Book Reviews/Comptes Rendus

Oosthoek, Hans & Ton Vroeijenstijn, eds. (1989). *Higher Education and the New Technologies.* Toronto: Pergamon. 558 pages. Reviewed by Richard F. Lewis, Department of Communication Studies, University of Windsor.

In *Higher Education and the New Technologies,* Ben Davis of MIT traces the history of society's involvement with technology, starting with the campfire and concluding with interactive videodisc. The campfire is a good metaphor for technology in higher education. Campfires draw us, promise heat, light, and keep unwanted elements away. Technologies in higher education hold much promise: computers, videodiscs, CD-ROM, interactive videodiscs and interactive computer-assisted instruction all promise great benefits. This book reports on the delivery of the promises.

The book contains seventy papers and summaries from the 5th Congress of the European Association for Research and Development in Higher Education and the Dutch Association for Research and Development in Higher Education held in 1987. Most authors come from Holland but there are articles from the United Kingdom and a few from the United States and other European countries. The book deals with these topics: introducing technology into higher education, innovative prototype programs in artificial intelligence and computer-assisted-instruction, design and development approaches for high technology, instructional design and research, management information systems in education, interactive video, and games and simulations.

The book is difficult to work with for several reasons. The editors chose articles varying widely in quality and topic. In addition, they did not summarize the contents forcing the reader to wade through a potpourri of case studies, philosophical positions, and research reports. The abstracts are not particularly helpful because some contain introductions to the articles instead of concise summaries of content. Finally, there are not consistent definitions in the book, authors use their own terms without regard to standard definitions; e.g., computer-assisted-instruction, computer aided-learning and intelligent-computer-assisted-instruction are used interchangeably. Proofreading and typesetting errors abound adding to the readability problems.

Introducing Computers in Higher Education

Producing software and using computers in instruction poses a set of interesting challenges. In the first few articles, the book presents an overview of the situation in Holland, where medicine and science areas account for most of the available computer-assisted-instruction (CAI) software. In Dutch universities, producing CAI materials required the organization of team, the participation of government, inter-institutional cooperation and the participation of commercial agencies. When all universities use computers, they must comply with software copyright regulations but many universities still have not established solid operating agreements with commercial software producers. Software is best produced by consortia of universities. However, to get faculty to use CAI material, relationships must be established to make this possible. Faculty fears of displacement and role changes mitigate against immediate adoption of the computer as an instructional device in higher education. Many authors allude to another issue: there are simply not enough high technology work-stations. Interactive videodiscs and even intelligent computer assisted instruction programs require sophisticated expensive computers; many universities cannot afford this technology.

Intelligent Tutoring and Expert Systems

Expert systems represent the knowledge and problem-solving approaches of the best human experts in the field; however, they must also adapt to the student. Nissan's article (pp. 67-89) provides an excellent introduction to expert systems and artificial intelligence concepts and research. Teaching computers to model the behaviour of tutors will be the challenge before wider implementation of expert systems can occur. Other authors have developed languages which make writing programs easier and suggest roles for the various multimedia options which are available.

Computer Assisted Instruction Case Study Reports

This book summarizes reports of applications of CAI programs in law teaching, social science, foreign language teaching, medicine, science and technology, mathematics, biology and veterinary science. It indicates that most CAI programs generate a high level of student satisfaction and work as well or better than what they replace. Many authors point out the CAI programs work most efficiently at information transmission, diagnosing student problems and suggesting remedial courses of action. Authors note that human interaction is still needed for discussion and group problem-solving.

Design and Development Approaches

Roberts (pp. 285-296) emphasizes the importance of organizing content in a field, pointing out that experts have often neglected organization thus making instructional development very difficult. Once the field is organized, some authors prefer powerful generic programming languages like Pascal to the use of authoring programs to produce student materials. In the articles on design and development, authors provide information on the type of interaction which should be used in CAI programs, the type of learning which can be tackled as well as background on conceptual learning and problem-solving.

Management Information Systems (MIS)

Four articles deal with MIS. The first describes how specific applications of MIS can be used in a university setting. Another article describes how a British consortium encouraged computer use and research and policy review simply by collecting and disseminating information about institutions. Another interesting application had administrators manipulating variables in a simulated educational unit to learn more about systematic planning in higher education.

Interactive Video (IV)

Davis (pp. 409-414) likens IV to the campfire which provided heat, light and safety and the opportunity to learn from each other. His crisp prose and vibrant imagery produce one of the best papers in the volume. Atkins (pp. 415-422) suggests that diagnosis, control over learning, a match between student learning style and task design and meta-cognitive activities are required in IV programs. Earl and Mayer-Hartwig (pp. 423-430) suggest a seven-step development process for video presentations which must teach. Other articles describe applications including the Doomsday project which provided information on Britain in 1985, a program in counsellor training in psychology and medical patient simulation. Another article describes how an IV program helped students learn about the medium itself.

Games and Simulations

Klabbers (pp. 509-514) introduces the reader to the field of games and simulations with a taxonomy and many references. The brevity and superficiality of case studies in this section limit their impact.

Higher Education and the New Technologies contains some important case study reports and excellent philosophical discussions. The technological innovations and practices described in the book show that technology has a place in higher education. The many studies and discussions suggest that certain

technologies work under certain conditions; however, this optimism is tempered with skepticism about the adoption of technologies on a wide scale. In many articles, participants report that they enjoyed research and development in higher education. This enjoyment may be a beneficial side-effect of introducing technology. By introducing technology into higher education instruction, we may refocus attention on teaching.

The organization of the book, including the absence of an index, makes these articles difficult to use efficiently. The book is definitely aimed at a knowledgeable reader or for use as a reference.

Mayhew, Lewis B., Patrick J. Ford, and Dean L. Hubbard. *The Quest for Quality: The Challenge for Undergraduate Education in the 1990's.* San Francisco: Jossey-Bass, 1990, 320 pages. Price: $29.95 U.S. Reviewed by Kathryn Bindon, Vice-President, Academic, Mount Saint Vincent University.

This commentary begins with an admonishment to the authors for underestimating their audience. Their anticipation that the work will be criticized as "...a worship of the status quo..." which "...does not encourage experiment, innovation, and change" (p. 271) is, hopefully, only a marginal possibility. It ought not to be heard from quarters in which the matter of undergraduate education and how we survive this decade and enter the next century are subjects of daily concern, reflection and action.

This is, however, the only negative criticism that merits inclusion in this review. *The Quest for Quality* is an articulate, scholarly, readable, pragmatic, provocative, and frank book that is valuable not only for its historical review of the development of undergraduate programmes in the United States, but also for its applicability to the present and the future.

The message of *Quest for Quality* is both simple and complex, as indeed are the institutions it discusses. The definition of quality in undergraduate education offered by the authors should be familiar to all who have designed and taught university courses: "Quality undergraduate education consists of using words, numbers, and abstract concepts to prepare learners to understand, cope with, and positively influence their environments" (p. 29). Yet if there is nothing startling in this statement, educating individuals to this level of knowledge is a complex task which requires careful and persistent recognition of standards and processes that, while applied within the scope of individual universities, must be