

Adopting Telecommunications: A Teacher's Personal Quest

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"Looking at new educational ideas is like shopping for a new suit. I can try the new clothes, but if the shirt doesn't fit, take the pants. You don't necessarily have to buy the whole set each time." (principal)

Teaching is a profession of creation. Materials are examined, components chosen, and educators implement and recreate classroom materials. Each day is filled with change. Seldom is a technique, a curriculum, or any educational idea perused that doesn't need recreating in order to mesh with our teaching style or students' needs. It is rare that an entire "suit" is purchased. Refining and redeveloping is an art that most teachers find thrilling.

It is much the same with adopting and adapting electronic networks (ENs) for classroom instruction. Teachers must discern which potential element or elements, i.e. classroom projects, data bases, email, operates best in their classrooms, for their students, and with their styles.

The author and colleagues have been involved with a number of new classroom initiatives, but few efforts have excited them as much as introducing teachers to the power of classroom ENs. It became apparent to the author that the more teachers participated in their introductory activities, the more the teachers' individual processes of adoption emerged (Bruce, 1990; Harris, 1993). For some, it begins with learning how to operate the hardware and the programs. However, the adoption process must embody

much more. Teachers delve into a personal process of integration. This paper addresses the issue of learning how to integrate ENs into a classroom of 25 children, an already overburdened curriculum, and limited technology resources and support. Each day, there are steps forward, backward, and even side-to-side as teachers assess what they are doing, what they dream of doing, and how to reach their goals. Success with ENs is not getting it "right" on the first day or using it exactly as others do but, rather, the process of learning about oneself, one's teaching, and the potential of classroom telecommunications.

As educators, the author and colleagues felt a strong sense of loyalty to, and empathy with, K-12 teachers who are overworked, have poorly equipped classrooms, and limited time with which to undertake ENs. There are a variety of tenable reasons why so many teachers find it difficult to learn and integrate ENs into their classrooms. To better understand some of the roadblocks associated with EN use, stories of individual teachers striving to implement ENs have been compiled in this study. In these stories are vivid examples of why so many teachers find EN adoption difficult, as well as accounts where EN has found its way into classrooms.

One such case study involves a 6th-8th grade science and social studies teacher who was determined to adopt ENs. He had moderate experience with computers and enjoyed working with them but by no means was he what some might call a "computer nerd." He had one computer in his classroom and deeply believed it was important that students learn to use it. Highlighted in this accounting is what worked and, just as important, what impeded his progress as he embarked on a complicated journey of dreams, trial and error, and revision.

inservice sessions he attended, personal interviews with him, classroom observations, and, ultimately, the preparation and delivery of a presentation at a national conference. During these months, "Mitch" came to view the adoption of ENs as a process, and in so doing reinforced belief that integrating ENs is an individual journey into teaching goals, philosophies, and self reflection.

The following is Mitch's story and the lessons his journey offers.

"As a teacher, I'm like a cheerleader, because you have to get that self-esteem to the point where they feel like productive human beings. Once you've got their self-esteem, then you've opened their interest. You have to be on your toes - you're an actor. You have to change hats. But if you are not excited about teaching, they will not be excited learners. I say a little prayer each day...Lord, don't let me be a bore." (Mitch)

Mitch had been in the classroom for twenty years. He taught five classes of sixth through eighth grade science and social studies in a rural community that Mitch described as "economically depressed." He was fondly known by a few of his students as 'Rev. Hoyt.' He would often use a preaching tone of voice that suggested he was pleading or preaching for their attention. Mitch worked hard to connect his lessons with real-world situations.

"You can't afford not to listen! Stay with us. Now think how this might work at home." (Mitch pleaded)

Mitch's classroom accommodated only 20 students. At dismissal time one row of

students had to stand and fold their chairs to allow the rest of the class to exit the room.

In Mitch's words,

"I'm crowded. I have a computer in a classroom that has an average number of about 18 kids in sixth, seventh, and eighth that rotate into my room, and we're wall to wall desks...the room is used every hour of the day."

Mitch was among the first of 75 Illinois science literacy teachers inserviced on an early telecommunications network known as FrEdMail, Free Educational Mail. FrEdMail was established in 1986, free of charge for K-12 classrooms. Its goal was to introduce telecommunications to both students and teachers and its successor is known as the Global School Net. During the inservice where the teachers were introduced to ENs and given the necessary hardware, Mitch formulated plans for how he could use TC within his classroom.

"I wanted it to be the nuts and bolts of my science and used everyday. Kids would network on individual science hypothetical situations. They could gather information at this end and send it out over the network to other schools and look at the statistical analysis of one given set of variables. This would help them become literate in the hypothetical research design and scientific method used in science fairs and science textbooks. We could do this since all the teachers that had the science kits have the same materials. We could all replicate the same experiment and send the data over the network."(Mitch)

Mitch returned to his school from the inservice and shared his enthusiasm with his principal, who supported Mitch's dream of using FrEdMail. In the principal's words, "I'd like the students to be aware of a world greater than our town—different ideas,

people, and ways of looking at things." He saw ENs as a means by which his rural students could broaden their experiences and break the isolation of a small rural classroom.

With the small rural school's extremely tight budget, the principal had to find an innovative approach to use with the local school board concerning funds for the additional phone line. He knew that the board was conservative with both funds and educational strategies, so he developed a plan that convinced the board of the merits of having a classroom phone connection. At this time, the community was concerned about an earthquake that was predicted to take place in this region sometime soon. Extensive media coverage recommended that this region's people should plan and prepare themselves. Mitch's principal went before the board and argued that if the quake destroyed one portion of the building, another section should have phone access to communicate with emergency officials. The board granted his request for a phone line immediately and in a week his room was wired. In Mitch's words, he jumped right in with implementing FrEdMail.

"Don't be afraid to make mistakes. I'm hoping that is why we (teachers) are so slow. Teachers tend to be very careful and they need to be a little bit kid-like and just jump into it and go for it." (Mitch)

He was anxious to get started and readily emailed other teachers who had attended the inservice and were just getting online. Mitch was hoping they would share his vision for ENs, which involved science experiments and data exchange. This practice would give his students the opportunity to contact other students in distant schools who would be doing the same experiments in order to compare practices and results. Mitch and the

students had a few replies, but none of the distant teachers indicated a willingness to participate in this type of project. This initially frustrated Mitch and soon he had to reconsider what he wanted to do with ENs.

Without other teachers willing to involve their classes, Mitch began to focus on how important it was that each of his students learn how to log-on, operate, and log-off the network. He wanted his students directly involved in each step of electronic networking and ready if other classrooms decided to exchange experiments with his students. Online projects which he could send and retrieve were important, but not as important as having each student use ENs to build their computer skills.

“Without my students wanting to use it, I would not have been interested. I wanted something that they could be involved in, running the hardware and software.” (Mitch)

As the weeks rolled by he began to feel frustrated with finding the time to teach each student how to log-on, download, and log-off. It was also difficult to find time when students could use the computer.

The obstacle of no teachers agreeing to exchange science classroom experiments continued to loom and his vision for this effort was rapidly fading. Mitch's expectations were high, immediate, and complex. He expected to be further along with networking and it should have been a part of all he was doing in science, the “nuts and bolts” as he called it.

Mitch felt institutional pressures to produce results, and some of these pressures were more perceived than real. He discussed the need to develop hard evidence of the value of

ens to show his school board. These pressures were not apparent to the author. The pressures appeared self-inflicted as Mitch searched for rapid integration and tangible success.

At this point the principal wanted to help Mitch get a feel for success. On three different occasions, he took Mitch's bus duty and drove the one-hour route freeing Mitch to work on the computer. Mitch used this time to learn more about the network and to log-on with individual students. He soon felt guilty about his principal driving his bus route and these sessions ended.

One way teachers in other schools have successfully dealt with the daytime time constraints of learning ENs was to take the school's computers home and practice. When I asked Mitch about doing this, he adamantly shook his head.

"Oh, no! There would be even more talk regarding the computer if I did that. Some people already wonder why I get to keep it in my room. If I took it home, oh boy!" (Mitch)

It was apparent that Mitch's school culture was not unlike others where some teachers feel a sense of ownership with school materials (Harris, 1993). Mitch sensed a certain amount of jealousy from other teachers for having the equipment in his room, as well as extra time and attention from the principal.

The pressures Mitch felt had grown over time. He not only confronted excessive physical and financial limitations, but also fought emotional and cultural despair. Mitch felt pressured to succeed in rapid tangible means and admitted guilt with garnishing special consideration with new equipment and the principal's time.

After nearly a year, the author encouraged Mitch to consider attending and presenting his story at the National Science Teacher's Meeting in Boston. Mitch was quite concerned about using school funds and would not go if the money came from the school's operational budget. The money had to be found elsewhere or he would not go.

"With all the cut-backs, I can't take school money for this trip. I don't have the heart to take funds that might be for someone's supplies." (Mitch)

Again, his principal stepped in to support the process. He talked to the local media and potential financial supporters even before Mitch made a firm commitment. The principal assured me that he was committed to see that Mitch had the funds needed to attend.

"If we have to, I'll go to some of my golfing buddies who are business people in the community and solicit support. We might even hold a bean dinner here at the school-we will find a way." (principal)

Ultimately, Mitch agreed to present at the conference, but only after he was assured that the funds would not come at the cost of his colleagues or students. Money was raised through a school community bean dinner.

After the presentation at the national conference, some of the pressures he felt began to ease. He also discovered that the national presentation was more than his reward, but was shared with the community in a form of school pride. The presentation brought local media attention allowing Mitch and his principal to elaborate on their dreams for ENs and the future possibilities for EN use within the classroom. Through this reflection and reconsideration he began to reframe the pace of his new effort. He accepted the fact that progress with telecommunications comes more slowly than he had expected. It became

evident to him that his school's physical, financial, and cultural constraints affected his pace. He realized that using ENs in the classroom was a continual process of adaptation and adoption.

"I think I expected too much too fast because I've looked around, and I'm just as far along as other people, and I'm running into many of the same boogie men as everybody else. I thought maybe it was because of my situation, of being the way it is here in this school. I just have to stop pushing and let it happen. I'm kind of letting it seek its own level with each individual student." (Mitch)

Mitch continued to re-examine and re-create his vision. He began to refer to EN adoption as a series of steps rather than an event. He needed to allow himself more time to practice and get comfortable with EN operation, to explore new ways and new visions for ENs, while adjusting original goals, and to remove self-imposed deadlines and pressures.

These observations confirm earlier studies that show educational change (Bruce & Peyton, 1990; Farley, 1992; Fullan, 1991) and technology adoption (Harris, 1993;) take time. Electronic networks have the potential to change the dynamics of a classroom, but in so doing, they may challenge the established beliefs and values held by teachers. Mitch is not alone experiencing discouragement and confusion with the technology and the pedagogical questions. Other teachers and schools are asked to embrace similar efforts that affect how they view teaching and learning, as well as call into question existing philosophical and structural foundations within their classrooms, schools, and possibly their communities. In Mitch's case, his physical conditions were extremely constraining, his time deeply restricted, school finances limited, and, at times, his cultural climate was cold to the technological advances he wished to implement. For change of this type to be

successful in a school setting, there must be support for the entire adoption process. Change efforts are often fatal if factors such as school culture and context are ignored (Goodlad, 1994). For technology adoption to be successful, this may also include enhancing and redefining teachers' belief systems on instruction and learning (Bruce, 1994).

"For technology to be truly integrated as an important part of classroom instruction, several shifts must take place in instructional practices and attitudes. In some cases, teachers must evaluate and change their view of the classroom and learning" (Ryan & Copper, 1995, p. 67).

Teachers need time to learn, to talk, and work with their peers, and solicit student views. These challenges can create tensions between old and new classroom practices (Bruce & Peyton, 1990). For others, there needs to be a role change, one in which power is relinquished in order to formulate a more shared learning experience with the student; one in which the teacher is facilitator rather than disseminator (Levin, Kim, & Riel, 1990). They need time to discuss and share ideas of how they might change their teaching styles, classroom arrangements, power structures, curriculum integration, and other issues associated with EN adoption. The process is continual and often painful as teachers not only learn how to operate new technology, but also how to envision new ways of teaching and learning. As Mitch's principal put it:

"Sometimes guys bat 300 hits out of a 1000, but rarely. You have successes and failures, but learn to be grateful for the ones that do excel. If somebody does something and it doesn't work, you have to be grateful that he was trying to do

something as opposed to complaining to him about the failure. Teachers must not feel you are standing there with evaluation slips." (principal)

Funding in part for this research was made possible through an Illinois Department of Education Science Literacy Grant.

References

- Bruce, B.(1994). Networked-based classrooms. Contemporary Education, 4, pp. 226-230.
- Bruce, B. & Peyton,J.K.(1990). A new writing environment and an old culture: A situated evaluation of computer networking to teach writing. Interactive Learning Environments, 1, pp. 171-191.
- Farley, L.(1992). Making sense of change: Strategies for educational technologist. The Computing Teacher, 19, pp. 8-10.
- Fullan, M.G. (1991). The new meaning of educational change. New York, NY: Teachers College Press.
- Goodlad, J.(1994). Educational renewal: Better teachers better schools. San Francisco, CA: Jossey-Bass, Inc.
- Harris, G.(1993). Gateway to educational change: A situated evaluation of a FrEdmail adoption. Unpublished doctoral dissertation, University of Illinois, Urbana/Champaign.
- Levin, J.A., Kim, H., & Riel, M.M.(1990). Analyzing instructional interactions on electronic message. In L. Harasim networks (Ed.), Online education: Perspective on a new environment (pp. 186-211).
- Ryan & Cooper (1995). Those who can, teach. Houghton Mifflin Co. Boston, MA.