Computer Center

A Diversity of Publications on Educational Computing

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Many frustrations accompany any area undergoing rapid change and development. Computers in education is no exception, as we all know. But a curious, almost paradoxical type of frustration seems characteristic of this area today: a rapid shift from too little to too much! For example, early microcomputers did not have enough power, and no one computer seemed really appropriate for diverse education needs. Now the frustration arises from having too many types of microcomputers available. Similarly, it seemed that no books or journals on computers in education were available to fill several important needs of educators. In true evolutionary form, many books and journals are suddenly available to fill these unoccupied niches. The following paragraphs summarize several, but do not exhaust all those available in any category. I welcome readers' suggestions on other publications for review.

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For use in The Computer Center, Ted welcomes suggestions on what subjects should and should not be treated, summaries of educational computing centers, innovative uses of computers, and information about relevant books and events.

Anonymous. 1982. *Microcomputer Directory: Applications in Educational Settings.* 2nd ed. Gutman Library, Harvard University Graduate School of Education, Cambridge, MA. Softbound. 318 pages. $15.00 plus handling. This is an informative summary resulting from a mass mailing to educational institutions across the country known to use microcomputers. They range from preschool through college and adult education. Questionnaires were also sent to selected museums, camps, prisons, and all state education departments. The *Directory* includes 900 entries that describe 1,200 projects. Most descriptions include the following: project title, name, address, phone number, and contact person for the project; type and number of microcomputers used; origin of the software (commercial, local); source of funds; and a short paragraph describing computer uses and locations. The entries are arranged by state. A subject index is useful and includes entries such as Art Education, Classroom Management, Energy, Rural Schools, and Special Education. No separate entry exists for Biology, but Science has 145 projects. A short summary indicates that over 21,000 microcomputers are involved in these projects, 415 involve both elementary and secondary levels, 133 only the elementary, and 240 only the secondary. Both local and commercial software are used in 498 projects, only local in 229, and only commercial in 181. This book can connect you with others in your state and also give you some idea of the pulse of computers in education across the country.

Bork, A. 1981. *Learning With Computers.* Digital Press, Bedford, MA. 286 pages. $25.00. This is an integrated collection of the author's papers published over the last decade. Changes have been made to bring the papers up to 1981, to increase clarity, and to eliminate duplication. While most center on Bork's Physics Computer Development Project and his Educational Technology Center at Irvine, the volume is valuable for non-physicists. Not only can we benefit from his general comments about how computers should be used in education, but also readers should find his insights and case studies about *who* should create modules quite provocative (to give away the answer: a team of diverse people is ideal). Finally, his essays on the future include intelligent videodiscs, personal computers, and the extended university.

Charp, S., Bozeman, W.C., Altschuler, H., D'Orazio, R., and Spruck, D.W. 1982. *Layman's Guide to the Use of Computers in Education.*

The Association for Educational Data Systems, 1201 Sixteenth Street, N.W., Washington, DC 20036. 61 pages. $5.00 for single copies. This book is useful only for administrators or educators who know nothing at all about computers. It introduces basic concepts related to the following: history of educomputing; how computers are used; components of a computer system's hardware; review of some common computer languages (but not LOGO or Pascal); administrative uses and concerns like data base management, operations, and maintenance; and office automation.

Cipolla, K.G. 1982. *Instructor's 1982-1983 Computer Directory for Schools.* The Instructor Publications, Inc., Harcourt Brace Jovanovich, 757 Third Ave., New York, NY 10017. Softbound. 140 pages. $19.95. This is a comprehensive buyer's guide to the selection of microcomputers and peripherals, courseware, computer-assisted and computer-managed instruction systems, books and resources, magazines and journals, and free materials. Every educator should have access to such a directory to obtain a feeling for the scope and diversity of what is available in the categories just mentioned. It contains nearly 2,000 product and 400 company listings. Each entry, be it about a specific computer or program, consists of a 40-50-word terse description. Only 44 biology programs are included, but the number will increase in each annual revision. As its name implies, this is a special publication of the producers of *Instructor,* The Magazine For Classroom Use.

Coburn, P., Kelman, P., Roberts, N., Snyder, T.F.F., Watt, D.H., and Weiner, C. 1982. *Practical Guide to Computers in Education.* The Addison-Wesley Series on Computers in Education, Addison-Wesley Publishing Co., Inc., Reading, MA 01867. Softbound. 266 pages. $9.95. Buy this book! It covers many essential topics in detail, but the Appendix and Resources sections are worth it by themselves. Topics range from the general (discussions of computers in the school and in the classroom) to the specific (specifics of how a computer works, from bits and bytes to listings and peripherals). Examples and scenarios are presented regularly throughout the text in a way that allows readers to quickly grasp many aspects of each topic. They involve descriptions of how computers can be used (tutorial, simulation, etc.) to the alternatives and politics of computer acquisition. The Appendix offers a detailed comparison of specific computer systems that begins with an honest statement: "True comparison of computer systems is not possible." Nevertheless the authors provide as much of a comparison as can be expected, involving about 30 properties. Finally, as noted earlier, the Resources section alone is worth the cost of the book. It includes sections on the following: Bibliographies and Indices; On-line Sources and Data Bases; Resource Centers; Research and Development; Projects; Computer Learning Places; User Groups and Computer Clubs; Hardware; Software (directories, catalogs, reviews, etc.); Associations; Periodicals; Funding; and Continuing Education. The authors' coverage of each topic in the book is factual, but their opinions are equally valuable. They are to be congratulated for creating a valuable, clearly written book that blends just the right amount of detail with evaluation. If you can only buy one book on computers in education, consider this one!

Frederick, F.J. 1980. *Guide to Microcomputers.* Association for Educational Communications and Technology (Publication Sales Dept.), 1126 Sixteenth Street NW, Washington, DC 20036. Softbound. 152 pages. No price given. The title understates the content because it is also a guide to microcomputers in education. Several chapters clearly introduce microcomputers and the more popular models used in education, disk operating systems, sources of special accessories (like joysticks, light pens, etc.) are provided. But the remainder of the book is devoted to some of the more specific aspects of educomputing. These include actual subroutines to create drill and practice sessions, and the review of Bell and Howell's GENIS I system. Another chapter discusses time sharing with microcomputers, the microcomputer in the media center, electronic mail, videodiscs, lists of relevant journals, disk operating systems, and a bibliography. It does not include all topics, but provides informative introductions to what is covered.

Lewis, R. and Tagg, E.D. (eds.) 1981. *Computer Assisted Learning: Scope, Progress and Limits.* Heinemann Educational Books, 22 Bedford Square, London WC1B 3HH, England. Softbound. 223 pages. $16.00. This book contains the papers presented at a working conference held in England in September 1979 organized by the International Federation for Information Processing. While somewhat out of date (1979 saw just the beginning of significant use of microcomputers in education), the volume is valuable for the concepts discussed and for an indication of educomputing activities in other countries. For example, L. Braun's, "Odyssey into Educational Computing" is an engaging, informative summary of his diverse experiences. It could easily serve as the basis for a valuable discussion among educators in a department. Since the book contains little biology, it would be sufficient only to have it available in the library.

Papert, S. 1980. *Mindstorms: Children, Computers, and Powerful Ideas.* Basic Books, Inc., New York. Softbound. 230 pages. $6.95. One can say this book is all about

LOGO, how it was invented, and how it works. But the book has taken an even more essential role in educomputing as a source and stimulus to guard against seeing the computer as just an electronic textbook, or even only as a source of valuable simulations. Papert asks us to view the computer as what I call an extension of our minds and a way of organizing ideas. People learn concepts by association with other concepts and systems. Papert became fascinated with gears early in childhood and found that they could serve as models for many abstract ideas, e.g., multiplication tables were seen as gears. He does not suggest that everyone turn to gears! Rather, since computers can simulate many thought processes, real events, etc., they can become the aid to thinking that might help each of us in unique ways. He also emphasizes the value of holistic education, the merging of the affective and cognitive domains. Some educators may still not be positively comfortable and excited about computers in learning. Papert tries to show us how much better education can be when both students and educators are comfortable with computers. He concentrates on aspects of mathematics, but the book can easily stimulate us far beyond that one subject.

Taylor, R. (ed.). 1980. *The Computer in the School: Tutor, Tool, Tutee.* Teachers College Press, Columbia University, New York. Softbound. 274 pages. $14.95. In his brief introduction, Taylor constructs the framework for the book's 19 essays (written by five leaders in educomputing): the computer as tutor, tool, and tutee. In the order given, these three terms define three major types of computer use. Most consider it first as a tutor (e.g., electronic flash cards), then as a tool (e.g., statistical or graphic analysis), and ultimately as tutee. Few examples of computer as tutee exist outside of students creating their own programs, or using simulation languages to create a better computer model of a system (e.g., a pond ecosystem). Yet as more and more special "applications languages" appear that do not require knowledge of BASIC, Pascal, etc., and if even just some of the promise of artificial intelligence is realized, who knows what the limits of the computer as tutee will be! Regardless, as students become tutors, they will need our help as teachers even more. But the help will be on a higher cognitive level than before! This book should be read by every educator and administrator to develop a general philosophical context for educomputing.