

## ● Selected for Review

Reviewers: Vincent J. Glennon  
Fred J. Lorenzen, Jr.  
Ray E. Bruce  
Jean T. Kunz

**International Study of Achievement in Mathematics, Volume I. Torsten Husén, editor: International Study of Achievement in Mathematics, Volume II. Torsten Husén, editor.** New York: John Wiley & Sons, Inc., 1967. Volumes I and II, \$19.95.

—Reviewed by VINCENT J. GLENNON and FRED J. LORENZEN, JR., *Arithmetic Studies Center, Syracuse University, Syracuse, New York.*

This major comparative investigation of secondary mathematics achievement in Australia, Belgium, England, West Germany, Finland, France, Israel, Japan, the Netherlands, Scotland, Sweden, and the United States was conducted under the joint sponsorship of the U.S. Office of Education, the UNESCO Institute for Education and the educational research institutes in these countries.

This first phase of the International Project for the Evaluation of Educational Achievement (IEA) is one of the most ambitious, large-scale empirical studies ever undertaken. The study, which emerged from the need to estab-

lish international evaluative criteria for comparative educational research and which has taken four years to complete, represents a major advance in this field, where a dearth of valid empirical research has existed previously.

The purpose of the study was "to test a number of fundamental hypotheses relating to the outcomes of different patterns of educational organization set in a variety of social and cultural contexts," *not primarily to compare mean achievement scores between countries.*

The hypotheses tested the effects on mathematics achievement of a large number of relevant independent variables under the headings: (a) school organization and selection; (b) curriculum and instruction; (c) support for education; (d) students' background factors; and (e) social, economic, and geographical factors.

Data were collected in eight languages and analyzed for 133,000 students, mainly 13-year-old and pre-university year students, from 5,400 schools by means of a mathematics achievement test, attitude inventories, and questionnaires. A 54 x 54 correlation matrix was constructed for each country and

for each age level; a 26 variable multiple regression was also used in the analysis.

The report, which needs to be commended for its clarity, objectivity, thoroughness, and its cooperative spirit, constitutes a valuable source book of material for social scientists, administrators, and educators, but it has little professional significance for the classroom teacher.

The IEA project has assumed that no nation is entirely satisfied with its educational system or could fail to profit from a comparative study. The findings indicate steps which might be taken in various countries in order to improve mathematics achievement. The study has been beneficial by enabling national reports to be prepared against the background of the international data and by enabling educators to benefit from the educational experiences of other countries. The educational and cultural diversities between countries have enabled educators for the first time to question important assumptions on which educational structures and curricula are based.

A number of findings contradict or render obsolete numerous results of previous research studies in comparative education. The IEA study will overshadow other comparative studies for some time to come, but more importantly it will light the way for future research and tend to discourage studies which are trivial or less valid.

The report methodically disposes, one by one, of the typical pitfalls of comparative educational research advanced by the critics, Kaulfers and Brickman. The shortcomings, the failures, the oversights, the inconsisten-

cies, and the restrictions on the generalizations are all admitted candidly. However, when these limitations have been stressed, much that is considered valuable remains.

Implications for the schools include inferences concerning the comprehensive school, the age of specialization, the grade placement of topics and the age of school entry. The findings indicated that improvements in achievement were mainly attainable by manipulation of school and curriculum variables.

Inadequate and misleading reports of the IEA project in the mass media have tended to dramatize the spectacular mean achievement scores taken out of context. However, although such cross-national comparisons are taboo, they may have been useful in breaking through public complacency concerning needed improvements in education.

The major contributions of the study would appear to be: (a) its reference value with respect to its techniques, instruments, conceptual framework and analyses; and (b) the availability of its data bank for further studies. The mean achievement scores would appear to be its least valuable contribution.

Plans for extension of the study in its other phases include an assessment of achievement in several subject areas at the same time, the development of a conceptual model for comparative educational research, the restudy of many variables identified in the first phase and the correction of a number of limitations of the first phase. For these reasons, the writers believe that the report should not be judged too critically until other phases have been completed. Meanwhile, readers are

## THE CHANGING SECONDARY SCHOOL CURRICULUM

### Readings

By WILLIAM M. ALEXANDER, Director, Institute for Curriculum Improvement, University of Florida

Intended to be a major guide and resource for all who study the American secondary school curriculum, this is more than a textbook in the traditional sense of a book of facts and principles based upon the writer's point of view alone. It is a collection of opinions and theories that reflect various positions on complex and controversial curriculum issues.

1967 496 pp. \$6.50 paper

## INDEPENDENT STUDY IN SECONDARY SCHOOLS

By WILLIAM M. ALEXANDER and VYNCE A. HINES, both of the University of Florida, and Associates

Here is the first book to develop fully the concept of independent study. The authors describe and illustrate its use in secondary schools. They present students and teachers who use the method and offer five patterns of independent study with factual material about actual practices and steps to be taken in the development of programs.

October 1967 208 pp. \$3.95 paper

## OPERATING GUIDANCE SERVICES FOR THE MODERN SCHOOL

By GERALD T. KOWITZ, University of Oklahoma, and NORMA GIESS KOWITZ

Viewing school guidance services as an independent and important function of the school rather than as an ancillary administrative service, the authors focus attention on the changing social milieu in which the schools and services must operate. In doing so, they raise some serious questions about the new and emerging directions of guidance services. They stress the need to apply the principles of modern management theory to the human relations problems of pupil personnel services.

January 1968 288 pp. \$6.95 (tent.)



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urged to guard against misuses of the first phase results. ↵

Readings in Science Education for the Elementary School. *Edward Victor and Marjorie S. Lerner*. New York: The Macmillan Company, 1967. 506 pp.

Teaching Science Creatively in the Secondary Schools. *Nathan S. Wash-ton*. Philadelphia: W. B. Saunders Company, 1967. 430 pp.

The Psychology of Science: A Reconnaissance. *Abraham H. Maslow*. New York: Harper & Row Publishers, Inc., 1966. 168 pp.

—Reviewed by RAY E. BRUCE, Deputy Superintendent, Public Schools, Pine Bluff, Arkansas.

Each of these volumes in its own way issues a challenge to the traditionalism of science.

In expressing this challenge Abraham Maslow is the most forthright of the authors. He asserts that science has failed to attack many cognitive problems "because of its hidden but fatal weakness—its inability to deal imper-sonally with the personal."

*The Psychology of Science: A Reconnaissance* is an elaboration by Professor Maslow of his provocative John Dewey Lecture of February 1967. In this volume, the author, speaking from his experience as psychologist, is convincing as he pleads for recognition that science has broader responsibilities and opportunities than those assigned to it by the physicists and astronomers of earlier days who felt secure in their tight, mechanistic models. Defensively, he offers: "I certainly wish to be

understood as trying to enlarge science, not destroy it."

This scholarly volume provides stimulating reading for the science protagonist or antagonist; even the casual reader is driven to take a position. The book's greatest value is in forcing introspection; it is not a textbook but could be used as the subject of valuable seminar discussions for science educators.

Nathan S. Washton in *Teaching Science Creatively in the Secondary Schools* issues a challenge to traditionalism. He offers a methods book written on the assumption that science instruction must focus on preparation for change. Some traditionalists might challenge Professor Washton's opening remark: "Perhaps the only constant in science and science teaching is change." His volume reflects, however, in every section his commitment to preparation for change based on research.

This book is intended as a textbook for preservice training of science teachers for the secondary schools. It would serve that purpose well, but it would be an extremely valuable book for in-service teachers, too. Portions of "Part Three: Methods and Resources of Science Instruction" and "Part Four: Evaluation and Professional Development" provide guidance for classroom teachers not readily available from other sources.

Any prospective user of this book will be interested in the end-of-chapter features. For all but one of the sixteen chapters there is a set of questions which, though helpful, seem regrettably to reflect emphasis more on content than on process. Each chapter includes a list of sources referred to within the

chapter and an additional list of "Suggested Readings."

In the reviewer's judgment this book is distinguished from other science methods textbooks by its generous reference to, and obvious regard for, research findings which impinge on science teaching.

Edward Victor and Marjorie S. Lerner have added the words of others to their own to describe the search for new directions in elementary school science and science teaching. They have selected sixty-two articles to include in *Readings in Science Education for the Elementary School*. They have grouped these to present current thinking on the vital areas of: the role of science, organization and planning for teaching, teaching, evaluation, materials and facilities, improving the quality, inquiry and process, and recent curriculum developments.

This book would be valuable for collateral reading in a methods course, particularly if the instructor accepts the assumption of the editors that student time and library resources are limited. With careful planning it could also be used as the basic text in a methods course. It could be a very effective resource book for workshops and seminars involving in-service teachers.

This volume is impressive because of its distinguished authorship and its comprehensiveness. But most books of readings deserve the same tribute.

What distinguishes this book from many others is that the editors have provided at least one section designed to challenge any reader. They have drawn writings from Piaget, Bruner, Gagné, and others to explore "Inquiry

and Process in Elementary Science." The articles selected communicate to the reader a feeling for the currently vigorous search for direction in science and science teaching. The editors declare themselves for "a happy medium of both process and content" even as they offer articles which challenge the traditional emphasis on content. This section alone will assure the success of this book of readings.

A decade has now passed since the orbiting of Sputnik. The resultant wave of citizen concern for the effectiveness of the program of science education within the schools has now largely subsided. But this reviewer infers from the three books discussed here that the ferment continues among science educators and that the viability of science and science education depends on this continuing ferment. ☞

**Child Development: An Individual Longitudinal Approach.** *Leland H. Statt.* New York: Holt, Rinehart & Winston, Inc., 1967. 500 pp. \$8.50.

**Recording and Analyzing Child Behavior.** *Herbert F. Wright.* New York: Harper & Row Publishers, Inc., 1967. 284 pp. \$4.50.

**Educational Psychology in the Classroom.** *Henry Clay Lindgren.* (Third edition.) New York: John Wiley & Sons, Inc., 1967. 645 pp. \$8.50.

—Reviewed by JEAN T. KUNZ, Professor of Psychology, Scripps College, Claremont, California.

Each of these three authors has a commitment to the value of observation in understanding human behavior. The material presented in the three volumes offers an interesting sequence

of information. *Child Development: An Individual Longitudinal Approach* is a comprehensive presentation of how a child grows and develops. *Recording and Analyzing Child Behavior* is a treatise on how to observe and analyze growth and development in a scientific manner. *Educational Psychology in the Classroom* is a discussion of how the knowledge of human growth and development can be used to promote wholesome growth in schools.

*Child Development: An Individual Longitudinal Approach* is a comprehensive presentation of the nature and the process of the development of the human individual. The author has based his book on the premise that development takes place as an interaction between the organism and environment. Reasonably complete information on the major issues involved in this theoretical view is presented. The historical-theoretical material is blended with research data and a practical application as the reader follows the development of twins Paul and Sally from family case record 695.

Techniques for gathering and analyzing data are explained at appropriate places throughout the book to give the student-reader an appreciation for the need and use of research data in understanding growth and development. The information cited from the case record 695 furnishes all types of data with which Statt illustrates, in a most scholarly fashion, the developmental changes at various levels of maturity.

Statt has assembled and presented his information with a quality of excellence. All facets of a subject are presented. Varying theories and research concerned with a particular topic

are discussed for the reader to consider and explore further.

Observation has always been one of the main research tools for the social scientist interested in human behavior. Many theories of how the human organism grows, develops, and functions have been based on information gathered from observation. *Recording and Analyzing Child Behavior* is an explanation of an explicit technique for recording and evaluating observed behavior so that the data can be used in controlled research designs.

Since the method of observation is ecological in nature, it is concerned with the natural environment as well as the behavior of the one observed. Thus the "psychological habitat" is essentially the social and physical milieu of the community, including the accepted patterns of human behavior.

In order to establish a concise framework for analyzing behavior, Barker, Wright, and their colleagues have established a special set of terms. Wright's definitions are clear and understandable, but there is a question as to how easy it would be to use the framework. Perhaps a computer could be programmed to analyze the specimen records. Psychologists and others who are interested in the dynamics of human behavior will find the instrumentation of the method useful.

It is stated in the foreword of *Educational Psychology in the Classroom* that writing such a textbook is an ambitious project and indeed it is. The book covers a wide range of subject matter—almost the entire fields of Psychology and Education. While the author attempts to support the presentation with research, the discussion of



## INDUSTRIAL EDUCATION

### American Ideals and Institutions

By Berenice M. Fisher

Through skillful historical and sociological analysis, Miss Fisher provides a basic background of information and understanding to the currently debated questions about industrial education, explaining what the debates are about and how they developed. Part I uncovers and explores the major approaches and Part II deals with the application of industrial education in two areas requiring different approaches.

\$6.50

## DAVID SNEDDEN AND EDUCATION FOR SOCIAL EFFICIENCY

By Walter H. Drost

One of America's pioneer educational sociologists, David Snedden (1868-1951), was a proponent of social efficiency in education. Central to his program was an effort to determine the probable destination of each individual and to prescribe a curriculum especially suited to promote his ultimate efficiency. Many of Snedden's arguments have continued as important alternatives in educational planning even today.

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specific areas and problems in teaching is of necessity done in a peripheral manner.

Throughout the book, there is the belief that teachers must come to understand and value their own behavior and that of the students with whom they work. Anecdotal examples of students and teachers in the learning situation are used to illustrate the relationship between teacher, learner, learning process, and learning situation. For the student interested in teaching, the book is a valuable overview of the knowledge, insights, and understandings necessary for excellence in teaching.

In some facets of the material the author presents a dichotomy between theories and research discussed and practices proposed. Both anxiety and competition are suggested as useful means to promote the educative process while the discussion of White's theory of competence and Sullivan's theory of anxiety indicate to the contrary.

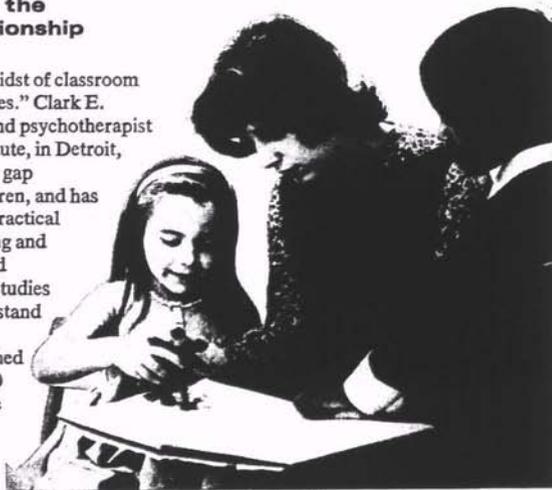
The chapter on the socially disadvantaged learner is a comprehensive evaluation of the problems involved in education for children from poverty. Most of the recent research related to the topic is cited and used to support the suggested curriculum and methods of teaching. ☞



## The Authentic Teacher

**A new insight into the teacher-child relationship**

"You find yourself in the midst of classroom situations—often taking sides." Clark E. Moustakas, psychologist and psychotherapist at the Merrill-Palmer Institute, in Detroit, has taken a long look at the gap between teachers and children, and has written a book that offers practical approaches to the deepening and enrichment of teacher-child relationships. Actual case studies illustrate the need to understand the child on his level. *The Authentic Teacher*, published at \$3.50, paperback; \$5.50 cloth covered, is invaluable to guidance personnel, teachers and students.



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