

Empowering Teachers

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Many schools now have a ratio of one computer per 12 students, or even better. While these machines may vary widely in capability, the total computing power in schools is both quite large and is growing quite rapidly.

So, why isn't education getting a whole lot better? Indeed, why do so many people argue that the quality of our educational system has been declining during the past decade while so many resources have gone into schools acquiring computer hardware and software?

This is a complex question, and I am going to provide a simple answer. The answer comes from the business world. In recent years, business has undertaken a strong movement toward empowering workers. Workers are empowered by being given the authority, responsibility, and education to do their jobs well. This formula has worked well in many countries and in many different types of business.

Business has also faced the problem of dealing with an immense amount of technological innovation. Studies indicate that providing workers with high technology fails—be it in a factory or in an office—if the workers do not receive adequate training, encouragement, incentives, and continuing on-the-job support. If the workers are not empowered by appropriate training and support, the technological innovations prove ineffective.

Teachers

Why should it be any different for teachers? Many schools have acquired a great deal of computer hardware and software. However, few schools have analyzed the amount of education, encouragement, incentives, and continuing on-the-job support needed by teachers. Few educational leaders appreciate the difficulties involved in a teacher learning to make comfortable use of even a single piece of software in a complex educational environment—that is, in the typical classroom.

To take a single example, compare a skilled secretary learning to use a word processor to handle correspondence versus a teacher learning to use a word processor as both an aid to instruction and as an object of instruction.

It is obvious that the task faced by the teacher is many times more difficult than the task faced by the secretary. This comes both from the fact that the teacher is not likely to be a skilled typist, but also because the classroom environment is very complex. Teachers not only have to deal with whatever questions arise as they make personal use of word processors, they also have to deal with the full range of questions that occur as their students use word processors. While the secretary most likely uses a single computer that nobody else uses, the teacher may have to deal with several different makes and models of hardware and software that are being used by different students every hour. (Students are very good at messing up computer systems.)

Empowering Teachers

Our educational system has done a miserable job of empowering teachers to make appropriate and effective use of computer-related technology. It isn't just the training—although in most cases it has been woefully inadequate. It isn't just the lack of computer-oriented curriculum—although, in most cases good curriculum materials are not available. It isn't just the assessment system—although, in most cases teachers are still expected to have their students perform well on assessment instruments that are totally unrelated to use of computers. It isn't just the amount of hardware and software available in the classroom—although, in most cases the facilities are quite inadequate. It isn't just the support system—although, in most cases the teachers are "on their own" if something goes wrong with the hardware or software during a class.

It is all of these things and more. Computers have not empowered most teachers. Rather, by and large, computers have decreased the actual and perceived power of teachers. Most teachers perceive their power to be diminished when they are expected to teach topics and deal with questions where their knowledge and skills may be far less than some of their students. Most teachers perceive that their power is diminished when the knowledge and skills they are gaining are obsoleted by rapid advances in hardware and software. Most teachers perceive that their power is diminished when they are told that they should be teaching students to communicate in a multimedia, hypermedia environment, and they have difficulty coping with a motion picture projector and a VCR.

If the above analysis is correct, it will take a long time for computer technology to make a significant contribution to improving education. This long time is will be required to provide teachers with the education, encouragement, incentives, curriculum materials, and continuing on-the-job support needed to make effective use of the technology. If the resources needed to accomplish these tasks are not made available in adequate amounts, computers will not contribute to improving our educational system.

Retrospective Comment 8/28/08

Occasionally when I read one of my old editorials, I am amazed about how I was so insightful so long ago. This editorial falls into that category. I believe it still provides an accurate picture of ICT in our schools. Over the past 16 years we have made little progress in empowering teachers in effective use of ICT in their everyday classrooms. Indeed, rapid changes in ICT have made most teachers feel that they are falling further behind rather than moving toward feeling competent and confident in the routine integration of ICT into their everyday work.