

There are So Many More than Three Barriers

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BARRIERS

One major barrier is that educators often view themselves as “people persons” and not “technology persons,” which ends up being an excuse for not familiarizing themselves with new tools. Ironically, the actual research in other industries related to people who employ a high level of information technology in their jobs is that the technology liberates them to be more interactive with other people, not machines.

The financial disaster “wolf” has never really been at the door of most school districts. By almost any measure, schools have for decades received funding that outpaces inflation. (That is why proponents for increased school funding have “cloaked” their requests in other measures such as percentage of the state budget or to equal expenditures in other states.) Conversely, many of the companies that have “reengineered” themselves have done so at the threat of going out of business. Some of these companies have seen declines in revenues over a short period of time of 50% or more. This has forced them to make really difficult decisions in order to increase productivity. They have often had to substantially reallocate priorities and resources in order to survive.

Consider that in almost any industry, the number of transactions or interactions has dramatically increased per employee as a result of embracing information technology. The capacity to contribute and be productive has grown steadily. Education is still clinging to the notion that staff time is “free” because it is an embedded cost, and that the obvious answer to meeting almost any new responsibility is a cry for more staff, rather than finding alternative ways of doing things through information technology. A couple of years ago, I learned of a school district in which the computerized scheduling system crashed. The district basically required all faculty and available staff to reenter the data rather than hiring a data recovery company. The relative cost had to be disproportionately high if the true cost of all the salaries of all the people entering data was calculated into the

equation—not to mention the loss of productivity in areas of normal responsibility.

Taxpayers exercise ambivalence related to the issue of increasing the amount of information technology available in the classroom. Those who are most knowledgeable as to the benefits of infusing information technology often times have it at home available to their own children. This creates a situation where the opportunity for a phenomenal disparity between technology “haves” and “have-nots” exists. Not addressing this “digital divide” will ultimately translate into large percentages of the population being left behind. Those left behind will not only not have an equal opportunity for success in American society, they will not have an opportunity to contribute to the progress and general welfare of that society.

To date, the need for accelerating the infusion of technology into schools has not captured the imagination of the voting public. This is not an issue that has much, if any, political currency. Voters seem to be more engaged on issues of class size, transportation, discipline, textbooks, and even athletic budgets, than whether or not students are learning in an environment and with tools that will be directly relevant to future careers. We seem capable of passing bond issue referendums for magnificent buildings, but often neglect the information infrastructure that will connect students to the world and to relevant information for true learning. Too often I have toured schools where the principal brags about a “state-of-the-art” computer lab. Regrettably, principals rarely boast about the number of computers in classrooms—and sometimes even give the impression that computer labs are an adequate substitute for an immersive environment of information technology throughout the school.

The amount of teacher and administrator training is woefully inadequate to the task of lifting their knowledge to the point where they understand both the necessity and potential power of learning enabled through new information technologies. Schools do not devote enough attention to preparing educational personnel, who in most cases did not have any ex-

posure to learning resources such as the exponential riches available on the World Wide Web during their own high school or college experience. (The WWW was only invented in 1993 and was not very prevalent in schools for several years after that, meaning that most educational personnel in the schools today had little or no experience with technology in either high school or college.)

Editor's note: Recent studies indicate that approximately 85% of teachers have little or no effective professional development in the use of technology in instruction and assessment and, alarmingly, other studies indicate that it takes an average of five years to get them to a level of competence in using technology in their teaching.

Educational leaders are often "missing in action" when it comes to creating a pervasive environment from which to teach and manage instruction through educational technologies.

The notion that the education community seems to embrace "that the funding for needed educational technology is going to have to be 'in addition' to other funding" relegates this urgent funding need to one of a "superfluous add-on." These essential tools for 21st century learning should have a high priority in all mainstream budgets. The education community itself has not made a strong case for raising technology costs to a high budget priority—possibly higher than textbooks, subscriptions for print media, and so forth.

The expertise used by schools to provide comprehensive planning for technology-assisted education is not usually up to the task. Too often it is vendor-product-driven, and too often it lacks the range of education and technology knowledge and experience needed to accurately determine its fit with the infrastructure and educational needs of the school. How often has a high-level business analyst been coupled with a high-level software architect to evaluate needs and design a

system that will meet the unique needs of schools and districts? What usually happens is that there is a focus on hardware (which in and of itself is the wrong starting point), and the expertise often comes from the sales force of various vendors. By being unwilling to pay for high-quality evaluations on the front end, schools waste more dollars with systems that either do not work as they were promised, or they create unintended and convoluted repercussions throughout other parts of the technology infrastructure.

SOLUTIONS

- Demand better quality teacher and administrator training.
- Educate the public as to what is at stake if we neglect to make proper investments in technology-assisted learning (competitiveness and productivity).
- Commit adequate financial resources to re-engineer the schools (this means substantial reallocations in some instances).
- Convince the public and policy-makers that schools need to invest more on the "front end" of information technology decisions—which starts with securing strong front-end talent, especially related to network and architectural analysis and design. This should help schools and districts reduce total project costs, because it will help get things done right, sooner.
- Schools need to approach investments in technology by pushing the financial returns much harder than they have in the past. Smart businesses do not make investments because they have a notion that something will work. Rather, they have spent a lot of time understanding the return-on-investment. I have seen schools be far less demanding in this regard.

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