

academics what to teach and the students what they can learn at the public's expense.

### Neither Horn, Thank You

The curriculum debate, as usual, will not be settled by choosing one or the other of a dilemma's horns. Honing the mind and nourishing the soul are equally important. What we need now is a theory of general education that is relevant to life and to work based on the new information resource. Perhaps, in the alternating current of general and job-oriented education, it is time for a new synthesis, a new "core curriculum," a central idea about what every educated person should know, and have, and try to be.

Such a core is not going to have much to do with learning facts. Most of the facts that children learn in schools are unlikely to be true for as long as they can remember them. (The last time I took physics, I was told the atom couldn't be split—a fact that has not served me well in the nuclear era.) What students need above all is general theory with which they can process the shifting facts they will encounter over a lifetime.

If we think hard about what the new knowledge environment requires, and consult the instincts and perceptions of our own future-oriented students, I think we could construct a new core curriculum for American citizenship from goals such as these.

- Integrative brainwork—the capacity to synthesize the analytical methods and insights of conventional academic disciplines so as to solve real-world

problems. Exposure to basic science and mathematics, to elementary systems analysis, and to what a computer can and cannot do are part, but only a part, of this education.

- Social knowledge—education about public purposes, the costs and benefits of openness, and the ethics of citizenship. Such knowledge should enable the educated person to answer two questions: "Apart from the fact that I am expected to do this, is this an action I would choose?" and "Does the validity of this action depend on its secrecy?"

- A capacity for self-analysis—the achievement of some fluency in answering the question "Who am I?" through the study of ethnic heritage, religion and philosophy, art, and literature.

- Practice in real-world negotiation, in the psychology of consultation, and the nature of leadership.

- A global perspective—an attitude of personal responsibility for general outcomes, in an interdependent world.

I would like to conclude with a few words about the last of these new imperatives for American citizenship. In the mid-1970s "global perspectives in education" was novel enough to sound radical, but change has become so rapid in our society that by the mid-1980s, the idea has flowed into the mainstream of a powerful public school reform movement.

I do not mean that the elementary school teacher, that very model of a modern generalist, should teach about everything at once. I am not neurotic

about global perspectives, merely insistent. I do believe that young children can learn to think in systems. They live with interdependence every day—in families, home rooms, and in the local public park. The ambience of mutual dependence, the ambiguities of personal relations, the conflicting ambitions of groups, are the stuff of socialization from their earliest years.

Once they know how to think about value questions in their everyday life, they are more than halfway to coping with complex planetary puzzles, such as food production, climate change, energy use, population planning, development strategy, environmental protection, ocean law, trade, investment, and money.

In short, once the child can follow cause and effect around the corner, the child-grown-up should be able to follow cause and effect around the world. And with that kind of education for wisdom, the child-become-adult-leader can tackle with less diffidence the Cheshire cat's first question: "Where do you want to get to?" □

Editor's note: This article is based on Harland Cleveland's new book, *The Knowledge Executive: Leadership in an Information Society* (New York: E. P. Dutton, 1985).

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## Common Sense About Information and Information Technology

Before we become slaves of the Information Age and its complex technology, we need to ask ourselves not how much information we can generate and absorb, but what information is of most worth and for what purposes.

ALEX MOLNAR

In his book, *The Knowledge Executive*, Harlan Cleveland (1985) quotes Gertrude Stein: "Every-

body gets so much information all day long that they lose their common sense." Stein has put her finger on the

heart of an increasingly difficult problem for educators: how to make sense of and respond to the increasing vol-

ume of information available to them. This problem has both policy and curriculum and instruction aspects.

Schools are subject to laws and regulations governing the information they may gather, the people about whom they may collect information, the circumstances under which information of various types may be gathered, and who may have access to that information. The increased attention given to the information institutions may gather and who may see it reflects a growing recognition that in modern mass society information may shape destiny, both individual and social, more than at any other time in human history. Social power is often created or affirmed by the nature of the information possessed by an institution or an individual. Although few educators would be likely to quarrel with the dictum that "knowledge is power," many might be uncomfortable taking a hard look at how schools as institutions establish and maintain institutional power relationships by controlling information. To an important degree, the difference between a teacher and a principal, a superintendent and a curriculum coordinator, a student and a teacher, a school psychologist and a parent is the difference in *which* information they are given and *when* they are allowed to have it. Schools, as other institutions, maintain the status quo in part by maintaining a particular pattern of information exchange. Any change in that pattern threatens the status quo. The Buckley Amendment, for example, which granted students and parents access to information that might previously have been kept from them, disrupted the standard patterns of information exchange in and outside of schools and precipitated serious reconsideration of the nature of information that schools should collect.

Internally, the collection of some information (e.g., anecdotal records of student behavior) and not other information (e.g., the teaching styles each teacher uses to greatest effect) helps to shape the nature and direction of the school's educational program and both shapes and reflects the school's instructional priorities. Decisions about which information is offered to parents, or has to be requested re-

veal a school's definition of the nature of its relationship with parents and the school's conception of their proper role in school affairs. The mechanisms through which the various units of a school or school system and the community receive information from and about each other reveal a good deal about the assumptions and power relationships that shape that school system. It is in the nature of information gathering, processing, and disseminating that decisions reflect the functional value orientation of the school system.

Given the importance of the topic, a principal research task facing educators is the analysis of what information educational institutions gather, how it is gathered, and what is done with it after it is gathered. The data derived from such investigations could then be used by schools and school systems to help formulate specific information policies based on explicit values.

### The Sociology of Information

Information and information technology pose two types of curriculum and instruction problems. The first type of problem concerns what might be described as the sociology of information. This refers to the role of information, information technology, and the use of information in society. Curricular topics in the study of the sociology of information would include the role of government and private institutions in creating, processing, and disseminating information; the political and social implications of alternative information policies; and the merits of different information policies. The sociology of information is an important area to study because the information policy issues involve scientific, social welfare, and foreign policy matters as well as the fundamental relationship of the government to the governed. For example, the question of whether a given policy encourages the concentration of information in the hands of a few or makes information widely available is of primary importance to democratic governance.

The laws and policies regulating information will increasingly affect the lives of all citizens. There are plenty of important questions to be answered. Should the Internal Revenue Service be able to share the information in its

computers with other governmental agencies? Does the First Amendment protect the right of scholars to present their findings at international scientific meetings? Do citizens have the right to know all of the information gathered about them, the purpose for which it was gathered, and who has access to it? It seems reasonable to argue that schools should attempt to graduate students reasonably familiar with the public policy issues posed by information and information technologies.

### The Technology of Information

Schools have been primarily concerned with a second area: computers as an important technological phenomenon that students should know about and have the skills to use, computers as an instructional aid in various content areas, and computers as a mechanism for structuring instruction and curriculum. However, after an initial burst of enthusiasm, educators have begun to awake to the difficulty of meaningfully integrating computers into a school curriculum and instruction program. Not all software is good. Computers do many things less well than teachers. Some students can be as bored by computer literacy classes as they are with social studies or science. Educators have, on occasion, even been known to refer to microcomputers as a technology in search of an application. Clearly the blush is off the rose.

Educators can formulate a number of curriculum and instruction questions to think critically about the place of information technology in their school programs. For example:

1. As a result of participating in this program, will students have a critical understanding of the potential political, economic, and social significance of information policy decisions?
2. Is the curriculum designed to help students evaluate both the technical adequacy of computer programs and the value of what the programs are designed to do?
3. Does the program include an analysis of the vocational developments in information technology; for example, what jobs have been created, in what numbers, and at what status and salary?

It would be a missed opportunity if school programs contributed little more than an appreciation for the dazzle of technology without helping students learn to take it in hand and make it their own. Surely few would want the computers to go the way of the television set, an artifact of a magnificent technology that is largely used for banal and uncritical purposes.

If computers don't go the way of the TV set, are they likely to go the way of the language laboratory instead? Prob-

ably not. They play an increasingly fundamental role in too many aspects of society. It does seem clear, however, that with regard to information technology, as with every other aspect of the school curriculum, educators who fail to design curriculum that is meaningful and useful to their students are likely to face apathy or rebellion. In assessing how to treat information technology in the curriculum, therefore, the first question to raise is not, "Can it be done?" but instead, "Is

it worth doing?" Although the technology may be new, the fundamental question is not. □

Reference

Cleveland, Harlan. *The Knowledge Executive: Leadership in An Information Society*. New York: E. P. Dutton, 1985.

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## Suggested Readings

HENRY KEPNER

Burnham, David. *The Rise of the Computer State*. New York: Vintage Books, 1984.

A frightening, yet thoughtful, presentation on the potential of computers to destroy individual privacy, this book raises the reader's awareness about the need to set safeguards on information access and use.

Inose, Hiroshi, and John Pierce. *Information Technology and Civilization*. New York: W. H. Freeman & Co., 1984.

This perceptive report on the anticipated impact of information technology on society was prepared originally for a Club of Rome annual meeting. Giving equal attention to potentialities and problems, it emphasizes how information technology may affect learning, the arts, government, and individuals.

Kepner, Henry S., Jr., ed. *Computers in the Classroom*. 2d ed. Washington, D.C.: National Education Association, 1986.

Examining the key issues in the use of computers in instruction, this book focuses on their varied uses across the disciplines. The computer is presented only as a tool for education, not as a solution to all educational problems.

Logsdon, Tom. *Computers and Social Controversy*. Rockville, Md.: Computer Science Press, 1980.

This book offers in-depth sections on the issues of electronic privacy intrusion, computer fraud, electronic fund transfer systems, automation, machines that teach, artificial intelligence, and the geopolitics of computers.

Nora, Simon, and Alain Minc. *The Computerization of Society*. Cambridge: The MIT Press, 1981.

Written as a report to the President of France, this book presents a vision of how a new technology can reshape society and discusses why the political system must respond to the new economic and social life that result.

Norman, Adrian. *Computer Security*. New York: Chapman and Hall, 1985.

In a discussion of the new issues of computer misuse, computer crime, and computer vulnerability, the author argues that problems are larger than technical security; they include human failures. The author recommends positive ways to manage computer risks.

Office of Technology Assessment. *Information Technology and Its Impact on American Education*. Washington, D.C.: U.S. Government Printing Office, 1982.

This wide-ranging report emphasizes the stresses placed on social institutions, such as public schools and libraries, which traditionally have

borne the major responsibility for providing public education and information services. Changes in education and access to information are considered, and projections about federal involvement in schools and libraries are presented.

Rothman, Stanley, and Charles Mosmann. *Computer Uses and Issues*. Chicago: Science Research Associates, 1985.

A good resource for the introduction of computers, this book emphasizes computers in educational settings and devotes sections to resulting technical and social issues.

Schug, Mark, and Henry Kepner. "Helping Students Deal with Computer Issues in Social Studies." In *Georgia Social Science Journal* 16 (Winter 1985): 5-15.

This article outlines the major components of computer literacy for all students, giving special attention to helping students in social studies programs understand the individual and social questions raised by the growth of computer use.

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