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AUTHOR Kimmelman, Paul
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ABSTRACT

The computer phenomenon has made rapid inroads into school curricula, often without proper board guidance or approval. Accordingly, this pamphlet discusses why and how computer education should be provided in schools and sets forth guidelines for school board policy regarding computers. An umbrella policy is proposed, defining "computer literacy" in a manner that links the basic components of computer instruction: computer-assisted instruction, applications, programing, and social ethics. From such a policy, regulations can be derived that govern curricular emphases, required skills, and equal access for students. Related topics covered by the pamphlet include the effect of a computer education policy on other policy areas (e.g., instructional materials, staff development, purchasing, and program evaluation), its effect on the school budget, and the importance of flexibility in the policy framework. Purchasing tips and suggestions for software standards follow, and the pamphlet ends by emphasing the importance of retaining board control of computerization. (TE)

Updating SCHOOL BOARD POLICIES

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Johnny, a third grader, is working intently at the classroom computer to improve his math scores. Sally is a third grader in the same school system, but she doesn't have a computer in her classroom.

Students at Washington High School can enroll in the school's computer science curriculum taught by an enthusiastic teacher who sought special preparation to teach computer science classes—and even bought a computer to use at home.

But at the same school system's Lincoln High School, the school's computers (purchased with federal funds) remain boxed in a locked closet. Lincoln's teachers aren't interested in getting the necessary training despite countless requests for computer classes from students and parents.

Are these situations familiar? If so, it's time to consider why and how computer education should be provided in your schools and the policy issues that require your board's attention.

Who's in charge?

The computer phenomenon has made rapid inroads into school curricula, often without proper board guidance and approval. Publicity on the need for excellence in education—and computers—has led school officials to accept the importance of developing computer curricula before clear instructional objectives are determined. Overzealous parent groups, teachers, students, and administrators all want to be "first" to use computers in classrooms.

At the same time, most school officials lack knowledge on how to implement these programs and readily accept the advice of sales people, parents, teachers, and any other "purveyors of information."

Further, a plethora of educational computer journals has emerged, all with "expert" advice.

The results are chaotic.

Parent groups donate computers and software so their children don't "fall behind." Teachers debate the merits of hardware and software based on finely tuned sales presentations. School boards mandate implementation of computer science courses before teachers are trained to teach them.

Follow a board-approved plan

A "mess" you say? You bet! How can schools complete years of curriculum study and development in such a short time?

Realistically, they can't. But a foundation can be built by starting with a board policy on computer education that mandates a purposeful, consistent, organized, and equal program.

For example, the Norton (Oh.) school system, which serves 3,700 K-12 students, had computers in two of its three elementary school buildings—all purchased with locally raised funds. Parents of children in the third school were upset, however. They wanted their children to have the same equipment and learning opportunities.

While teachers in the first two schools were enthusiastic supporters of computer education, teachers at the third school were reluctant to get involved, and the principal sided with the teachers. A board policy in this instance could have prevented this inconsistent and inequitable approach from evolving.

Once adopted, a board policy that defines the purpose and structure of computer use in schools gives administrators the authority to resist the influence of well-intentioned pressure groups. It lets the superintendent give explicit instructions to administrators, such as:

- Don't let parent groups pressure you into using software or hardware that aren't consistent with the curriculum plan—even if they will pay for it.
- Don't allow computer classes in elementary buildings because our plan calls for computer use only in the high school.
- Avoid the temptation to begin programming classes because our purpose is to use computers to teach applications, i.e. word processing, spreadsheets, filing, telecommunications.

Policy guides curricular choices

The basic categories of computer instruction to consider are:

- computer assisted instruction (CAI);
- applications;
- programming;
- social ethics.

Implementing a computer curriculum that includes all of these categories is a difficult task.

Some students with interest and talent may want to delve into programming classes while others may want to use word processing—an applications use. Still others may benefit from CAI to improve math computational skills or other basic skills.

At the same time, state curriculum and graduation requirements have to be considered when making choices.

You can begin by linking these components under an umbrella policy. For example:

The school board believes that computer literacy encompasses a variety

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of curricular concepts. These include programming skills, computer applications, computer assisted instruction, and computer ethics.

The school board further believes that every student should be encouraged to participate in the computer literacy program.

This broad policy statement provides a foundation on which to build specific program objectives.

Implementing board policy

How does a board policy on computer literacy and computer learning opportunities for *every* student translate into administrative regulations? Keep in mind that administrative regulations are the core of your computer program. They direct implementation committees through the *process* of introducing computers into the curriculum.

To implement board policy effectively, the professional staff and community should be involved. Sam Reynolds, director of curriculum for the Manchester (Oh.) schools, suggests discussing the intent of the board policy with principals as an important first step in garnering staff support. "Administering democratically will bring about the best results," says Reynolds.

Educational research should be analyzed carefully in terms of how computer education can best fulfill the academic needs of students. Technological education should be viewed within the same parameters applied to other discriminatory practices to ensure that all students are offered the program on an equal basis. But research doesn't always provide definitive answers.

For example, are separate computer labs effective or should every classroom be equipped with computers? The August 1984 report of the National Survey of School Uses of Microcomputers (Center for Social Organization of Schools, Johns Hopkins University) reveals that there may be more equitable use of computers when they are in the classroom, but more productive use when they are located in central labs.

Some other questions to consider are:

- Should students learn keyboarding (touch typing) skills as a prerequisite to studying computer programming or to using computers for computer-assisted instruction?
- Are girls less interested in computers and what can be done to ensure that they get their fair chance to learn about and with the help of computers?

On-site visits to area school systems that have computer literacy programs underway are a useful way to gain first-hand, practical input. Beyond all the sales presentations and research, visitations provide a realistic view of students and teachers actually working with computers.

Staff should talk to administrators, teachers, and students in other school systems to get their opinions and insights and to ask what mistakes were made and—most importantly—how they can be avoided.

Effect on other policies

As staff proceeds to implement the computer education policy, the board should be kept informed—especially as plans relate to other policies.

For example, your policy on Supplementary Materials Selection and Adoption (EPS code IIAB) may require revision to include instructional software.

Other policy areas that may need revision include Professional Staff Development (GCL), Gifts from the Public (KH), and policies that relate to Purchasing (DJ). Your policy on Evaluation of Instructional Programs (IM, also AFE) also should be reviewed to promote effective monitoring of the computer program when it is in place.

Effect on budget

The board also needs to know when plans for the computer education program require unanticipated spending.

In addition to the cost of computer hardware and software, there may be a need to install additional electrical outlets in classrooms, provide extra security for the equipment, or approve a new position for a curriculum specialist to oversee planning and implementation.

Provide a flexible framework

While board policy provides guidance on developing and implementing the computer education plan, it should not be overly restrictive. The brand of hardware to purchase, software to use, and curricular approach, for example, should be left to the professional staff.

The school board might stipulate, however, that representatives from all buildings must be involved in the equipment selection process before purchasing decisions are made.

The board also might direct that at least three or four companies be allowed to make presentations to a selection committee so that informed decisions are made.

Purchasing tips

Dave Macali, coordinator of instructional services for the Norton City Schools, provides some helpful tips to consider before purchasing hardware:

- "Determine how the computer system will be used." Purchasing equipment that is designed for more than its intended use wastes money. Chances are that a 16k computer will be adequate for beginning programming classes—and less expensive. And, "If simple math computations are the goal of the lesson, buy calculators."
- "Find out what support the local vendor can and will provide." A "cheap" computer is no bargain if repair service isn't readily available.
- "Ask if the vendor provides training for operators." There always are questions that aren't readily answered in the manual.
- Find out the limitations of the system. Is software currently available to meet your needs? Don't be fooled by

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catalogs or sales hype that promise products in the future: The future often is a "long way off."

• Is compatible peripheral hardware—disk drives, speech modules, graphic pads, mouse, light pens—readily available? How much will it cost to expand the system? Look with a "wary eye" at an unbelievable deal on a computer; the dealer knows you'll be back for peripherals that may be high profit items. Carefully price a complete system when you make comparisons.

Set software standards

Many educators say that selecting hardware before writing the curriculum is like putting the cart before the horse.

Not necessarily.

Almost all computers are compatible with a wide array of available software that will permit a multitude of activities. Selecting hardware first could bring you a team of consultants from the computer sales force—a shortcut to finding software.

The curriculum and software you'll use to meet curricular objectives probably are the most important components of the entire computer education program. Decisions about hardware and curriculum will have a long-term effect and are not easily or inexpensively changed. Software purchases, however, can be changed with far fewer consequences, and chances are that you will purchase software frequently. But keep your standards rigid.

Some suggestions from Dave Macali are:

• Purchase software from reputable companies only. Software can be defective; seek a warranty and return privileges. It's amazing how many vendors don't provide a warranty or allow money-back returns.

• Try to get a software "preview" if possible. Field test. What looks right in the catalog may not meet your curricular objectives.

• "Look for software that stimulates creative thinking." Routine, n undane software that isn't more useful than flashcards won't motivate students consistently. Read software reviews in the countless available magazines and use them as a *guide*. Be aware, however, that some software reviews aren't thorough and at times aren't even accurate.

• Encourage staff to develop software to meet the learning objectives of local instructional programs.

Retain board control

Many school boards are faced with catching up their policy making with what already is happening in their schools. To do that, however, board members have to be informed about what already is happening in their schools and elsewhere in the area of computer education, and what *could* be happening.

A survey of 1,000 randomly selected school systems conducted by NSBA and the National Institute of Education last spring revealed that superintendents and principals are providing the strongest push for computers in the schools.

That's probably as it should be. Trained educators always should be on the lookout for creative ways to improve and expand learning opportunities.

But, no matter who initiates the effort, it's up to school boards to retain control of policy decisions that affect the equity and excellence of the educational program. ■

Dr. Paul Kimmelman is assistant superintendent, Norton City (Oh.) Schools, and lecturer, educational administration, at the University of Akron.

Connecting computer education to policy

Here are some policy topics, coded according to the EPS system, that relate to using computers in the schools. It's a good idea to review your policies on these topics and others—and to adopt policies where there are gaps—to make sure they support equitable and excellent use of computers in your schools.

Purchasing Procedures, DJF
Vendor Relations, DJG
Sales Calls and Demonstrations, DJGA
Authorized Use of School-Owned Materials and Equipment, EDC
Copying Software—break out a code under Printing and Duplicating Services, EGAA
Professional Staff Development, GCL
Professional Research and Publishing, GCQB
Curriculum Research, IFA
Curriculum Adoption, IFD
Curriculum Guides and Course Outlines, IFE
Computer Education/Instruction Literacy/Science—break out codes under Basic Instructional Program, IGA, for general education courses about computers
Supplementary Materials Selection and Adoption, IIAB
Evaluation of Instructional Program, IM (Also AFE)
Computer-Assisted Instruction, IIBG
Gifts from the Public, KH