

# Technology and the Further Reach

**Harry A. Johnson**

**A**T THE dawn of the seventies it is noteworthy that ASCD here focuses its attention on the need to examine the potentials of technological media in the educational process with a view toward applying the new technology to curriculum. There is an element of urgency to getting on with a more systematic approach to curriculum development, assessing the instructional problems, and crystallizing feasible solutions.

Youth the world over manifests revolution against the traditional classroom and the irrelevant curricula embracing so much of the instructional program in existing schools and colleges. Dissent from the colleges is moving down and down through the grades. There is an increased dissatisfaction with school, which first and last places reliance on order, on futuristic aims resting on answers provided by the past, on content based on knowledge which becomes obsolete almost at the point of attainment, upon guidelines and matching dictates which have an inhumane and forced feeding quality.<sup>1</sup>

The learning environment needs an arrangement of resources whereby the student responds and learns, to the unlimited extent of his curiosity. Implicit in such an environment, if it is to be effective, is the teacher who is aware of the role of technology in

developing a spirit of inquiry, self-motivation, and achievement. Technology and scientific achievements, whether they be in space or schools, are helping us to embark on one of the greatest ages of exploration and discovery ever known. Educational technology in particular is providing opportunities for increased learning through a wide range of instructional strategies and media.

## A Change in Philosophy

However, the first order of business is that of developing a philosophy of instructional technology. The outmoded view which many educators have of "Audio-Visual Aids" or "Educational Technology" must be replaced with a new and objective perspective. When technology is spoken of as an entity in education, too often it is greeted with lack of enthusiasm by many educators, with apathy by curriculum planners, while teachers themselves take up battle positions.

A philosophy, of course, can never be stated once and for all—any defensible philosophy of educational technology must be constantly open to scrutiny and change. If a philosophy or a point of view has nothing but custom or familiarity to support it, or the selfish wish of its advocates, it is weakened by these conditions.

Donald P. Ely, writing in the *British Journal of Educational Technology*, states a phi-

<sup>1</sup> Virgil M. Howes. "An Overview: Toward the Individualization of Instruction." In: *Individualization of Instruction: A Teaching Strategy*. New York: The Macmillan Company, 1970.

losophy as being a composite statement based on beliefs, concepts, and attitudes from which personal purpose and direction are derived. He maintains that it is only right that there should be a philosophy of instructional technology and that it should vary from individual to individual.<sup>2</sup> William Heard Kilpatrick of another generation says any person who is willing to question his present point of view, who is open to critical examination of his own views and those of others, who is earnest in his search for deeper, finer, more defensible values, can build a philosophy.<sup>3</sup>

Further underlining this philosophical change and the need for a proper image in the field of educational technology, Robert C. Gerletti, President, Association for Educational Communications and Technology (formerly DAVI), in announcing the organization's name change, had this to say:

This change reflects the evolving and expanding role of our members in American education. Today, we are more concerned with the processes of instruction, systems for learning, and technology in the broader sense. We are turning our attention more and more to the total instructional environment as it affects student and teacher as individuals, rather than simply supplying "visual aids."

The 10,000-member Association for Educational Communications and Technology is a professional organization of educators who are active in the systematic planning, application, and production of communications media for instruction.

## Need for Models

Instructional technology will find its place in school programs with a more systematic approach to instruction and an arrangement of resources whereby students respond and learn through a variety of strategies and materials. The need for models in the development of the school curriculum

<sup>2</sup> Donald P. Ely. "Toward a Philosophy of Instructional Technology." *Journal of Educational Technology*, Volume 1, Number 2, May 1970.

<sup>3</sup> William Heard Kilpatrick. *Philosophy of Education*. New York: The Macmillan Company, 1951.

is widely recognized today. In the careful design, development, and testing of instructional systems, both industry and the armed forces have moved ahead of the schools.

Some professional programs in medicine, dentistry, and engineering are now undergoing careful systems analyses and development, but the public school curriculum has not been similarly active, says Robert Glaser.<sup>4</sup> The humane tradition of Western education sometimes resists the scientific inroads into the behavioral sciences, if only because individuals prefer beauty to truth—even though technology, when properly controlled, can be a humanizing rather than a dehumanizing factor.

Curriculum specialists and educational media specialists must develop a greater respect for each other as fellow educators in recognizing the school's curriculum needs and the significance that technology can bring to the process of education. Advances in educational technology and its potential in individualizing instruction have placed new and increasingly complicated demands on curriculum developers. The new emphasis on instructional development as a way of curriculum change and the selection and utilization of newer media demand a new kind of curriculum expertise for instructional improvement through use of applied technology.

The knowledge of curriculum, learning theory, instructional strategies, and child development which the curriculum specialist possesses must be put to work in this environment. He not only continues to work with teachers on these matters, but he begins his dialogue with the technologists—the computer programmer, the media specialist, and the TV producer. This relationship is a new one, but it is vital if technology is going to serve our purposes.<sup>5</sup>

<sup>4</sup> Robert Glaser. "Components of the Instructional Process." In: John P. DeCecco, editor. *Educational Technology*. New York: Holt, Rinehart and Winston, Inc., 1964.

<sup>5</sup> Neil P. Atkins. "Educational Technology and the Task of the Curriculum Specialist." In: Paul W. F. Witt, editor. *Technology and the Curriculum*. New York: Teachers College Press, Columbia University, 1968.

It is becoming obvious to practitioners as well as observers that our electronic technology is eliminating the status quo in school libraries. Teachers and curriculum specialists with the further reach are, in an increasing number, showing a growing concern for nonbook materials. They are beginning to advocate the expansion of instructional resources to include not only books but a wide variety of nonbook materials such as motion picture films, 8mm single concept films, teaching machines and programmed materials, recordings, audio tapes, models, filmstrips, learning kits, and video tapes. Lately we have seen the inclusion of such far-reaching and innovative facilities as dial access information retrieval systems, decentralized content zones, carrels, and other information holding devices in our libraries and instructional media centers.

## Standards for Media

A joint committee of the American Association of School Librarians and the Department of Audiovisual Instruction of the National Education Association collaborated in the preparation of a publication entitled *Standards for School Media Programs*. The implementation of these standards in public schools surely will have a great impact on schools in this age of rapid technological advancements and proliferation of systems of storage retrieval and transmission, both manual and electronic.

Local education associations and state departments of education, with U.S. Office of Education funding, are forcing teacher education institutions to reexamine their curriculum offerings in preparing teachers. Failure of teacher preparation to use the fast-growing resources of educational technology is reflected in a report on the results of a teacher-opinion poll published in the December 1963 issue of the *NEA Journal*. The NEA Research Division asked a "scientifically selected cross-section of the nation's one and a half million public school teachers" how their college preparation had fitted them for teaching. Every teacher education faculty concerned with change should have the re-

sults of that survey: over 60 percent of the teachers reported too little preparation in the use of audio-visual equipment and techniques; over 40 percent, too little in teaching methods; and only 27 percent, too little in subject knowledge.

Although research is not all inclusive nor nearly enough in depth on the use of technology in the educational process, there are highly encouraging results and potentials. Many of the failures of technology were results of ignorance and prejudice regarding successful fundamental application. The myths, institutional failures, fears, and brazen exploitations have taken their toll in failures. Still others have looked for instant success and easy victories over long-standing school and curriculum problems. A growing body of research clearly indicates that, used properly, educational technology together with appropriate strategies can provide effective conditions for learning. Several publications worthy of note cite encouraging research results. These include several issues of *AV Instruction* from the reports of John Molstad, Professor of Education, Indiana University.<sup>6</sup>

## A Changing Role

The changing role of the teacher from that of transmitting knowledge to that of managing the learning environment also implies drastic changes for curriculum specialists. The failure of outmoded curricula to meet the current needs of learners is evidenced throughout the country and especially in urban centers. Irrelevant instructional materials and traditional strategies within this curriculum complicate further its effectiveness.

There is a crying need for changing both the content and the organization of the learning environment if the growing gap between youth and the establishment is to be lessened. The Commission on Instructional Technol-

<sup>6</sup> John Molstad. "Summary of A-V Research." *AV Instruction*, September 1964; "Highlights of 1965 Research Reports," June-July 1965; "1966 Research Reports Feature the Controlled Experiment," June-July 1966; "1967 Research Studies Stress Stimulus Variables and Technology," June-July 1967.

ogy, recently reporting to the President and Congress, stated it succinctly<sup>7</sup>:

Formal education is not responsive enough: the organization of schools and colleges takes too little account of even what is now known about the process of human learning, particularly of the range of individual differences among students. This condition makes schools particularly unresponsive to the needs of disadvantaged and minority-group children. Moreover, formal education is in an important sense outmoded—students learn outside schools in ways which differ radically from the ways they learn inside

<sup>7</sup> Commission on Instructional Technology. *To Improve Learning. A Report to the President and the Congress of the United States* (The McMurrin Report). Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, March 1970.

school. Educational institutions make scant use of the potent means of communication that modern society finds indispensable and that occupy so much of young people's out-of-school time.

Educational technology provides no panaceas. Perhaps its failure, where it has failed, came from expecting too much from it. Yet a careful assessment of its potential within the framework of a systematized approach to instruction focusing on the individual holds promises far beyond our most optimistic dreams for the 21st century.

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*Photo by Philip Fenty, courtesy of AFT*

Robert R. Leeper (left), editor of *Educational Leadership*, receives the 1970 Eleanor Fishburn Award for International Understanding from Monroe D. Cohen, editor of *Childhood Education*, ACEI, last year's recipient of the award.

The award, by the Washington, D.C., chapter of the Educational Press Association of America, is given annually to the EdPress periodical judged as best contributing to international understanding. The ASCD journal was recognized for the November 1969 issue, "International Cooperation in Education." This issue, which served as background material for the March 1970 ASCD World Conference on Education at Asilomar, California, was planned by Alice Miel, Vincent R. Rogers, and D. Edward Fleming.

Presentation of the award was made at the EdPress luncheon in Washington, D.C., on September 17, 1970.

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