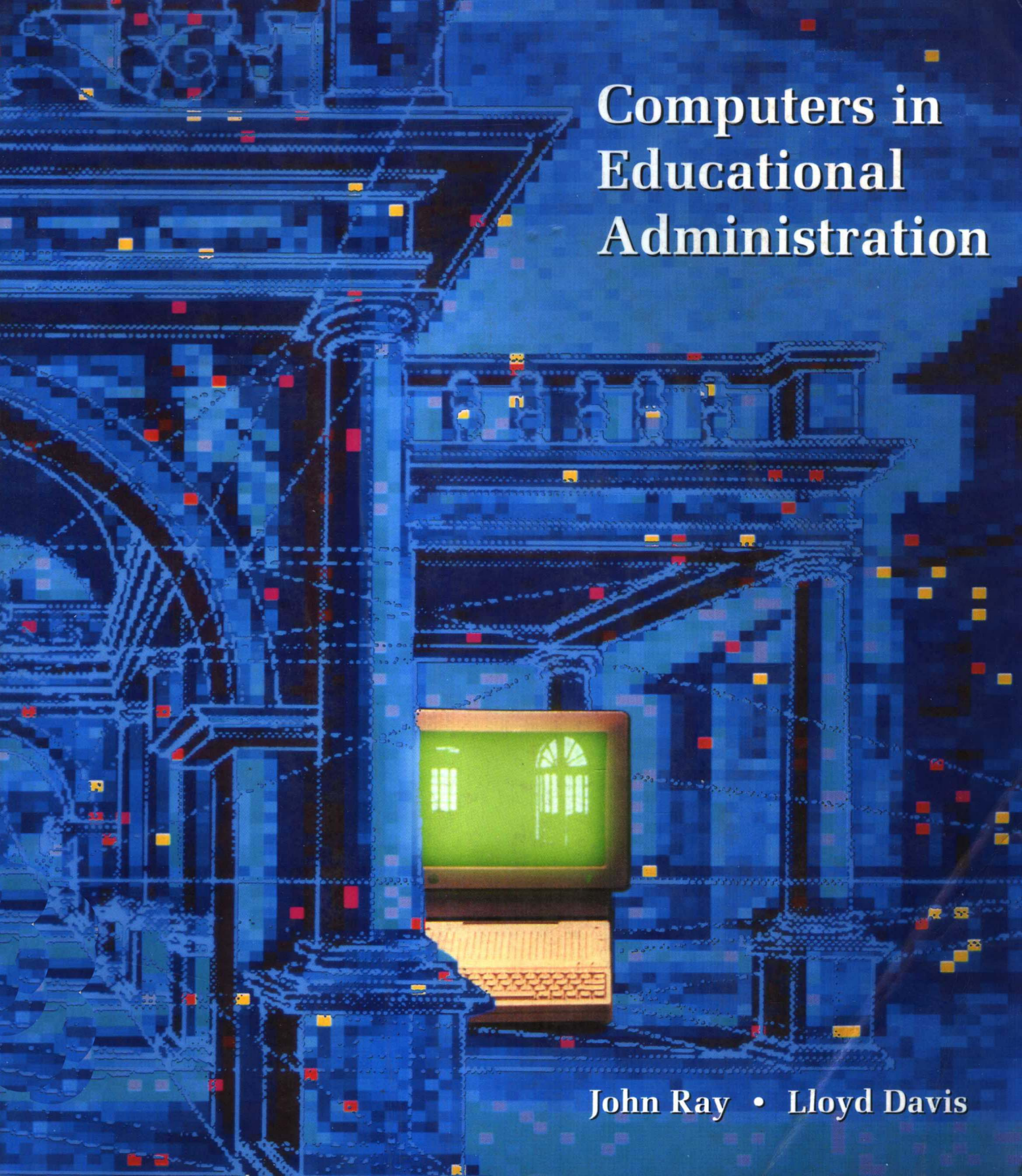
Computers in Educational Administration



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Computers in Educational Administration

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Introduction

Education in the 1990s is a complex, multidimensional activity that consumes tremendous human and financial resources. Educational administrators at all levels are faced with a rich variety of technological resources that are designed to improve the quality of the education received by students or to make the educational enterprise more efficient and productive.

Although knowledge has exploded in all directions, substantial numbers of school-age and adult Americans are still functionally illiterate. Schools have taken on additional responsibilities, particularly in programs for younger learners and as dispensers of information on health and social issues. Pressures from religious groups, state and federal governmental bodies, business and industry, and other special-interest factions have caused the schools of today to depart from many of the educational traditions of the last several decades. The wealth of opportunities for students and the vast array of instructional devices have often served only to complicate an already unclear setting for instruction and administration in schools—whether public, private, or church-supported.

In the last several years, American education has come under increasing scrutiny from all sides and has been pressured to resolve problems, correct deficiencies, and move to a stronger, more responsive system. The primary recommendations of a majority of curricular and organizational reports prepared during the last few years were summarized in *Education Under Study* (Griessemer, 1983), in which the author says, "Accountability and leadership by all must increase." The common viewpoint of these reports is that the federal government has national interest responsibilities in education, which are exemplified through targeted legislation, regulations, and financial support. These federal objectives must accompany the traditional responsibilities of local school districts to implement programs and deliver educational services.

The call for greater accountability and leadership has partially resulted from problems associated with the introduction of computers and information

technology into schools. Educational institutions have lagged behind other sectors of society in the integration of computers into the school setting.

> Education has traditionally been known as a conservative institution, one that responds slowly to change. Consequently, computers were introduced into education only after having played a major part in other American institutions. (Merrill et al., 1986, p. 282)

Computers were introduced into schools in response to the demands of society, but many teachers were not adequately trained to use the very technology they were expected to teach. "With new innovations, the people who do the initial developing often fail to recognize that practitioners require information and training" (Bramble, 1985, p. ix).

Like all modern institutions, public school personnel at the elementary and high school levels have been caught in a social phenomenon described as *social hyperturbulence*, defined by Davies and Shane (1986), as "the condition that results when available resources and institutions prove inadequate to deal with the speed and diversity of change." If American schools are going to meet the demands of a new technology orientation, then change must be recognized and dealt with as a natural catalyst that accompanies innovations in today's world.

COMPUTERS AND SOCIETY

Educators cannot consider the implementation of computers in education without noting the impact of computers in today's world. Few areas of society are not impacted by the computer. From such lifestyle basics as the checkout and inventory system in grocery stores to the sophisticated computerized trading systems used on Wall Street, computer technology is an integral part of life today.

Traditional instruction in reading, writing, and arithmetic is no longer capable of meeting the needs of today's and tomorrow's workers. At the very basic level, clerical and support personnel in most offices require such computer skills as word processing, spreadsheets, and database operations. Many industrial and business personnel need training in computer technology to manage the flow of records and information in the sophisticated computer information systems that are used today. Computer-generated inventory control, distribution, routing, and billing are all part of the routine work of such organizations as trucking firms and product distributors. Jobs in manufacturing require skills in computer-generated design and computer-generated industrial processes and robotics.

Many jobs call for specific computer skills, but to educate a truly computer-literate person goes beyond skills training. The need to process information has become central to productivity in most work situations, so that basic literacy and an understanding of computer functions have often become a

requisite for getting a job. The computer-literate citizen must be able to: read manuals and apply the instructions to specific applications; understand the basic capabilities of the leading types of computers, design an implementation plan, and purchase computers intelligently; write simple programs; and use the many statistical, fiscal, and modeling techniques available in today's software packages. Without training, demands from the workplace for computer-literate workers and managers will go unmet. School curricula must reflect this major societal change of the past 20 years.

The current literature stresses that a cultural turning point is evident. Society is producing changes that will fundamentally alter the way people are educated, work, and play (Watson, Calvert, & Brinkley, 1987). Two obvious developments are that computers have made vast amounts of knowledge available to a larger segment of the population, and microcomputers are being widely used to assist in gathering and analyzing data for decision making. These two changes are impacting virtually all aspects of society. Taylor and Johnson (1986) write:

> During the present century, particularly within the last twenty-five years, several scholars and writers have turned their attention to the task of unraveling the fabric that technology inexorably weaves within our lives. By carefully studying technology, these scholars have begun to glimpse the contours of an enormous presence; they are awed, on the one hand, by technology's power to shape us and, on the other hand, by the absence of our understanding of that power. (pp. 223-224)

NEED FOR COMPUTER EDUCATION

In the book *Computers in Education*, Merrill et al. (1986, p. 288) suggest that if one of the primary goals of education is to prepare youth for adulthood, and consequently future employment, the role of the computer is an important consideration for educational policy makers.

In the past five years, there have been several national studies that have issued reports about the current state of public schooling. Some studies are very critical of the skills of the nation's graduating seniors. For example, in *Making the Grade* (Peterson, 1983, p. 3) the authors criticize primary and secondary schools for falling short of society's expectations because "too many young people are leaving the schools without acquiring essential learning skills and without self-discipline or purpose."

Publications such as *The Condition of Education* (Stern & Williams, 1987), *The 1985 Public School Survey* (Hammer, 1986), *A Nation at Risk: The Imperative for Educational Reform* (National Commission for Excellence in Education, 1983), *The Making of a Teacher* (Feistritzer, 1984), *High School: A Report on Secondary Education in American* (Boyer, 1983), and *A Nation Prepared: Teachers for the 21st Century* (The Carnegie Forum on Education

and the Economy, 1986) have cited the increased need for acquisition of microcomputer technology skills by all primary and secondary school teachers and students.

In *A Nation at Risk*, the authors find that primary and secondary students are severely lacking in computer skills. The study emphasized that computer literacy alone will not solve the dilemma, and that for the nation's schools to meet the challenge of tomorrow's technological world, computer science and computer operator skills need to be as basic to the curricula as are math and history.

In a major study entitled *Information Technology and Its Impact on American Education* (1982), the Office of Technology Assessment noted five findings of major importance for schools.

1. The growing use of information technology throughout society is creating major new demands for education and training in the United States and is increasing the potential economic and social penalty for not responding to those demands.
2. The information revolution is creating new stresses on many societal instructions, particularly those such as public schools and libraries that traditionally have borne the major responsibility for providing education and other public information services.
3. Information technology is already beginning to play an important role in providing education and training in some sectors.
4. Information technology holds significant promise as a mechanism for responding to the education and training needs of society, and it will likely become a major vehicle for doing so in the next few decades.
5. Much remains to be learned about the educational and psychological effects of technological approaches to instruction. Not enough experience has been gained with the new information technology to determine completely how that technology can most benefit learners or to predict possible negative effects of its use. Given their insufficient experience, caution should be exercised in undertaking any major national effort, whether federally inspired or not, to introduce these new technologies into education. (p. 4)

Administrators, teachers, and others involved in education have come to recognize the enormous task before them. Walker (1986) writes that as an educational innovation, microcomputer technology has been

> received with much intensity and embraced by a wide spectrum of the educational community and the public. The support received by previous technological innovations—radio, film, television, teaching machines—pales by comparison. No other educational innovation has offered anything comparable in power, unless we consider writing, the number system, or speech itself to be educational innovations. (p. 23)

Walker suggests that microcomputers are among the best innovations in education because of their versatility, which allows the technology to expand in all areas of the K–12 curricula rather than confining it to a specific discipline. Acceptance of this instructional tool, though slow at times, is progressing at a steady pace.

DIFFICULTIES OF INTEGRATION

In his report *High School: A Report on Secondary Education in America*, Boyer (1983) is concerned about the infusion of microcomputer hardware into the schools with little concern or planning for its use or educational purposes. Boyer adds that the importance of computers is their use as a tool for learning and that the urgency is for "technology literacy" rather than "computer literacy."

Although the computer provides numerous advantages and opportunities for administrators and teachers, some negatives are associated with its implementation. In this regard, the feeling of being overwhelmed that some teachers bring to the classroom due to a normal workload is simply heightened by the presence of computers and computer applications. The computer "helpers" can become "masters," and faculty and students can become resentful of this technology.

School systems understand the basic need for teachers' materials and textbooks, but they embrace the idea of a need for expensive equipment and systems to only a limited degree. Indeed, the idea of the involvement of all (or almost all) of the instructional staff with what is regarded as a single area of instruction—computers—is even more difficult for the school system to comprehend. Schools are basically "clock and calendar" institutions, and changes come hard and can be expensive.

ROLE OF THE ADMINISTRATOR TODAY

Against a patchwork quilt of demand for innovation and resistance to innovation, the school administrator must continually seek to improve instructional and administrative procedures at the school site and throughout the district. Nobody in the school system—local site or central office—has a larger set of challenges in today's educational arena than the local principal, who must address issues facing education at the building level while respecting issues of system, state, regional, and national concern.

One major challenge now facing the local principal or the site-based administrator is the implementation of computer technology in his or her school. For example, the problem of improving instruction in specific subject areas may be solved by providing in-service programs to develop teachers' knowledge of computer-assisted instruction. With improved teaching resources—staff and materials—instruction can be improved and learning enhanced. The byproduct of accepting this new technology is an educated populace trained to meet society's needs.

Problems related to administration can be solved equally well. For example, the application of computer technology to problems of class scheduling and report writing not only results in a more efficient use of the administrator's time, but also extends the efficiency of the schools' operations as a result of better decision making.

To promote the integration of computers in their schools, administrators must build upon the successes of computers in society (while not forgetting the failures). Much has been done in computing! However, much remains to be done in designing educational settings that prepare students for the technological realities of contemporary life. Administrators of today's schools have a responsibility to become sophisticated about the use of computers and to apply this knowledge to the administration of schools—on the local, system, state, and national levels.

Contents

1 The Educational Setting

OBJECTIVES

After reading this chapter, you should be able to:

- *Distinguish between administrative and instructional goals for computer use.*
- *Name five basic computer skills needed by educational administrators.*
- *List at least ten administrative uses for computers.*
- *Name five errors commonly made during the preplanning stage of acquiring a computer system.*
- *List at least three specific computer competencies needed by administrators in these areas: administrative applications, instructional applications, computer literacy, educational computing, hardware and software, and resources.*
- *Describe the basic characteristics of computer training needed for three groups: faculty teaching computer courses, faculty using computers in the classroom, and noncertificated support staff.*

Each school system has goals that dictate how and to what extent computer technology is applied. Examples of goals that affect computer implementation are those that set standards for the cost-effectiveness of the school's operation, the teacher/student ratio, and the curriculum content itself. These system and site goals should be articulated and reviewed by local staff, central office administrators, and board members.

These goals may be said to fall into two categories: those that relate to school administration, and those that define the instructional programs. Educational computer applications likewise fall into those two categories, and each school's computer applications should be designed to meet system and local goals for administration and instruction.

Administrative goals are concerned with the operation and staffing of the school plant. These range from broad-based, system-oriented goals for administrative excellence to site-based goals for implementing programs and utilizing staff and resources. **Instructional goals** are concerned with implementing a quality instructional program and utilizing the instructional talents of faculty. The instructional goals of a school are concerned with the basic aim of the school—effective learning for all pupils. Administrative goals are designed to support the school's instructional goals.

This text will focus on the local educational administrator's role in achieving both administrative and instructional goals. Local school administrators must be alert to the changing needs of their schools, as well as to new technological innovations that become available. The goal of this book is to train educators to match school needs with appropriate computer solutions.

ADMINISTRATIVE USES OF COMPUTERS

The school principal is responsible for the site management of a multifaceted physical plant, as well as a multitude of programs and the school's relationship to a wide array of clientele, including not only students, but also professional and support staff, parents, and special-interest groups in the community. In recent years principals have also had to be responsible for implementing expanded requirements for teacher and staff assessment, for administrative involvement in the school's computer system, for implementing tighter fiscal policies, and for increased reporting of student data.

How sophisticated should the school principal's computer abilities be? The most basic competencies are to be able to: (1) describe the administrative uses of computers, (2) choose applications that are appropriate for a given school situation, (3) select the most effective software and hardware for a given administrative application, (4) develop implementation plans for computer applications, and (5) use personal productivity tools—word processing, spreadsheets, and database management—on microcomputers.