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ABSTRACT

A study was made of: (1) computer use by administrators, teachers, and students in south Georgia public schools; (2) administrators' perceptions of the ability of new teachers to use computers; and (3) the future of computers in public schools. A questionnaire was sent to 193 schools in the 44 school districts in the Valdosta State College service area. Survey questions concerned: (1) demographic information; (2) hardware; (3) administrative uses; (4) teacher uses; (5) student uses by subject area; (6) administrators' ranking of importance of instructional uses; (7) administrators' perception of preparation of new teachers for computer use; (8) administrators' predictions of computer use in public schools; and (9) administrators' perceptions of the role of Valdosta State College in preparing teachers and administrators for computer use. Returned questionnaires were divided into three groups by school type: elementary, middle, and high. Data were compiled within each group and percentages were computed. Comparisons were made among types of schools. (RH)

Principals' Perceptions of Computer Use in Administration and Instruction

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Objective

The objective of this study is to determine the uses of computers in public schools in south Georgia by administrators, teachers, and students, and to investigate administrators' perceptions of the ability of new teachers to use computers and the future of computers in public schools.

Perspectives

The advent of computers in educational reform has taken various forms and shapes, depending upon the grade levels of the school and the intended use of this advanced technology. Elementary schools have different instructional and administrative needs from those of large, comprehensive high schools. Likewise, the needs found in middle or junior high schools vary from those schools with grade levels on either end of the spectrum.

It is, therefore, misleading to attempt to describe computer use "in the schools" without differentiating among the various grade levels addressed, the basic school structure, and their inherent philosophy, i. e. elementary schools vs. middle schools/ junior high schools vs. high schools. Amid this diversity, however, there remains a common thread of commitment to instruction at each school level and similar administrative needs.

As the instructional leaders and administrative heads, principals are in the best position to assess how computers are being used in the public schools. This assumption that principals can be instructional leaders is documented in the effective schools research (Cawelti, 1987), which reveals that

school leaders do determine whether or not schools are successful. One of the key indicators of a school's effectiveness is the extent to which the administration and staff are committed to a systematic and ongoing program of school improvement. The expertise in fostering school improvement exhibited by the principal has a profound impact upon computer use in schools both for instructional purposes and for assisting in the administrative function of managing information and data (Leithwood, 1987). Accordingly, questionnaires were sent directly to principals for their assessment of computer use and perceptions of future trends in technology utilization.

Methods and Data Source

A questionnaire was sent to 193 schools in the 44 school districts in the Valdosta State College service area on October 17, 1986. The form of the survey was modified from the 1985 National Survey on Instructional Uses of School Computers conducted by the Johns Hopkins University (Becker, 1986) to include both instructional and administrative uses of computers. The survey consisted of questions related to demographic information, hardware, administrative uses, teacher uses, student uses by subject area, administrators' ranking of importance of instructional uses, administrators' perception of preparation of new teachers in computer use, and open-ended questions pertaining to administrators' predictions of computer use in public schools and perceptions of the role of Valdosta State College in preparing teachers and administrators in computer use.

Results

Of the 193 questionnaires sent, 110 or 57% were returned by November 17, 1986. The questionnnaires were divided into three groups by school type: elementary schools consisting of grades K-8, middle schools consisting of grades 6-9, and high schools consisting of grades 9-12. Data were compiled within each group and percentages were computed for the number of schools responding to the questionnaire. Comparisons were made among the types of schools for types of computers, administrative uses, teacher uses, and instructional uses (see Table1), and principals' perceptions of the most important instructional use of computers and the ability of new teachers to use computers.

Types of computers. Apple computers were reported to be the most frequent in all school types. It should be noted, however, that Radio Shack and IBM PCs were also evident at the high school level. Commodore computers were the next most frequently reported computer used at the elementary and middle school levels.

Administrative uses. In all school types, computers were reported as being used for attendance purposes and word processing. In high schools computers were also frequently reported as being used for scheduling and grades.

Teacher uses. The most frequently mentioned use of computers by elementary and middle school teachers was for room decoration construction (banners). Teachers in these schools and high schools also reported using computers for word processing (assignment sheets, worksheets, tests). Computers were reported as being used by middle and high schools for reporting grades.

Instructional uses. In the subject area of English, computers were reported being used most frequently in language arts and spelling in elementary schools, while middle and high schools used computers most frequently for word processing. Computers were reported being used more frequently in elementary and middle schools for general mathematics, while in high schools computers were more frequently used for algebra and geometry. Most of the high schools reported computer use for business and accounting (90%) and word processing--other than English (83%); the elementary and middle schools reported little computer use in this area. In the area of computers and problem solving, the most frequent use of computers reported was for computer literacy. LOGO was reported being used only in elementary schools, while COBOL and FORTRAN was reported being used only in high schools. BASIC was reported being used in all school types. Elementary and middle schools more frequently reported computer use in science and social studies, while high schools more frequently reported computer use in industrual arts and agriculture, and science.

Principals' perceptions. Principals were instructed to rank four instructional uses of computers (drill and practice, discovery learning and problem solving, programming, and word processing) according to their importance. Principals of the elementary schools perceived drill and practice as the most important instructional use of computers. At the middle school level, discovery learning and problem solving were ranked as most important. The high school principals ranked word processing

slightly above discovery learning and problem solving in importance. The principals of all three school types ranked programming as the least important in the instructional use of computers.

When asked to rate the ability of new teachers to use computers, approximately 50% of all principals rated new teachers as somewhat prepared, with almost none being rated thoroughly prepared.

Future use of computers. If principals' predictions of computer use in the public schools are realized, the number of computers will increase and will be used not only for instructional purposes but also for assistance in administrative functions. At the elementary school level, 21% of the principals responding indicated that computers would become "very important" in the future. This prediction increased to 61% at the middle school/junior high level and to 75% at the high school level.

Support for computers by elementary principals was not as enthusiastic as evidenced not only by a lower percentage of respondents indicating "very important" but also by subjective comments explaining their reasons as follows: "Not much over the next 10 years . . . Also we seem to send teachers to workshops on computers. After a while they quit using them." "I see the future of computers increasing. I also think it will pass. Computers have a place but as a tool--not a teacher." "In middle schools and high schools--very useful, necessary, and efficient. In elementary schools we have too many other areas to cover." "Surge--then slow up. They are outdated too soon to cost as they do." "I am concerned that we get so involved with computers that

kids stop thinking for themselves."

On the positive side, 38% of the elementary school principals responding indicated that computers would become a vital part of the curriculum to assist with reinforcement drill and practice. As one principal wrote, "In the future, classroom teachers will rely heavily on the computer. The computer will be the most important instructional aid."

At the middle school/junior high school level, enthusiasm for computer use was higher than at the elementary school level (61% vs. 21%) but not as high as at the high school level (61% vs. 75%). Accordingly, only one negative comment was expressed by a middle school/junior high school principal, "Our problem is not having teachers with the time and knowledge to teach a computer course." The most frequently recorded comments about the future of computers was that they would be used for problem solving, instruction, and administrative functions.

High school principals were the most positive in their responses concerning computer use in instruction and in administration. Fifty percent indicated that word processing would replace the traditional typing classes, with data processing and management information systems becoming common place. One high school principal wrote, "I predict that computers will be in every facet of school business."

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Table 1

Uses of Computers

	Elementary Schools	Middle Schools	High Schools
Total number of schools	72 (65.5%)	18 (16.4%)	20 (18.1%)
Total student enrollment	36,468	13,385	20,125
Types of computers			
Apple	326 (72.8%)	141 (64.7%)	304 (53%)
Commodore	71 (15.9%)	56 (25.7%)	37 (6%)
IBM PC/PC JR	14 (3%)	10 (4.6%)	107 (18%)
Radio Shack	20 (4.5%)	9 (4.1%)	116 (20%)
Other (TI, Zenith, Epson)	17 (3.8%)	2 (0.9%)	15 (3%)
Total # of computers	448 (100%)	218 (100%)	579 (100%)
Administrative uses (# of schs. reporting each use)			
Attendance	20 (28%)	8 (44%)	11 (55%)
Budget	4 (5.5%)	1 (5.5%)	9 (45%)
Bus routes	5 (6.9%)	1 (5.5%)	0 (0%)
Discipline	6 (8.3%)	6 (33%)	6 (30%)
Grades	10 (14%)	4 (22%)	14 (70%)
Scheduling	9 (13%)	7 (39%)	16 (80%)
Word processing	26 (36%)	8 (44%)	16 (80%)
Other (test scores)	4 (5.5%)	6 (33%)	4 (20%)
# of teachers using computers	526	291	543
Teacher uses (# of schs. reporting each use)			
Databased information	13 (18%)	7 (39%)	10 (50%)
Grades	18 (25%)	9 (50%)	17 (85%)
Decorations	30 (42%)	11 (61%)	13 (65%)
Tests	12 (17%)	9 (50%)	11 (55%)
Word processing	24 (33%)	10 (56%)	15 (83%)

Table 1, continued

Number of students using computers	16,785 (46%)	4,493 (34%)	4,275 (21%)
Instructional uses (# of schs. reporting each use)			
English			
Language Arts and Spelling	46 (64%)	5 (28%)	6 (30%)
Reading	46 (46%)	8 (44%)	3 (15%)
Word processing	16 (22%)	9 (50%)	9 (45%)
Mathematics			
General math	51 (71%)	9 (50%)	10 (50%)
Algebra and higher	1 (1.4%)	4 (22%)	16 (80%)
Vocational Education			
Business & accounting	1 (1.4%)	1 (5.5%)	18 (90%)
Word processing	1 (1.4%)	3 (17%)	15 (83%)
Computers and Problem Solving			
Computer literacy	13 (18%)	6 (33%)	13 (65%)
Logo	2 (2.8%)	0 (0%)	0 (0%)
BASIC	4 (5.5%)	2 (11%)	10 (50%)
COBOL	0 (0%)	0 (0%)	6 (30%)
FORTRAN	0 (0%)	0 (0%)	4 (20%)
Other Subjects			
Science	23 (32%)	5 (28%)	7 (35%)
Social Studies	26 (36%)	7 (39%)	5 (25%)
Industrial Arts and agriculture	1 (1.4%)	2 (11%)	11 (55%)