The 15% Solution


The short section that follows was a left side Sidebar in the published version of the article.

Nearly 15 years ago, I boldly asserted that if our educational system would spend 2% of its budget for information technology, then great things could happen (Moursund, 1984). The 2% suggestion seemed rather wild-eyed, although some higher education institutions were already spending at that level. Well, here we are in 1999, and according to data in a report given to the president (Panel on Educational Technology, 1997), the expenditures in the 1994-95 school year had grown to 1.3% of the school budget. Even more recent data (1998-99) suggests that we are now close to the 2% level.

In a March 1984 editorial, I noted: “A recent ad in my town’s newspaper indicated one could purchase a 64-KB machine with a 5.25-inch floppy disk drive, a printer, and a monochrome monitor at a retail price of $900. The ad was for a very widely sold computer system from a reputable local dealer. It was for a one megahertz, eight-bit machine that had been on the market for a couple of years.”

Now more recently I’ve seen an ad for a 64-MB machine with a 3.5-in. floppy disk drive, a 4.3-gigabyte hard drive, a 56K modem, a CD-ROM drive, a color monitor, and a color printer at a retail price of less than $1,000. This is a 333-megahertz, 32-bit computer. I also saw an ad for a $999 16MB laptop with a 12.1-in. color monitor—a 233-MHz, 32-bit computer with a 3.5-in. floppy drive, a CD-ROM, and a 1.6-gigabyte hard drive. Both computers have operating systems with graphical user interfaces and a mouse or a touchpad. The prices had dropped substantially from just a few months before, and they probably will have dropped still more by the time you read this article. When adjusted for inflation, the costs are substantially less than the 1984 machine.

What Percentage Do We Need?

Two percent of the school budget buys much more computer than it did 15 years ago. However, our expectations also have gone up a lot. Fifteen years ago we felt lucky to be in a school that had a student-to-computer ratio of 80-to-1. Now the national average is approximately 5-to-1—and still inadequate. A commonly stated goal is two students per computer, and we now have quite a few schools where every student carries a laptop. We also expect schools to provide good connections to the Internet and a wide range of multimedia facilities.

In The Future of Information Technology in Education (Moursund, 1997), I list a half-dozen expectations that a school might have.

1. Provide every student and teacher with a powerful portable computer and a full range of computer productivity tools.

2. Provide every classroom with a technology infrastructure that includes scanners, printers, camcorders, digital cameras, desktop presentation systems, and network connections.
3. Provide every student and teacher with good Web and e-mail access, as well as access to the full range of distance learning and computer-assisted learning facilities both in and outside of school.

4. Provide adequate maintenance and repair staff, as well as other technical support.

5. Provide continuing inservice education and support for teachers.

6. Provide ongoing curriculum revision and development to keep pace with continued changes in technology.

The analysis in my book indicates that meeting such expectations will cost far more than 10% of school budgets. The Panel on Educational Technology (1997) also analyzed many different forecasts of what information technology will likely cost schools in the future. Conservative estimates are approximately 10%, while bolder estimates are closer to 15%.

In many school districts, “discretionary” funds—that is, money available for books, supplies, equipment, and so on—are in the 15% to 20% range. Salaries, busing, ongoing maintenance and repairs, insurance, and so on make up the rest of the budget. Clearly, a school cannot allocate all of its discretionary funds for instructional information technology.

Where will the needed resources come from?

The answer has four parts. First, reallocating current funds can put a significant dent in the resources problem. All schools, for example, have staff development, curriculum development, and library funds, and some of these resources can be reallocated. Second, good arguments can be made that school budgets will need to increase. Third, the E-rate or other sources of federal funding—or both—will make a significant contribution.

Fourth, the nature of school staffing will need to change. Businesses have massively cut middle management and support staff, and schools may need to do the same. Right now, in a typical school system only 40% to 45% of the budget is used for teachers’ salaries and benefits. In addition, few schools adequately use a differentiated staffing structure that includes instructional assistants.

Final Remarks

I predict that in 15 years a significant number of schools will have implemented the “15% solution.” Many of the needed resources will have come from staff restructuring. Schools that have the most flexibility in staffing—charter schools, magnet schools, and private schools—are most likely to take the lead in these types of educational change.

References

