be confidently said, that at this point in time Bates has written a definitive text ideally suited to its targeted readers. One can only hope that key decision-makers involved in the application of technology to open learning and distance education will have the opportunity to read it.

References

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2. G. Kirkup, G., & A. Jones, 'New technologies for open learning: The superhighway to the learning society' in P. Raggatt, R. Edwards, & N. Small (Eds.), *ibid.*, Chapter 17.

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Civilizing Cyberspace: Policy, Power and the Information Superhighway

Steven E. Miller

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Steven Miller's *Civilizing Cyberspace* is a laudable attempt to locate the debate on the Information Society firmly within the broader context of political economy. Miller draws on the experience of the development of the Information Superhighway [ISH] mainly in North America, and critically challenges the 'established consensus' rhetoric surrounding it.

In his introduction, the author makes it clear that the book is intended for a wide audience, and aims to cover a broad range of topics including privacy, encryption, civil liberties, governance, the National Information Infrastructure (NII) debate and its impact.

Consistent with the title, the underlying theme of the book is the 'Civilising of Cyberspace' as Miller refers to it. He places the issue of relationships and human interaction within the new Information Society at the very heart of his argument. Ergonomics, usability, access, control, content and how they shape reality and power relations in society are issues Miller tackles in detail. It is this underlying theme that is the real strength of the book

The book follows a logical and coherent path. It begins with an excellent introduction on 'Where is Cyberpace?' and the different competing visions. It then flows into Chapter 2, 'The Policy Starting Point', and unpacks the terms of the debates, the choices being made and other core issues. This chapter prepares the reader for the fundamental ideological and philosophical differences evident in the ISH debate. The critique on Internet commercialisation is particularly useful.

Chapter Three, 'What is a National Information Infrastructure (NII) and Why We are Building it' is the heart of the book. This chapter deals with the pervasiveness of the microchip, its role in digitisation, microchip imperialism, and convergence. It is this process that is intricately enmeshed with industry policy and ultimately economic policy that is generating different responses and policy approaches. This Chapter explains the development of networks and Miller proficiently details and unmasks the origins of the Internet.

The next chapter 'Framing the Public Policy Debate', gives the reader an overview of public policy. This chapter's useful observations on the political decision making process and the NII debate in the public sphere show that the NII debate has been taken over by the establishment (congressional experts and policy makers, and industry lobbies). Some of the more profound and critical questions are probed such as: Why build the NII, and who sets the goals, strategies and visions for the NII? The identified