THE COMPUTER AND EDUCATION

ALBERT L. GOLDBERG
Senior Advisor—Education, Honeywell, Incorporated
Electronic Data Processing Division
Wellesley Hills, Massachusetts

DRAMATIC changes in the role of the government toward education are foretold through new or recent legislation. The posture of government has become that of seeking active cooperation to effect change and to supply the resources for this, either in part or whole, through personnel, materials, facilities and expertise. It is clear that education is at the center of the Great Society.

As presently revealed, the computer, information for educational systems, and research occupy a prominent place in the new governmental image. Techniques derived from the military and business environments—operations research, systems analysis, simulation, information storage and retrieval, and mathematical models—are to be employed. There is now a need to provide a framework for systematically ordering, relating and integrating educational goals, programs and program elements; procedures for identifying and analyzing alternatives; and procedures for permitting continuing evaluation of progress toward defined goals. This is a large order.

Dialogues with educators in the field have barely begun. Hopefully the changes which are heralded by the government's concern for education will yield for the curriculum worker, the administrator, the guidance counselor, the guidance worker, and the vocational education specialist techniques, instructional materials and information which can be helpful in facilitating change in the school environment and improving the quality of teaching and learning. On the other hand, historians may conclude, as does the French politico—"The more things change, the more they are the same."

Another force of recent date is the Association of Educational Data Systems. A national office with staff was established in 1965. Barely four years old, AEDS evolved out of a concern for gathering, manipulating and disseminating educational research and statistics about education. It was given birth by a committee of the Council of Chief State School Officers within the context provided by Title X of NDEA. Today AEDS membership is over one thousand, with seven state affiliated groups.
The primary mission of AEDS is to open, to sustain and to explore approaches for cooperation among educators of various orientations, data processing technicians and the manufacturers. An "information central," so to speak, is to provide the latest of both instructional and administrative uses of data processing and computer technology.

Information Explosion

Because of the rapid strides in methods, materials and processes which relate to the computer environment and because of the highly competitive nature of the enterprise, the information explosion now in process affects this environment in the extreme. The explosion can also be observed in education and psychology.¹

Behavioral Science and Educational and Psychological Measurement regularly includes reports of computer applications. The Nation's Schools carries a column on the administrative use of computers; Proceedings of the Association of School Business Officials includes a summary report of that Association's data processing seminar at its national convention. The Review of Educational Research on a three-year cycle publishes an assessment of the uses of the computer in educational and psychological research. An extensive but select bibliography is included.²


Data processing professional organizations and publications demonstrate increased, if recent, interest in the problems of the educator, and in methods of helping to get him to understand computer technology. The Data Processing Management Association, and the Association for Computing Machinery are among the leaders in this effort. Computers and Automation, Datamation and Business Automation include periodic summaries of the latest developments in computers and education.³

The Division of Audiovisual Instruction, NEA, has published significant volumes relating to the domain of instrumentation and techniques for instruction.

struction (2, 3). The organization’s publications and professional concerns have been directed toward the wedding of technology and the teaching-learning environment.

Whether for media specialist or curriculum worker, the questions remain those posed by Paul W. F. Witt. What shall be presented by means of these devices and materials? How shall the content be organized? Toward what ends shall the content be used? How shall these devices and materials be employed?

The questions are appropriate to the newest of the instructional tools—the computer. How the computer appears to be helping instruction and administration is described by Bushnell (1), one of the leading writers in the field:

1. Simulating learning environments for gaming purposes and for the improvement of educational administration
2. Automating information and data retrieval sources
3. Assisting in the preparation and evaluation of instructional materials
4. Integrating instructional media (film, tape, TV display, text) for both group and individual instruction
5. Applying the power of the computer to massive data collection, controlled observation and analysis for the study of instructor-learner interactions
6. Decentralizing the educational system by bringing remote resources into the home, the study carrel, the library and faculty office.

Most of the developments Bushnell refers to are in the laboratory stage. A summary of instructional and administrative examples in depth and a bibliography are given in the publication cited.

**Automation and the Individual**

Educators will of course need to stay well informed about these developments and will have to search for avenues to employ what is best of the technology. At the same time one can sense increasingly a loss of control and a remoteness from the locus of educational decision making. The “automation hysteria” will most certainly be weathered and in time we shall use the computer with familiarity, if not with impunity and flexibility. Living with this technology does take a toll of the individual whether in or out of the educational enterprise. Fehr (6) notes it in these terms:

1. Loss of a sense of individual worth
2. Loss of dignity
3. Loss of motivation
4. Fear of the future
5. Loss of faith in established institutions
6. Disruption of belief patterns.

A central task of the curriculum worker is to develop skills in coping with these characteristics, having validated them. The media, including the computer, may be in fact the very tools needed. These tasks, at the same time, cannot be left to technicians.

The ability to use the technology with grace and power, to control the environment so that man can derive maximum satisfaction from his work and his leisure is, according to an anonymous writer, the secret of humaneness, itself.

In summary, men think and computers work. How they work and to what ends still depends on man, himself. Only history will reveal how artful his efforts

have been in fashioning his tools for worthwhile ends.

References


