Improving teaching and learning through technology urges attention to politics, as well as to pedagogy. Based on the experience of one particularly successful school superintendent, this chapter explores strategies for securing stakeholder support, and for resolving conflicts among them.

Reconciling Stakeholder Interests: The Politics of Technology Transformation, or, It Takes a Network to Connect a Community

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The issue

Half the population knows exactly what you should do; the other half doesn't know what you are talking about. You need different strategies for different folks! So goes the story of technology in schools.

Increasingly, public education involves all the public in its deliberations. That phenomenon is caused by the low esteem in which much public education is held these days, and by the technology itself. Everyone has easy access to school leaders through email and the web. The network transforms public interaction.

Public education on the local level is still an arena in which the public's wishes have some possibility of being accommodated. Nowhere is this clearer than in the politics of technology where the list of stakeholders runs the gamut from the Federal Government to students. In recent times, both the president and the vice president have supported the "information highway"; the Director of the Office of Technology is a former teacher and still a friend of public education. All pronouncements and funds from the Federal level are messages to local education establishments that that issue is important. The net is cast.

Who is involved in the politics of technology transformation?

The State government must be centrally engaged. The wide area networking infrastructure cannot be developed by individual school districts. The key to engaging the state government is to marshal the forces of business and education to work together on a funding agenda (capital bond bills, annual budget line items, special appropriations) and on a series of mandates. For example, school districts, as well as the Department of Education, should be required to submit five year technology plans in order to access any special matching monies from the state.

Those plans should be updated annually, making the use of technology in schools part of any educational reform initiative. In Massachusetts, a number of activists formed an organization called BEST (Business and Education for Schools and Technology). The membership includes business collaboratives such as AIM (Associated Industries of Massachusetts) and The Software Council, as well as the various professional educator associations.

As reported in the November 25, 1998 edition of *Education Week*, a recent report by Hezel Associates (1998) claims that without a state governor's buy-in, technology does not get very far in a state. One of BEST's major coups during the last three years of campaigning has been to get official support from the past and current Massachusetts governors.

While one thinks globally, one must act locally. Education is a state obligation and in most states, predominantly, a local prerogative. So School Committees, as they are called in Massachusetts, are responsible for establishing policies and securing annual funding from taxpayers. Educating School

Committees is essential to ensure that, in addition to whatever grants and gifts schools receive for technology, there is a steady revenue stream in the appropriated budget.

Parents and the community must support the cost of maintaining the technology program through voting for overrides, special warrant articles and of course, the annual school budget. In our communities, we tied networking to other essential needs by creating a single warrant article which included *Americans with Disabilities Act* requirements and health and safety items so that technology would be difficult to vote down. We impressed the Town Meeting with our budget presentation using the computer, setting the standard for every other group which has come before the Town Meeting since then.

School administrators, especially principals, must take the lead by modeling and explaining the value of technology used appropriately in the classroom and the office. Teachers are the ultimate supporters because they must use the technology wisely with their students. They must integrate the technology into curriculum and instruction. And finally students have a role because once they understand the enhanced capacity provided by the technology, they will demand it in order to be prepared for their future. In our school districts, during the first year of our network, high school students came forward to help. They created ABISS (Acton-Boxborough Internet Scout Service) in order to teach teachers how to use the Internet and to search the Internet for material for their teachers' classes. A parallel group was formed at the same time in one of the elementary schools. One of our students created our district Web page, and students and teachers supplied material for our site.

There are many community organizations that can play seminal roles. The universities train future teachers and can provide the research that is badly needed to convince certain critical and as yet unpersuaded segments of the population. The Chamber of Commerce brings together the businesses and the schools to engage in mutually beneficial activities. Technology businesses partner with schools to offer expertise and in-kind support (to generate future loyalty for their products). Volunteer organizations spread the word about the utility of the technology in schools while offering support to the schools.

The schools themselves need to collaborate with other districts to maximize the potential for grants, professional development, low-incidence programming and to prevent unnecessary duplication. Some duplication will be inevitable. People do learn by doing and sometimes they themselves must do "it." They cannot simply learn from other people's experiences. With so many small school districts everywhere, each often "reinventing the wheel", sharing information and experience as well as scarce resources cannot but be useful to the entire enterprise. It takes a network to connect the stakeholders.

How can the stakeholders be engaged and activated?

Building support is what the politics is all about. Involving everyone and maintaining people's enthusiasm and a sense of urgency are critical. That can feel overwhelming at times but there are strategies which have proven their value and their success.

Campaigning at the grass roots. Establishing grass roots organizations such as BEST takes a few dedicated beginners with a little time and very little money (basically for postage and stationery). Using email, the following grassroots strategies have proven very effective:

- identifying a person in each school district who will contact a State representative and senator when asked
- keeping a list of the senators and representatives handy, with their email addresses and phone numbers so they can be easily 'advised'
- using volunteer assistance and members' facilities.

These are all simple but effective techniques. Testifying before the legislature, writing letters and position papers are all necessary steps in the political process of electing a candidate for public office. They are equally powerful in moving the technology agenda ahead. For a detailed account of BEST's operations and achievements see Beth Lowd (1998).

Creating coalitions outside your system, working with non-profits, businesses, agencies and users groups are other important steps. In Massachusetts, we were able to convince the MITRE Corporation and the Massachusetts Business Roundtable to listen to the ideas and concerns of school superintendents (representing our professional association). Prior to the creation of BEST, we created the Massachusetts Technology Collaborative so that educators, public employees and business and university representatives could meet regularly to think about the issues and to plan the education of specific key groups. Business people need particular attention. Often they do not give educators enough credit for their achievements. When we first started working with the President of the MITRE Corporation, he claimed that Superintendents would "not know how to spend a million dollars" on technology.

Establishing a local community technology advisory committee, (or CTAC, as we called our local groups), composed of community members, parents, school people and students gave us the legitimacy, energy and expertise to move the agenda to the School Committee and the Town Meeting levels. We asked them to focus on the networking piece of our technology plan. CTAC helped us to "market" our needs to the communities. We used our town Cable TV show, articles and the Superintendent's column in the local newspapers, letters to the editor, articles in the student high school newspaper, memos to the School Committee (whose meetings are televised), and features in the school district newsletter.

We mounted a *Tech Expo* on a Sunday afternoon, showing off every use of technology then available in our school systems, calling upon our business partners to demonstrate their initiatives and products. In addition to the educative function, *Tech Expo* also served as a community building activity, another form of networking! The first occasion was followed by annual events until the base of support was established. Now, much later in our history, we have such a CTAC in each one of our district's schools.

Starting in California, the *NetDay* movement has become popular not only in the United States, but also in Europe. Massachusetts developed arguably one of the best versions of *NetDay* because in addition to the wiring, the planners, a broad coalition of stakeholders, included professional development and curriculum integration as part of the design. *NetDays* themselves were political events with legislators highly visible at selected sites and in their own school districts. The planning process was educational and inclusionary. The Board of Directors of Massachusetts *NetDay* continues to boast all the recognizable names in the business.

Supporting change at the grass roots. From the very beginning our two schools systems made the use of technology a part of the goals of the system, which are reviewed and revised annually. These are then developed into school goals, keeping everyone in the network. Courtesy of the State, the appropriate use of technology also became part of the annual performance appraisal of school personnel. This meant and means that every member of the school districts must pay attention to the use of technology.

None of the efforts to bring technology into schools can succeed without sufficient professional development for teachers and other staff, models or pilots of appropriate uses and the existence of personnel to support teachers. There are many studies and papers -- for example, the Milken Report published by Education Week (1998) and the US Office of Technology Assessment's national report (1995) -- which state the obvious: by itself technology does nothing significant for education. Technology must be used in accordance to a plan and supported by teachers:

- who know how to use it, when to use it
- have sufficient access to use it
- can help students use it

- have time to think about using it, and
- can fail in their first attempts to use it.

In the earlier days of educational technology, there were three waves of teachers: the risk-taking experimenters or pioneers and champions, those needing a little encouragement and support, and the "mighty resistors". I will not forget attending a *Tech Expo* in a community south of Boston during a heavy rainstorm. There was a momentary loss of power until the auxiliary generator kicked in. In the dark auditorium, while the cool presenter reorganized his presentation, the mathematics department head was heard to comment. "That's why I always carry chalk in my pocket!"

In the early days of educational technology, a district had to decide where to put its resources for the three waves. Now, students must be technology savvy to make their way successfully after graduation. There are thousands of jobs waiting for people with technology training. It is therefore more a challenge for schools to find sufficient resources to provide all the training and curriculum development which are needed for everyone on staff.

The role of the media. We cannot minimize the influence of the media on any agenda, certainly not on the use of technology in schools. One news article or editorial which tells a negative story or quotes a key decision-maker's critical opinion about educational technology has the potential to support the unconvinced and can be used by a School Committee member to vote against the purchase of computers for the schools. An important strategy is to respond and set the record straight whenever necessary. In the 1980s, after Seymour Papert (1980) of MIT made his damning observation that schools were not using the technology as fully as possible, it looked as if he had, in fact, killed all political potential for technology investment. He has since changed his mind, but his prominent name in the media had a strongly negative effect on public opinion.

It is so easy to be swayed by prevailing negative opinion. In the battle for technology in schools, standing firm when all around you people are wailing and railing against the use of computers is essential. Ways that help you survive include:

- having a vision, literally a picture in your head of what "it will look like when. . ."
- developing a plan, for the school district with other key players, and for yourself so that you can continue to encourage people

If some of the players resist, you must insist. Later they may thank you. When I was high school principal, I forced the faculty to spend two hours "playing with computers". They were furious before, but enthralled and "hooked" after.

As mentioned earlier, educational leaders need to model the desired behaviors. It must be "do as I do not just as I say!" The leaders must use the technology themselves in the most visible ways possible. My most powerful early example was having a workstation on my desk and writing memos directly on the computer with other administrators as we spoke. Using e-mail to send urgent messages was another way to engage colleagues and lead by example.

Major stakeholder issues

Demonstrating efficacy. What issues need reconciliation among the stakeholders, excluding money? The first is whether can we prove efficacy. While in business expending a great deal of money on technology without proof of success is a matter of course, not so for public education. Therefore, increasingly, there is research that shows that when used properly, technology does have a positive impact on student learning (Wenglinsky, 1998), improving writing skills, presentations, research, and higher order thinking. *The Milken Report* has documented several beneficial consequences of well-designed educational technology projects.

Some school districts conduct their own assessment. In Lexington, Massachusetts in the late 80's, the district chose one school to determine the value of technology and succeeded in proving several points:

- that with a critical mass of technology in a classroom there could be a significant improvement in quality level and effectiveness of instruction
- that with a team approach teachers would more quickly assimilate technology as an instructional tool
- that other schools would more easily become involved in the use of technology if there were a successful model in the system
- that support from all levels of administration was necessary for such change to be successful
- that if properly approached parents would be very supportive of the enterprise, and
- that students would find it natural and expect access to technology in their classrooms.

Technology in its place. It is important to emphasize that not everything a student learns in school will be learned on the computer. Students will learn how to write with a pen and pencil, how to read books, how to do calculations in their heads and on paper, how to solve problems by talking and thinking them through and how to be critical consumers of information whatever the source. The key message to all stakeholders is the appropriate use of technology, not technology as a panacea for all educational problems.

A related argument centers on the "computers versus teachers" dichotomy. The message must be that it is not a choice of one or the other. Technology is a tool, albeit the most powerful tool a teacher has ever possessed. Learning requires the personal interaction of two minds. It will be ever thus. It may be that in the future schools will not look at they do now: a series of separate "boxes" in a building. Technology does have the potential to change the structure of the school building, the school day and year. Whatever those look like in the future, there will be teachers working with children to facilitate their learning.

"Let the businesses teach technology later," say some opponents. "Why waste money on the schools?" That fact is that businesses are hungry for entry level and professional level prepared people right now. They want not to provide such basic training. They want trained people entering the work force. Craig Moore (1998) at the University of Massachusetts Amherst has offered some valuable insights on this question.

Student safety and appropriate use. We must provide some protection against objectionable use both because we need to satisfy parents that schools are safe, and to ensure that valuable time is not wasted in school. While it is true that the choice of books in a school library is screened by responsible adults and the Internet is not, schools can use filtering mechanisms such as BESS (an Internet proxy screening server for school use) and be reasonably sure that students are protected. Friel's chapter (pages ??-??) offers a detailed discussion of this issue.

Technical support and keeping current. There must be technical and support personnel. Teachers cannot stop teaching to fix the equipment. If that is the case, they will stop using the technology. This reality is often overlooked in schools. (It is never overlooked in business where the information management service personnel ratio to computers is astronomical compared to the same size school district.) In our district, for 4300 students in seven schools, we have a director of technology, one integration specialist, a network manager, a supervisor of programs, and a part-time secretary. We consider these to be less than the minimum requirements for a responsive and smooth functioning technology program.

Finally, there is issue of hardware disposal. Contrary to the belief of some, computers in schools do become old, and schools are not automatically the chosen recipients of superannuated computers from business and private individuals. Policies to assure the swift disposal of outdated equipment must be implemented in schools or the problem of storage, long a school complaint, will be exacerbated. There are agencies that

collect old computers and distribute them to those in less fortunate circumstances. Schools need to be able to let go of technology that has outlived its usefulness.

Which operating platform? The platform war, as I call it, is another issue. Which platform should the district invest in? The answer will surely be individual and will be debated periodically. Unfortunately, the fight is time-consuming and sometimes incendiary. The subtext is a comparison of the following costs: acquisition, installation, maintenance; ease of use; number of support personnel; teacher training and prior investment in software. Our CTAC almost broke up because of this issue. And when the decision was made, opponents on the Committee lost interest in the project.

Postscript

Reconciling the stakeholder interests is a constant balancing act. New strategies will be identified and developed. Making sure the various publics understand what is happening in schools, why it is important that students and teachers use technology, establishing reliable sources of funding are all required and will always be the challenging issues. It helps to have a network, human and electronic, which connects the community so that every stakeholder can be involved in the dialogue. Not everyone will ever be convinced, but the future will show how important technology is in the school place.

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