Technology and the Public Schools: The Best of Times and the Worst of Times

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There is a great hue and cry today that public schools are failing to equip students with the technological skills that are required in today's workplaces. Large corporations bemoan the unpreparedness of their new employees and complain about the new employee training they must provide. On the other hand, public schools allocate increasingly more money for technology. Still, students fail to meet industry's expectations. What are the stumbling blocks, the barriers that prevent students from becoming technologically proficient? Answers to these questions have become increasingly politicized in today's society. Is the problem a lack of funding, too few teachers or lack of training? Or is it that the stronghold of teachers' unions have protected weak teachers and what is really needed is greater accountability through more standardized testing of teachers and students? One case study of a single high school teacher cannot resolve these issues; but it is possible, by examining one teacher's experiences with technology, to begin to understand the complexity of the situation.

Lily Edward teaches high school English and Humanities. She has been a high school teacher for five years. This is a second career for her. She had an earlier life involved in fashion design in New York City. She is an exuberant, creative person who clearly loves teaching. "I love the kids," she says often throughout the interview. And, as she refers to individual students, you feel her care and concern for them. She talks about one student whom she had to prohibit from going to Stratford, Ontario to see *Hamlet* last year--"I really hate to do something like that but he broke the rules one too many times." But she went on to say that when he showed up in her class this year, he announced that he thought this was going to be the first English class he ever liked. Lily has the kind of personality that wins devotion from her students; she respects them and they in turn respect her.

Lily teaches in a high school of 900 students. It is roughly 98% white-in a heavily Catholic, working class neighborhood. The dominant ethnic groups are Polish and Italian. The district is small, with only one high school; it is part of metropolitan Detroit, predominantly a bedroom community with only small retail and professional businesses in the area.

Lily has been a technology user for many years. In her life are all the expected trappings of an educated middle class person: CD players, VCR's, TV's, audio tape recorders, telephone answering machines. She was an early advocate of the computer. She reports that at first she purchased a word processor "that had a little screen where you could see a line or two of type and you could print what you wrote." But after a couple of years she told her husband, "this isn't making it anymore," and they bought a computer. Personal computers were just becoming accessible and were still fairly expensive. Lily has gone through five or six computers since then.

When I asked about the undergraduate training she received in technology, she first told me about a general computer applications course she took at a local community college. Lily felt this course helped her in substantial ways: "It was really comprehensive. I was really pleased with it. . . . Of course I use the word processor all the time. I use graphics programs. I make a calendar each week. And it always has a little graphic on it that's visual and appealing." I questioned Lily about a specific course in computers that was a part of her teacher-training program. Her response was emphatic. "It was completely useless. I really did nothing. Nada. Zero." When I pushed for details, she explained, "It was too simple and I don't think he really gave us anything that we could take and put right in the classroom." Lily remembered no helpful technology training in her teacher-training program, although she did remember that she had viewed educational software in one course.

Lily's position on technology in the schools is firm. "My philosophy is that every classroom, especially English classrooms, should have a computer for every child." This is not the case at Lily's school, however, where the student-to-computer ratio is about fifteen to one. So Lily worries about her students and the training they are receiving. She recounts that when she was on a flight last year to Hawaii she was shocked to see so many fellow passengers on the plane connected to some form of technology -- computers, faxes, cell phones -- as they rocketed over the Pacific Ocean. Lily shares with me that the pervasive use of technology makes her "afraid for her students"

because the technology at her school is insufficient to help them become comfortable with the demands of the work world.

For this reason Lily constantly stresses technology in her teaching. She relies heavily on the internet. When asked about specific internet uses she replies, "In literature. . .oh, there's so much. . .pick any novel and there are numerous sites that you can go to give them translations on the symbolism, you know on further references on the author, and it is just an invaluable tool." Indeed, when I observed Lily's Humanities class, her students were visiting the computer lab to begin research for an Egyptian investigation paper. Lily had searched the internet prior to the class and had given the students a list of sites with which to begin their own search. She spends hours doing this type of class preparation. She admits, "I don't go to the library much anymore." Lily has some discomfort with the fact that her use of the internet is pulling her and her students away from books. When questioned about the quality of the material on the internet Lily stated that she did not feel the information on the internet had the same quality as material in the library. "There's a lot I can use but I think the intellectual quality of the sites you pull up is just not there."

Lily has been disappointed that the administration of her school district has offered little in the way of training to her in her academic fields and no training at all in the use of technology. The district does have a required number of in-services, but Lily did not report positively on these. Her disappointment in the district is clear. "Again my high school has no money for it[computer software]. . . I buy. . . I don't even ask. . .I just go buy novels. . . I buy class sets out of my pocket. I mean I don't buy new ones. . . . I go to used bookstores and buy five here, seven there." "No dollars?" I query. "No! NO!" responds Lily emphatically. Overall, Lily feels her school district is hypocritical. The administration on the one hand pushes teachers to use technology in the classroom but on the other hand fails to provide funds for training or equipment.

Ironically, the school district emphasizes its dedication to successful technology training through its web site. When I visited this site I was struck by its overall minimal content, but the one substantive portion is a thoroughly spelled out technology plan for the district, including perceived strengths and weaknesses. The report names equipment among its strengths -- roughly 200 computers in 1995 for a school district of about 3000 children. The identified weaknesses are telling; among them are no plan to fund future technology purchases and no plan for how to train staff, some of whom are judged to have no technology skills at all. The tone of this plan is hopeful, but it was created in 1995 and from my observations of the school and Lily's reporting, little progress has been made either to strengthen the delivery of technology instruction or to help teachers improve their technology modeling skills.

Although Lily is frustrated with her school district, it does not appear that the district can be cast as the "bad guy" in this narrative. In fact, I do not see a candidate for blame in this scenario. The district, which is relatively small, has made technological skills a priority, but it is stymied by lack of funds. Certainly Lily, who is an enthusiastic technology user and a dedicated teacher, is not preventing her students from gaining necessary skills. She feels the community has failed to support the district through appropriate funding. School funding, however, is fraught with difficulties. The school district's community is not wealthy, and all state funding of Michigan schools is limited by the real estate tax restructuring that was enacted several years ago.

In the larger picture, the state of Michigan, through its Board of Education, has recognized its need to schools in providing technological skills by developing standards that spell out what abilities students must have for graduation. Corporations and computer companies have given millions of dollars of aid and equipment in gestures motivated by healthy self-interest. At the University level, state institutions with teacher education programs have spent hundreds of hours trying to incorporate the state standards, as well as national accreditation standards. These standards demand that specific kinds of technology training be included in college teacher-training programs. (Lily is a graduate of a program that has struggled with this issue for several years, yet still fails to provide effective instruction in technology.) If all this awareness and attention around the need for students to gain technological skills exists at all levels, why do the schools fail in this mission? How can so many people be trying so hard be failing so consistently?

Politicians might have us believe that if we provide more funding this could solve the problem; or if we got rid of those teachers who, unlike Lily, have no technology skills and are incompetent, the problem could be solved. More

funding for training would help, and making sure that teachers have basic technology skills would help, but certainly the heart of the problem is more complex. Research in composition studies shows us that presently there is no easy solution to the technology dilemma. The world is in a great state of flux *vis a vis* technology, and this causes all educators to be unsettled. In *Passion, Pedagogies, and 21st Century Technologies* (Selfe, Cynthia, and Gail Hawisher, Eds. Logan, UT: Utah UP, 1999.), a compilation of essays, the authors collectively demonstrate that our notions of what and how to teach are changing drastically through our interactions with technology, particularly the World Wide Web. Varied views of the future are represented by theorists like Michael Joyce, who imagines the expanding possibilities of community and knowing brought to us by the Web, and Gunther Kress, who elaborates on the changing ways of communication from the verbal to the visual that technology encourages.

What are the implications of young students turning more and more to the World Wide Web for information, less and less to books? Is this advancement? What does it mean that students could, in the near future, come to school with their own laptop computers? Would this technology smooth the path of learning or present greater roadblocks? Is constructing meaning from interacting with a screen the same as constructing meaning through interaction with a book? These are questions that only begin to imply the current issues facing educators at all grade levels. From the interview with Lily, it was apparent that she has not engaged in this kind of questioning. She doesn't have the time to contemplate such issues. With over 200 students to interact with each week, her focus is on providing all the technology experience she can in a limited amount of time.

To paraphrase Dickens, it is the best of times, and it is the worst of times. It is the best of times because the new possibilities offered to us through technology are exciting. There is great power in being able to e-mail someone on the other side of the world or engage in a chat room conversation under a new identity. There is a world of information at our fingertips through the Web. Such experiences allow students to join the world community. It is unclear, however, what such experiences will produce -- greater understanding, greater curiosity? It is unclear how the question of access to up-to-date technology will be addressed by this nation. It is the worst of times because nothing feels secure under our feet. Educators are like new sailors trying to find their sea legs while the ocean rolls and changes anew. But one thing is clear: there are not going to be monolithic solutions to the problem of technology and education. For now, Lily Edward does her small part pushing open the door to the future and beckoning her students to follow.