McGRAW-HILL SERIES IN EDUCATION

AUDIO-VISUAL AIDS TO INSTRUCTION

BY

HARRY C. McKOWN

Author of "Extracurricular Activities," "School Clubs," "Assembly and Auditorium Activities," "Commencement Activities," "Homeroom Guidance," "Character Education," "Activities in the Elementary School"

AND

ALVIN B. ROBERTS

Principal, Haw Creek Township High School, Gilson, Illinois; Summer Instructor in Visual Aids, Western Illinois State Teachers College

FIRST EDITION
TENTH IMPRESSION

McGRAW-HILL BOOK COMPANY, INC.
NEW YORK AND LONDON
1940

PREFACE

One of the most discouraging things about traditional education is to be found in the premium that it places upon pupil failures. For a long time the expression "a good teacher" has usually meant "a strict teacher"; and "strictness" has usually been associated, directly and indirectly, with "high standards" and, consequently, with academic failures. In short, it has been easy to assume that a teacher who "flunked" a considerable proportion of her pupils thereby proved her teaching ability. Obviously, this educational philosophy is thoroughly illogical and unjustifiable. It would be just as reasonable for a manufacturer, say, of automobiles, to claim distinction because a considerable number of his cars "failed." However, this defeatist philosophy has long dominated American educational institutions, and it still dominates them entirely too much.

On the other hand, one of the most encouraging things about modern education is the increasing emphasis that it places upon scholastic success. Clear-thinking and farsighted educators—teachers, administrators, and theorizers—are realizing that the success of the schools must be rated on the successes, not on the failures, of the pupils in these schools. And as a result of this changing philosophy these educators are now, more than ever before, searching for ways and means of reducing pupil failures and increasing pupil successes. Proof of this statement is to be found in such evidences as the number and extent of the investigational researches that are being carried on in all parts of the country, and in such other recent developments as curriculum revision, measurement, plant construction, reorganization, and guidance. And, further, this changing attitude also accounts for most of the present widespread interest in the "audio-visual aids."

Just what are these audio-visual aids? Specifically, how, to what extent, and under what conditions do they "aid"? Which types are best suited to the various grade levels, subjects, and kinds of instructional materials within these subjects? How can they be utilized to replace antiquated and obsolete methods and materials? How can they be incorporated as integrative and supplementary, rather than as separate and substitutionary, agents? In what ways can they be utilized most effectively? How can teacher and community support be developed? How much do they cost? Where can they be

obtained? The purpose of this book is to answer these and other similarly pertinent questions.

Naturally, it would be impossible to tell the whole story of audio-visual instructional possibilities in a single volume, so the authors have emphasized the phases that, in their opinion, will be most useful and helpful to teachers and administrators. Theory has been limited to essentials. Not only has practice been emphasized in connection with the discussions of the various aids, but, in addition, three chapters of examples of actual uses in all grade levels of the elementary and the secondary school have been included. Similarly, the references have been carefully selected on the basis of pertinency, practicability, availability, recency, and variety.

The reader of this book, or of any similar book for that matter, should remember that as a general movement audio-visual instruction is still in its infancy. It has had an enormous growth during the past five or six years, but it has not yet reached maturity. Consequently, the reader should not assume that all the questions suggested above can now be answered completely, conclusively, accurately, and permanently. The present pioneering efforts of educational and producing leaders will result in new and improved materials, equipment, organization, techniques, and emphases which ultimately will bring these more thorough, conclusive, accurate, and permanent answers. And in this work of pioneering the teacher herself will have an important part through utilizing, adapting, experimenting, and evaluating. This is both her opportunity and her responsibility.

The authors wish to express their appreciation to the many persons who have helped to make this book possible and to the various publishers for permission to use copyrighted materials. They are especially grateful to the following for constructive criticisms and helpful suggestions: Harry Aldus, Director, Visual Aids Program, Galesburg, Ill.; William C. Bicknell, Instructor in Education, University of Missouri; Lee Cochran, Supervisor, Department of Visual Instruction, University of Iowa; Ellsworth C. Dent, Director, Educational Department, R.C.A. Manufacturing Company, Inc., Camden, N. J.; Wilber Emmert, Director, Visual Education, State Teachers College, Indiana, Pa.; Marian Evans, Director, Visual Aids Education Activities, and James House, Technical Assistant, San Diego Public Schools, San Diego, Calif.; Erna Grassmuck Gilland, Consultant in Geographic Education and Chairman, Education Relations Committee, National Council of Geography Teachers, California, Pa.; Nelson L. Greene, Editor, *Educational Screen*, Chicago, Ill.; W. E. Hess, Assistant Director, Discussion Group Project, National Association of Secondary

School Principals, Washington, D. C.; John A. Hollinger, Director, Department of Science and Visualization, Pittsburgh Public Schools, Pittsburgh, Pa.; James S. Kinder, Professor of Education and Director, PCW Film Service, Pennsylvania College for Women, Pittsburgh, Pa.; F. Dean McClusky, Director, Scarborough Schools, Scarborough-On-Hudson, N. Y.; L. V. Peterson, Supervisor, Visual Aids Service, University of Illinois; Lulu Spilde, Director of Extension, Southern State Normal School, Springfield, S. D.; Zoe A. Thralls, Associate Professor of Geography and Education, and Gerald A. Yoakam, Professor of Education, and Director of Courses in Elementary Education, University of Pittsburgh; A. G. Tillman, Professor of Geology and Geography, Western Illinois State Teachers College, Macomb, Ill.; C. R. Van Nice, Managing Editor, *School Activities*, Topeka, Kan.; and W. W. Whittinghill, Director, Department of Visual and Radio Education, Detroit Public Schools.

HARRY C. MCKOWN.
ALVIN B. ROBERTS.

GILSON, KNOX COUNTY, ILL.,
October, 1940

EDITOR'S INTRODUCTION

In spite of the fact that education is a most important human agency, which by its very nature requires thorough understanding and utilization of all means of communication, it is often the last to employ new and improved methods for the transmission of thought. For a long time after the invention of printing, lectures and manuscript notes were thought to have a certain pedagogical superiority over the products of the presses. Even today an occasional university professor drones forth his daily quota of facts and theories from lecture notes in disregard of the economy of time and effort which might be gained by having his students consult the same printed sources from which he derives his own classroom wisdom.

In most areas of education, however, the value of books and other printed materials has long been recognized. In the meantime new means of communication have been developed. Such powerful instruments as the phonograph, the motion picture, and the radio have been perfected and used extensively outside the school. Their strength and usefulness have been demonstrated. The part they can be made to play in the modification of human behavior is seen to be undeniably very great. Yet the great mass of teachers on every level of the school cling to the book in what amounts almost to a passionate devotion.

Teachers do well to cling to the book if they will only cling to it with eyes open to the uses of other than printed aids to learning. With each step forward in the improvement of newer means of communication it is not at all true that the importance of printed materials necessarily diminishes. In some cases it becomes greater, as when a pupil reads *Silas Marner* with increased vividness of appreciation after having seen the motion picture production of that classic, or studies his geography with a wealth of concrete imagery about Antarctica derived from hearing the broadcasts from Little America. In fact it is very probable that the potential value of the book as an aid to learning was never so great as it is today precisely because of the development of auxiliary devices for the interchange of ideas and emotions.

Under these circumstances every teacher needs to have at his command all the tools of the trade in order to be truly successful with any one of them. He will avoid the quackery of relying upon a single

cure-all supposedly good for all situations. He will not try to teach history by book and lecture alone any more than he will fall into the notion of teaching natural science by exclusive use of microscope and test tube. He will recognize the essential purposes of each phase of his instruction. He will study the factors in each learning situation. He will know the capacities of his pupils and how their abilities and interests may be directed. Then, upon the sure foundation of a sound and comprehensive knowledge of the teaching problem in any instance, he will select methods, devices, and aids to learning which in his best judgment will give superior results. He will study the operation of those factors as he employs them, shifting them, changing them, replacing them as the need arises. Thus he will be a professional worker with a full complement of skills and instruments rather than a rule-of-thumb operator who has faith in only two or three prescriptions because those are all he knows.

The present volume is an admirable guide for one who wishes to reach this professional level of skill with respect to the audio-visual aids. It discusses the principles and describes the practices whereby education is being profoundly changed in method of presentation. It is a handbook for the teacher and administrator who hold to the ancient goal of the greatest learning with the least pain.

HAROLD BENJAMIN.

UNIVERSITY OF MARYLAND.

CONTENTS

AUDIO-VISUAL AIDS TO INSTRUCTION

CHAPTER I

THE SCOPE OF AUDIO-VISUAL INSTRUCTION[1]

Modern society is now making unprecedented demands of its educational institutions, and probably most of these demands are logical, reasonable, and desirable. In an early day life was simple, and what formal education was provided was not only somewhat innocuous but also relatively inexpensive. Few individuals questioned either its value or its cost. The unsupervised schoolmaster, left largely to his own devices, taught what he wanted to teach, and taught it in his own way. And he was probably at least fairly successful in his work.

Then came expansion. Population increased by leaps and bounds; boundaries, mental and social as well as physical, were pushed back; discoveries and inventions increased man's interests and activities; and society, in all of its phases, became complex. Formal education also increased in size and complexity; the one-room school became a large, and often an immense, plant; little or no special equipment grew into a great array of appliances, materials, and devices; the three R's developed into an amazing schedule of general and diversified curricula; unspecialized teaching gave way to specialized instruction; the single schoolmaster was replaced by a faculty of more or less highly trained specialists; and, of course, the small cost grew into a large expenditure.

Into this new setting came two outside critics. One believed in education but was skeptical of the means, methods, and materials by which it was promoted, as well as of the extent to which it was achieved. Demanding efficiency in the other phases of his life, it was easy for him to demand efficiency in educational affairs. The second outside critic knew little about education and cared less but was interested in keeping down its rapidly mounting cost. Taking advan-

[1] See pp. 6–7 for an explanation of the use of this expression.

tage of the opportunity, two insiders immediately joined the outside skeptics, one an opportunist who was quick to realize that it was not complimentary to have outsiders pick out faults and weaknesses which he should have seen first, and the other a serious-minded educator who had always been sincerely desirous of improving practice in his field. And, naturally, other outside and inside critics were quick to support the traditional and conservative in education. As a result, at the present time education is being discussed, both favorably and unfavorably, more than ever before in the history of the nation.

In short, although modern society is still willing to pay for education, it is increasingly demanding proof of the value of its investment. It is demanding businesslike efficiency in educational activities. In general, the thinking part of it is coming to care little more for traditions in education than it does for traditions in transportation, manufacturing processes, or wearing apparel. Increasingly, its attention is being centered on what is, or what should be, accomplished in the lives of children and young people.

Reacting to these outside and inside criticisms, educators have originated, developed, introduced, and promoted many new and readapted types of organization, materials, devices, methods, and procedures, such as, for instance, the junior high school, general subjects, integration of subject matter, socialized recitation, supervised study, organized guidance, scientific measurement, personnel work, extracurricular activities, pupil transportation, and modern housing. Undoubtedly progress has been made towards the ideal which society is demanding. And just as certainly more progress will be made as educators have additional experience, and with it greater maturity in their profession.

One of these "newer" educational movements, and one which promises to have a tremendous influence because it attacks the problem vitally at the bottom through actual teaching, instead of more or less superficially at the top through reorganization, is audio-visual instruction.[1]

WHAT IS MEANT BY AUDIO-VISUAL INSTRUCTION?

Although it may appear to be putting the cart before the horse, yet because of the widespread misinterpretations of audio-visual instruction, the elimination of the most common of these at the very beginning will help to point the way from what it is not to what it is.

[1] A broad and scholarly view of the origins of the visual idea is given by Wendell Thomas in The Stream of Perceptual Teaching, *Educational Screen*, vol. 18, pp. 326–327, November, 1939.

Audio-visual Instruction Is Not Concerned Only with Motion Pictures, Either Silent or Sound.—Once invented, the motion picture developed with amazing rapidity and it was but natural that reflections and adaptations of its commercialized form should appear in various kinds of instructional activities. And, apparently, it was just about as natural for many individuals to think of it and "visual education" as being synonymous. The motion picture is one of the most spectacular, popular, and important of the audio-visual aids,[1] but a glance at the list on pages 7–8 should immediately convince anyone that it is by no means the only one.

Audio-visual Instruction Is Not a Separate School Subject.—Although there are departments of, and courses in, audio-visual instruction in teacher training institutions, yet in its applied form it is not a subject separate from the other subjects of the curriculum. Like composition, it has no content of its own. It permeates all instruction. It is a part of a teaching method designed to aid in the presentation of materials—knowledge, concepts, and ideas—in literature, mathematics, science, shopwork, and other fields, both curricular and extracurricular, so that they are more easily and clearly understood and appreciated. Audio-visual aids do not exist separately; they are, in reality, only aids to instruction.

Audio-visual Instruction Is Not a Substitutive Educational Device. For many centuries in man's early history after speech developed, experience was transmitted and instruction was given largely through the spoken word. Some six thousand years ago the written word came into existence. Today these two—the spoken word and the written word—are still the most important channels of instruction, and they will probably remain so despite those individuals who fear "robot instruction," and those prophets who see them shortly replaced by the radio, electric transcriptions, films, and other devices now included in the audio-visual program. As suggested before, these devices are supplemental only. Listening to and reading about will always be done, but they will be done more successfully and happily through a proper capitalization of these aids. The value of aids as "aids" is easily proved, and has been convincingly proved, by comparing the results of using aids with and without previous preparation.[2]

Audio-visual Instruction Is Not Mere Entertainment.—Sad to relate, there are still teachers and administrators who believe in "discipline" and maintain that the more difficult and distasteful

[1] See the quotation from the "Thirteenth Yearbook" of the Department of Elementary School Principals, on p. 50.

[2] See footnote reference on p. 16 to investigational and research studies.

schoolwork is, the more educative it is. These individuals are either ignorant of, or out of sympathy with, modern educational philosophy and psychology both of which stress the vital part interest plays in learning. The extreme "disciplinarian" (the "hard marker") tends to rate her success, not by the extent to which her pupils learn, but by the extent to which they do not learn, and her index of success is the proportion of high marks which she does not give.

To this teacher any device or procedure that is designed to lessen learning difficulties or make schoolwork more intriguing represents "soft pedagogy"—entertainment—and not education. Perhaps, in one way, this attitude is somewhat easy to take, especially in the case of aids which closely resemble or are adaptations of commercialized diversions such as dramatics, motion pictures, and trips.[1] As will be pointed out in detail later, audio-visual aids are not designed merely to amuse the pupil but to increase his interest in and his comprehension of the topic being studied by presenting several different slants on it, especially through his two most used senses, sight and hearing. In no way are they "cheap tricks to kid the pupils into learning," as one teacher of the old school described them.

Audio-visual Instruction Is Not New.—Although the expressions "visual education," "visual instruction," "visual aids," and "audio-visual instruction," "audio-visual aids," and "visual-sensory aids" are of recent origin as far as professional literature is concerned, the method involved is very, very old. In fact, because it is both simple and natural, it is probably the oldest method of conveying ideas. Primitive man certainly learned to convey his thoughts by signs, gestures, facial expressions, and crude imitations long before he developed a vocabulary with which to express them orally. Primitive youth were doubtless taught to hunt, fish, swim, and protect themselves from enemies and the weather through observation and imitation. Later came hieroglyphics or picture writing, and centuries later, the many and varied forms of early alphabets which found their way successfully onto clay tablets and papyrus. And, incidentally, the farther away expression got from the earlier and simpler forms, the more abstract and difficult to understand it became.

Even in formalized education visual aids have been used for centuries. Sand, boards, and slate, on which marks were made and diagrams were drawn, were the predecessors of the modern blackboard. Real objects and specimens have always been used to illustrate and inform. Trips were common in the ancient Greek schools, and these and other aids were recommended and used by Pestalozzi, Rousseau,

[1] See the footnote reference to the term "excursion" on p. 181.

Froebel, William Penn, Benjamin Franklin, Horace Mann, and many other great thinkers, educators, and leaders. Nearly two centuries ago the British Museum encouraged the "people, teachers, and children" to use its collections. As printing developed there came reproductions of drawings, and in 1658 Comenius' "Orbis Pictus," the first illustrated textbook, followed in 1690 by the famous "New England Primer" which was used for more than a hundred years.[1] And, of course, with the invention of photography by Niépce and Daguerre in the nine-

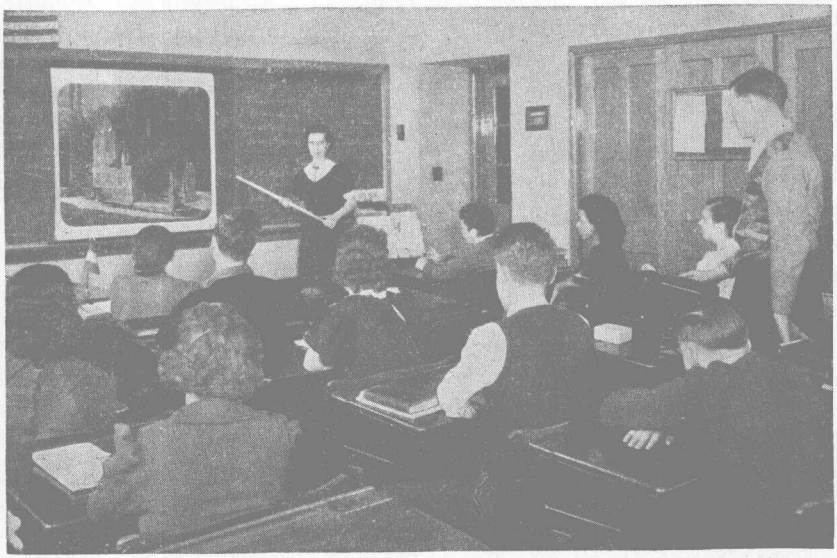

FIG. 1.—To many individuals "visual aids" means slides and motion pictures. Both slides and motion pictures are very important in this field, but there are also other helpful types of audio-visual aids. (*Courtesy of Keystone View Company.*)

teenth century and the development of modern engraving processes, the possibilities of utilizing illustrative materials in books and other forms for classroom purposes multiplied many times.

[1] A most interesting development in the reproduction of books is described by Watson Davis in Microfilm Hailed as a New Way to Duplicate Books, *Science News Letter*, vol. 31, pp. 179–180, Mar. 20, 1937. In this article Mr. Davis describes how six pages of an ordinary book can be reproduced on a microfilm of about 1″ × 5″ in size. He further states that, if the images can be reduced to one-fourth their present size, which appears probable, a 240-page book can be reproduced on film the size of the usual cataloguing card. In such instance a whole library would require no more space than that now occupied by its card catalogue. These "books" will be read from a translucent screen.

Another interesting possibility is the "talking book" which will be listened to, not read.

In summary, while the ancients knew nothing about the electric map, opaque projector, motion picture, strip film, or phonograph, they at least knew the value of the original and basic forms of audio-visual aid.

Perhaps from the above negative discussion a positive definition of audio-visual aid is apparent. In the oft-quoted words of Dorris, "Visual Instruction simply means the presentation of knowledge to be gained through the 'seeing experience'."[1] According to Roberts, "Visual education is a method of imparting information which is based upon the psychological principle that one has a better conception of the thing he sees than of the thing he reads about or hears discussed."[2] And Dent defines visual-sensory aids as "all materials used in the classroom, or in other teaching situations, to facilitate the understanding of the written or spoken word."[3] In short, these aids are supplementary devices by which the teacher, through the utilization of more than one sensory channel, helps to clarify, establish, and correlate accurate concepts, interpretations, and appreciations.

The earlier used expression "visual education" has been largely replaced by the more accurate "visual instruction," but, even though this is widely used at the present time, it too has serious limitations. Nearly all forms of dramatics, for instance, bring both a visual and an auditory experience, as does also a "talkie" description of an object, an explanation of a graph, or a transcribed discussion of a music program. Sound films, radio programs, and phonograph records have broadened the original narrower conception of visual instruction.[4]

Further, touch, taste, and smell can also be classified as channels for instructional aids. Touch in certain kinds of shopwork, taste in cooking, and smell in chemistry aid the same as visual and auditory experiences in these and other subjects. Perhaps "sensory aids," or "aids to perceptual learning," as Hollinger suggests,[5] might be a more

[1] DORRIS, A. V., "Visual Instruction in the Public Schools," p. 6, Ginn and Company, Boston, 1928.

[2] ROBERTS, A. B., An Introduction to Visual Aids, *School Activities*, vol. 10, pp. 212–214, 221, January, 1939.

[3] DENT, E. C., "The Audio-visual Handbook," rev. ed., p. 1, The Society for Visual Education, Inc., Chicago, 1939.

[4] In his article Audio Aids in a Visual Program, *Educational Screen*, vol. 17, pp. 39–42, February, 1938, Arnold P. Heflin discusses the place of these auditory aids and describes some interesting utilizations of them in the Lane Technical High School, Chicago. See also Chap. X.

[5] See HOLLINGER, J. A., Perceptual Learning, *Educational Screen*, vol. 19, pp. 49–50, 74, February, 1940.