

Significant Books

Contributors: Paul W. F. Witt
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An Introduction to Programed Instruction. *William A. Deterline.* Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1962. p. 131.¹

Teaching Machines. *Benjamin Fine.* New York: Sterling Publishing Company, Inc., 1962. p. 176. \$3.95

Applied Programed Instruction. *Stuart Margulies and Lewis D. Eigen, editors.* New York: John Wiley and Sons, Inc., 1962. p. 387. \$6.95

The Learning Process and Programmed Instruction. *Edward J. Green.* New York: Holt, Rinehart and Winston, Inc., 1962. p. 228. \$4.00

Teaching machines and programed instruction are terms with which most educators were wholly unacquainted as recently as five years ago. Today, however, almost every teacher, supervisor or administrator, as well as lay citizen, is acutely aware of these terms and is greatly concerned about the role of automated instruction in the education of children, youth and adults.

Through a spate of articles in professional journals and popular magazines, by means of a number of technical and popular books, and in speeches at teachers' conventions and PTA meetings, educators and parents are being bombarded with claims and counterclaims regarding the pedagogical values of self-tutoring

materials and auto-instructional devices. Advocates of programed instruction maintain that the proper use of appropriate materials of this kind will result in great gains in the effectiveness and efficiency of teaching and learning. They say that instruction will be at uniformly high levels, that each pupil will be enabled to learn at his own pace and that he will learn faster and better, that classroom teachers will be free to concentrate on tasks they are professionally prepared to do, and that the unit cost of instruction will be reduced.

On the other hand, many eminent educators caution against the uncritical acceptance of teaching machines and programed materials. They express serious doubts about impersonal, routinized instructional techniques. They stress the limitations of machines for dealing with individual differences and for generating interest in and dedication to intellectual and esthetic pursuits. They point to the facts that the number of programed courses of demonstrated quality currently available is extremely small and that these courses deal mainly with only one kind of learning, the acquisition of factual information. They note that programed materials for developing reasoning and judgmental abilities and for developing understandings and appreciations are as yet unavailable. Furthermore, many of these educators doubt that such abilities can be developed by programed instruction alone.

¹ Programed instruction, in these titles, is spelled with only one "m" except for the title of Green's book. He uses two "m's" in this term in the title of his volume.

Confronted by these conflicting points of view and the bewildering array of teaching machines now flooding the market, many educators and parents find it difficult to identify the values of automated instruction and to decide whether this approach to teaching and learning should be used. As they wrestle further with this problem, they may find it useful to read one or more of the four new books reviewed here.

Individuals who have little or no information about programmed instruction and teaching machines and those who wish to clarify their understanding about these matters will find the direct and well-organized presentation in *An Introduction to Programed Instruction*, by William A. Deterline, illuminating. Deterline, an American Institute for Research staff member, defines programed instruction and notes its similarity to tutorial instruction. He describes procedures

followed in developing auto-instructional programs. He traces the historical development of programed instruction with special attention to the contributions of Pressey and Skinner. He reviews the principles of learning underlying programed instruction with emphasis on reinforcement, extinction, generalization and discrimination, and concept formation. He explains linear and branching programing. After reporting briefly on some studies of student reactions to programed materials and the effectiveness of these materials, Deterline concludes with implications for teachers and students. The bibliography and the examples of various types of programing are especially valuable features of this book.

In typical journalistic fashion, Benjamin Fine reports, in *Teaching Machines*, the findings of his six-months, coast-to-coast survey. Although not a penetrating analysis of automated instruction, this re-

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port presents a broad overview of its present status in schools and gives a general impression of the reactions of selected students, teachers, parents and administrators to auto-instructional devices. Several direct quotations from these persons and the photographs of the author interviewing them add interest. The Table of Contents is organized as a program. While this is a novel feature, the weaknesses in the program may reinforce the skeptic's view that programed instruction is of little value.

Applied Programed Instruction, edited by Stuart Margulies and Lewis D. Eigen, contains a series of articles written by leading practitioners in the field of programed instruction. The principal foci of these articles are: the fundamentals of programed instruction, the current status of teaching machines, the use of auto-instructional materials and devices in industrial and military training, an introduction to computer-based teaching systems, an analysis of the potential market for programed materials and the economics of automated instruction, and the programing methods of three programing agencies. While educators working in elementary and secondary schools, especially those who are newcomers to this field, may find many articles somewhat esoteric and unrelated to their educational experience, the specialists in programed instruction (programmers, researchers, publishers and training directors) will find this book a rich storehouse of useful information and ideas. Everyone will find the sample frames from selected programs highly informative.

A book likely to become a literary landmark in the field of automated instruction is Edward J. Green's *The Learning Process and Programed Instruction*. In this book, Dr. Green, a Dartmouth

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professor of psychology and psychiatry, is concerned with the application of behavioral principles to problems of education. He believes that "The development of programmed instruction promises to alter drastically the nature of our educational institutions and thereby even the nature of the society within which these institutions exist." He contends that "... human behavior is a determined monistic phenomenon . . . accessible to scientific investigation," and that "There is a difference in complexity between the behavior of the laboratory animal and that of the student solving a problem in differential equations," but that "There is no essential difference between two organisms in the processes by which their behaviors are established." Dr. Green's scholarly analysis of learning and thoughtful discussion of programed instruction and teaching machines merit

serious attention and study on the part of every educational leader.

While some may find Dr. Green's position regarding the prediction and control of human behavior disturbing, few are likely to disagree with his contention that programmed instruction is merely a tool and that "It will be only as good or as bad as the uses to which it is put." Everyone who is genuinely committed to the improvement of education will also concur in Dr. Green's advice that we try programmed instruction and then make our judgments regarding its value on the basis of the results we achieve through its use.

As we are frequently reminded, programmed instruction is here to stay. Our responsibility is to find out how best to use it or to discover irrefutable proof through experimentation that it is valueless or impractical.

—Reviewed by PAUL W. F. WITT, Professor of Education, Teachers College, Columbia University, New York.

The Academic President—Educator or Caretaker? *Harold W. Dodds.* New York: McGraw-Hill Book Company, Inc., 1962.

A General Pattern for American Public Higher Education. *T. R. McConnell.* New York: McGraw-Hill Book Company, Inc., 1962.

In recent months two authors have focused their attention on some issues in higher education. Dodds, in a study supported by the Carnegie Foundation for the Advancement of Teachers, has reviewed the role of the president in a collegiate institution. McConnell has used research data to reexamine the roles of public colleges and universities.

Dodds leaves no doubt that the role of the academic president is one, not of a caretaker, but of an educator. After



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interviewing presidents, deans, trustees, faculty members, and students, he concludes that presidents devote too little time to educational matters and too much time to financial matters, public relations, and physical facilities. As a result, presidents have lost the leadership role held in the past and needed for the future. He suggests that until presidents become more eager to discuss curricular plans with visitors rather than to show new buildings, they will not regain that leadership role.

With this emphasis on educational leadership forming the backdrop, Dodds proceeds to put such matters as administrative activities, finances, trustees, and facilities into proper perspective. Agreeing that all of these factors must be attended to, Dodds recommends that they should not take more than half of the president's time. To be able to do this, the president must have the ability to

delegate both responsibility and the *necessary authority*. Only when he can do this can he go about his business of being an educator.

Throughout, Dodds examines a number of issues in a thoughtful and provocative manner. It is regrettable, however, that he devotes so much space to the president's caretaker responsibilities in comparison to his responsibilities as an educator.

McConnell, in his publication, considers the roles of public institutions of higher education in a time of rising enrollments and costs. Although the preface states that no pattern for organizing public higher education is given, it is clear that one is implied.

The author favors a hierarchy of public institutions of higher learning which includes junior colleges, state colleges, and state universities. Admission to junior colleges would be relatively unrestricted, slightly more restricted for colleges, with university enrollment restricted to "students capable of high achievement in the arts and sciences, and in professional and graduate studies."

While making such a suggestion, McConnell fails to come to grips with problems that would arise from such an arrangement. One problem would be the image of junior colleges as a haven for students of low ability. Such an image would result in junior colleges being unable to attract a capable student body. Attracting a capable faculty would be difficult, too, for the incentive would be to move from junior college to state college to university—for both salary and prestige.

McConnell urges that consideration be given to closer coordination among state universities and colleges. Such coordination, he states, could reduce unnecessary

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duplication in programs and result in more efficient and economical utilization of the resources available for higher education. The need for some kind of coordination is clearly presented, and illustrations of ways different states have attacked the problem are given. Unfortunately, McConnell does not handle in a clear-cut fashion the difficulty in trying to coordinate a system in which one segment (the university) is held in high esteem and other segments are relegated to second and third class positions. Such a situation would make real coordination difficult if not impossible.

The difficulties for determining a pattern for public institutions of higher education are clearly illustrated throughout this book.

—Reviewed by ROBERT S. THURMAN,
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