

Some of the illustrations are less than effective in other ways. In one, Petterson attempts to illustrate that, in his words, "...image design can be changed a great deal without any major changes in the perception of image content" (p. 159; emphasis his). He illustrates his point with reference to three computer-generated graphics which differ, he states, by virtue of having changed 100 pixels. He neglects to mention that those 100 pixels represent something in the order of 1.2% of the pixels comprising the drawing (at least by my admittedly crude measurements, made from the printed page). Whether 1.2% constitutes "a great deal" might be arguable; elsewhere, he notes that "[t]he use of misleading illustrations in comparisons and statistics reduces the credibility of the message itself (p. 233).

Petterson does provide considerable technical detail in a number of places, which may be of use to those interested in making comparisons between different technologies (e.g., between the efficiency of storage of print vs. computerized text) or between different standards within similar technologies (e.g., NTSC and PAL television standards). Because of his relatively international perspective, he provides fodder for comparisons of other kinds, as well (e.g., copyright laws; picture database access). There are other bits and pieces scattered throughout the book that will likely interest those who examine media from a cross-cultural perspective.

REVIEWER

Earl R. Misanchuk is a Professor of Extension, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0.

Opening Minds: The Evolution of Videodiscs and Interactive Learning
by George Haynes, foreword by Rockley L. Miller, Future Systems, Inc.,
Dubuque, IA: Kendall/Hunt Publishing Company, ISBN 0-8403-5191-7

Reviewed by Jonathon Marsh

It is made abundantly clear, from the opening quotation to the final summary, Dr. Haynes' primary intention in this book is to sell the idea of interactive videodisc (IV) technology as a means to educational revolution. While the book is a cleverly crafted, informative, and up to date overview of developments in the IV world, the force of the argument presented is not sufficient to support such a grandiose concept. It may well be that the impressive and disturbing set of figures provided by Rockley L. Miller (editor of the videodisk Monitor) in the forward are good indicators of future developments and trends in training and education. It is also possible that much of Haynes' vision of the future of education may be accurate. However, significant

change in a social organization as complex as an education system involves a huge number of variables, only some of which are relevant to developments in media. The obvious difficulty involved in assessing the impact of such novel technology on the full spectrum of educational variables should suggest a modicum of caution when it comes to predictions. Strangely enough, this point is tacitly born out by Haynes himself during the course of his very excellent and comprehensive discussion of the historical factors leading up to the current state of the art. He repeatedly emphasizes the educational limitations and marketing difficulties generated by basic issues such as the lack of standardization both in video formats and disk mastering processes. Perhaps his intention is to demonstrate that his predilection for prediction is well tempered by a comprehensive knowledge of developments in the field. Unfortunately the net effect for the reader is confusing and one is left with a nagging sense of contradiction.

While, due to this confusion, it is difficult to fully share his enthusiasm for interactive video, it is not hard to appreciate the importance placed on interactive video in general. Haynes, like many before him, is quick to point out that the key issue is interactivity. For him our educational system is in dire need of change if it is to function; not just a surface change in areas concerned with the "whos" and "whats" of teaching and learning, but more critical change in the "whys" and "hows". Haynes advises us to broaden our vision of what 'getting an education' means if the students of today are to be made ready to cope with the complex demands of modern society. We must move from an elitist, restrictive, and fact oriented concept of education to a more freely accessed sharing of information oriented towards problem solving. Haynes suggests that interactive technology in general and interactive video in particular is the "change agent" required to promote just such an evolution. Not only does it "through innovative classroom use have the potential to augment standard pedagogy and... advance individualized and mastery learning" (p. 104), it is in the words of Karen Block a "symbolic technology" which can "qualitatively change the structure and function of mental activities such as problem solving or memory" (p. 96). Like most agents of change it is destined to be viewed with suspicion and mistrust until such time as it has proven its worth.

Such esoteric claims are surprisingly common and often poorly supported in the field of educational media. However in the case of this book they are well documented with references to case studies and such research as is available. The major points are clearly presented and situated squarely within a set of well defined historical constructs (if a better and more entertaining history of the development of interactive media exists it would be an interesting read indeed). The book includes a finely documented chapter on "the Standards Dilemma" which not only clarifies many of the issues surrounding software development and compatibility but examines them with specific reference to lessons learned from development projects within governmental, corporate, and to a lesser degree educational institutions. As for providing the reader with

coverage of actual training implementations, Haynes outdoes himself. Instead of broadly outlining the results of various research projects, he provides a short synopsis of ten different studies, each of which reflects a different attempt to assess the worth of the technology within a particular context. Broad insights are derivable from these studies which Haynes comments on in an attempt to provoke the reader into thinking more deeply about the types of educational change he proposes.

Focal to Haynes' concept of educational change is the need for teacher competence in the use of new technology. Too often has new wine been forced into old wineskins. He suggests that due to the significant increase in communication capabilities surrounding the new technology, we are faced with the need for a new form of curricular integration. Teacher, student, parent, professional, school, institution, and corporation must all be incorporated into the process of educating the individual if the full potential of the technology is to be realized. It is only reasonable to assume that in the early stages of such a development the teacher will be at the helm. However it is entirely unreasonable to assume that teachers with only limited understanding and competence in the use of new technology can meet the challenge. It is also futile to imagine that we will attract individuals to the teaching profession who can meet this challenge unless society as a whole undergoes some reassessment of their status as professionals.

As astute as Haynes is with respect to the educational implications of interactive technology it is rather disappointing to have him refer on numerous occasions to advances and developments in educational technology as apparently equivalent to advances and developments in instructional media (ie. newer and more powerful machine configurations). It is particularly disturbing as he does so after pointedly quoting Everett Rogers' model of a technology as "a design for instrumental action that reduces the uncertainty in the cause effect relationships involved in achieving a desired outcome" (Preface X). The fact that he clarifies his use of the term technology should indicate an understanding of educational technology as being concerned with the analysis and design of educational systems and processes (which usually includes knowledge of media use) and not with specific hardware configurations. It is unfortunate that a thinker who expresses such an obvious concern for systemic thinking in educational development, and who so adamantly emphasizes the primacy of good design principles in the application of media to the process of instruction, should so blatantly appear to misuse such a critical term.

While it is necessary to criticise this book on the above mentioned issues, it is also appropriate to laud it for its strengths. There is currently available a plethora of books, monographs, and articles concerned with the design and development of interactive media. Very little has been done however to provide us with a comprehensive look at the historical developments and educational implications of this technology. Access to such an overview is a necessity for anyone required to make well informed media-based training decisions. If one is inclined to consider Haynes' more esoteric claims as food for thought, then

this book is ideal for meeting the need. Haynes does not sacrifice a very readable style for the sake of academic appearances. Although the book is not overly long (150 pages) the treatment of the subject is substantial and illuminating. These factors combined with the inclusion of a reasonably comprehensive glossary make the work extremely suitable as an introductory text for students interested in instructional media.

Karen Block's paper entitled "The Information Age in Education: Computer Assisted Learning" is included in the text as a subsection of Chapter 4.

REVIEWER

Joanathon Marsh is Senior Educational Technologist, Educational Technology Centre, City Polytechnic of Hong Kong.