

## **A Technology Partnership: Lessons Learned by Mentors**

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Mentoring has been shown to provide support for the development of skills and knowledge in many professions. Journalism, law, and medicine, using the mentoring process, place student apprentices in real world, clinical situations early in their training. The teaching profession has had a long history of mentoring in which a practicing teacher within a school and a professional from an educational institution provide support and direction to a young teacher in the form of "student teaching." This article discusses the lessons learned when instructional technology graduate students act as mentors to elementary teachers in a rural school in Ohio. The transformation of graduate student mentors and teacher mentees provides inspiration for mentoring in elementary schools.

Elementary teachers continue to positively support the value of students using the computer and their own use of the computer, but report that they are unable to make the connection of how the computer fits into the daily classroom. These same teachers indicate that most of their professional development has focused on computer skills rather than classroom management of computers and integration into lessons used in the classroom (Franklin, 1999).

Mentoring has been shown to provide support for the development of skills and knowledge in many professions. Journalism, law, and medicine, using the mentoring process, place student apprentices in real world, clinical situations early in their training. The teaching profession has had a long history of mentoring (Evans, 2000; Janas, 1996; Stewart, 1999) in which a practicing teacher within a school and a professional from an educational institution provide support and direction to a young teacher in the form of "student teaching." These young teachers learn at the side of a more experienced teacher and are provided opportunities for a one-on-one relationship with a veteran teacher.

A mentor can provide role modeling, acceptance, confirmation, counseling, and friendship (McArthur, Pilato, Kercher, Peterson, Malouf, & Jamison, 1995). A mentee can benefit from the experience as he/she learns how technology can transform traditional instruction. The mentor also has an opportunity to reflect on his or her own practice of teaching with technology. As the key focus of professional development, mentoring has the advantage of addressing individual needs, while providing guidance in the planning, implementation, and support for teachers in the classroom (Edutopia, 1999).

### **THE MEMBERS OF THE PARTNERSHIP**

Mentoring as a professional development model for the integration of technology in an elementary school in rural Appalachia by graduate students in Instructional Technology at a College of Education in Ohio was the focus of this research project. A rural K-6 school with two classes at each grade level in Southeastern Ohio was selected as the study site. Eight teachers and eight Instructional Technology graduate students participated in a 21-week onsite mentoring process in which a technology partnership was established. A team of elementary teachers, the school principal, graduate students enrolled in a university course, and college faculty worked together to determine the organization and implementation of the partnership. The

elementary school and its principal were visited each week to assess the project and to make recommendations for change when needed.

### **DATA SOURCES**

Data was gathered from multiple sources using multiple measures including journals of both teacher mentees and graduate student mentors. Weekly meetings were held with the Instructional Technology university faculty and graduate student mentors to support the mentoring partnership and determine areas in which the graduate students needed more help than originally anticipated. University faculty members in Instructional Technology acted as the liaisons among the instructional technology mentors and the elementary school mentees. The university faculty members also acted as a part of the data collection by maintaining a journal of the process and conducting focus group interviews with the elementary teachers and graduate student mentors. Focus group interviews provided opportunities for the teachers and graduate students to discuss the effectiveness of the program under investigation. Additional data were gathered through a review of print and digital documents and field notes taken by the researchers. Field notes were recorded for each discussion, classroom observation, and meeting. Data analysis was an ongoing process throughout the study. The researchers conducted data analysis concurrent with data collection, in a cycle beginning with data collection, continuing through reflection and analysis and then looping back through more data collection. The number of data sources helped to triangulate the data during the research process.

A careful examination of the research identified major themes that guided the mentoring partnership and have implications for the design of mentoring partnerships as a professional development model. These themes included: the establishment of the school/university partnership, flexibility is key to the success; co-learning supports everyone's learning; and the transformation of roles for mentors and mentees is critical in learning to use computers in the classroom.

### **ESTABLISHMENT OF THE SCHOOL/UNIVERSITY PARTNERSHIP**

As with any partnership, certain common understandings must occur for the partnership to be a success. The K-6 school participating in the partnership had reached a roadblock in helping teachers use the computer in

daily classroom activities. While professional development in the forms of workshops had been provided and there was administrative support for the use of the technology, teachers felt they were unable to determine when and how to use the technology in their classrooms. Consultation was sought with university faculty and it determined that mentoring could play a role in helping the school move forward in its goal for technology integration. University faculty, instructional technology graduate students, K-6 teachers, and the administration met to discuss how the mentoring would occur. All parties contributed to the decision of how the partnership would progress.

A needs assessment survey conducted at the beginning of the partnership by the graduate student mentors with their mentee teachers and university faculty with the graduate student mentors played an important role in the development of goals of the mentoring partnership and set the stage for determining the roles of the participants. The teacher mentees were able to choose the areas that they needed help in/with, and the graduate student mentors gained an understanding of the areas that they needed to generally prepare themselves. The teacher mentor had an opportunity to discuss technology needs for personal and professional growth. The needs assessment with the mentors indicated the need for time to mentor, provide tech support, practice technology skills, and be flexible.

The success of the mentoring partnership depended on the willingness of both mentors and mentees to commit to the project. Discussion of the commitment of each party to the mentoring partnership provided an opportunity for the mentors and mentees to ask questions concerning time allocations, meeting requirements, skill level of participants, and to reflect on general concerns of the different parties. This discussion provided all participants with a common perception of the partnership, its goals and responsibilities.

However, even with such discussion participants may withdraw from the partnership. This occurred with one mentee in the elementary partnership and the mentor's journal entry illustrates the frustration of a teacher and mentor committing to the partnership and then not participating:

She [the mentee] seemed very busy. She talked to me while writing on the blackboard...She told me that most students in that class are computer literate. Since she did not have time to discuss, we made an appointment to meet on Tuesday next week. After I talked to her, I felt that she was not interested in the project or may be she was not interested in me. I talked to some of my classmates in order to exchange our experience. I have heard that other teachers are willing to cooperate. I hope that she and I will have more time to talk.

### FLEXIBILITY IS KEY TO THE SUCCESS

The Instructional Technology graduate students had very little experience and understanding of the use of time in K-6 public schools and the lack of time was a continuing concern throughout the partnership. As one of the mentors wrote in his journal shortly after the partnership began “time is a sensitive factor that disables effective use of technology.” Most mentor/mentees solved this problem by having the mentor teach the students during regular class time while the teacher learned along with his or her students. This approach had several advantages. First, it solved the problem of time since the teachers did not have to look for time outside their regular work hours. By teaching the elementary classes the mentor modeled the use of technology to the mentees. This modeling in turn helped the mentees develop a vision of how technology could be used. The mentees were able to learn along with their students without having to “confess ignorance.”

When the mentor/mentee groups started working together, it quickly became evident to the mentors and mentees that the road to success was not necessarily smooth. Technical obstacles such as printers and computers not working and hardware or software were missing, had to be overcome before any progress in using technology in teaching and learning would occur. In reaction to this need, many mentors were willing to go “an extra mile” in an attempt to overcome the obstacles. The following excerpts from the data illustrate the extent of these attempts.

We [mentors] went to the school an hour earlier than our meeting time and installed HyperStudio on one computer.

We [mentor and mentee] had difficulty trying to convert or save pictures as PICT file or JPEG since they the elementary school did not have any software such as Adobe-Photoshop or PhotoFlash to convert the pictures into an appropriate form. But, I [mentor] took pictures with me and saved them as PICT file at the [the College of Education] computer lab.

Dealing with the obstacles (both initial and continuing) was a great learning experience for the mentors in particular. It reminded many of how much they needed to refresh their knowledge on several of the topics they were dealing with. This forced the mentors to create time to review and practice various skills. This is reflected in the entries of the mentors’ journals:

I realized how rusty I have become with Claris Homepage... I'm still groping but learning real fast. Today was not really good day for me but it is really waking me up. I need to practice, practice, practice, and my mentees are really helping me on that.

It [the mentoring partnership] forced me to look for ways to update my knowledge of the hardware and software in schools.

This project made me realize (once again) how much I [mentor] needed to learn more on hardware and troubleshooting.

On the day I [mentor] was to show her [the mentee] *PowerPoint*, I spent quite some time myself 'reloading' on my *PowerPoint* knowledge.

Another lesson that emerged was that mentors must be flexible and ready to deal with the unexpected. On various occasions a mentor would go to a class/meeting ready to "deliver" skills and information, only to find that some things were not going to work as expected. One mentor captured such an experience in her journal entry: "We [mentee and mentor] finished scanning some of the pictures and moved to work on HyperStudio in another room. Unfortunately, there are some technological problems, so it did not work in the way that we expected."

Often it turned out that the mentor could not "fix" the problem on the spot. The following statement captured such an experience: "I spent almost thirty minutes trying to figure out what was wrong with the online program. I played with every possible feature that might cause the problem, but unfortunately I couldn't fix it. I was so mad!!"

To ensure this slow building of comfort and confidence the mentors adopted a very high level of flexibility whereby they were willing to flow with the emerging needs of the situation and of the mentees. The following quotes from the mentors illustrate this point:

Our task this week was to work on *HyperStudio*, the idea that she [mentee] agreed upon from last week, but she asked for another favor. She [mentee] had a handwritten list of students who participated in the Wednesday's after school science activity with many items in it. She would like to make it more organized and fancy by using the computer.

The mentor in this case willingly dropped his plans to teach *HyperStudio*, and instead, taught this teacher how to present her information on spreadsheets.

### CO-LEARNING SUPPORTS EVERYONE'S LEARNING

On such occasions when the mentors were not successful in problem solving on the spot, they had to admit that the problem was beyond their ability to diagnose or correct and needed to seek additional help. With time, the mentors realized that being unable to solve problems instantly was an issue that they would have to deal with more often than they had initially imagined. Upon this realization, many of the mentors learned to become comfortable with not being “an expert.” This progression was summarized by the words of one mentor “More than ever before I [mentor] have learned to say, ‘I do not understand this so am going to look for help,’ without feeling shy.”

In the process of troubleshooting, the mentors also brainstormed and sought ideas from the mentees on various occasions. One mentor recorded her observation of an occasion when another mentor was working with his mentee: “I [mentor] went back to first grade and found that my mentee was really participating. She and [the mentor] helped each other in order to solve the problems.”

Another mentor recorded his experience:

My mentee identified some problems in her computers and asked me if I can help. In a previous class, her kids worked with some PC software that contained pictures and sounds and they told her that sounds did not work. She couldn't figure out what was the problem at that time which made her anxious and frustrated- regardless her efforts to solve it. We started to put some probabilities behind the absence of sounds by checking the volume then the sounds in the control panel, which seemed fine. My mentee looked at me and said, “Let's try this sound, Oh no what now!!” The problem was still there. We spent almost fifteen minutes working cooperatively to solve the problem... Finally and before we gave up we decided to check the computer's speakers as a last endeavor to solve this problem. She searched for another speaker in her classroom, but she found nothing. She rushed to Mrs. M's classroom and borrowed the speaker from her. Installing the new speakers solved the problem and ultimately we knew the reason behind it.

The result of this collaborative problem solving was whereby initially the mentors looked at themselves as “teachers” and the mentees as “learners,” the mentors now started looking at the mentees as fellow co-learners. As the same mentor commented, he and his mentee “decided to learn together.”

The mentors realized that it was important to slowly build the comfort/confidence level of the mentees in order to avoid overwhelming them. One mentor noted this in his journal:

We needed to start with the basics so that the complexity of computers and software wouldn't frustrate our mentees. We need to give them the needed confidence to explore and find out by themselves the benefits of utilizing the technology in schools and at homes.

Some mentors noticed that as the comfort level grew new ideas and new levels of increased motivation resulted. One mentor recorded his thoughts and observations about his mentee:

We did some search on the net....I [mentor] showed him how to do research on the Internet...He [mentee] is getting more comfortable with his computers....I can see the adrenalin pumping. He wants to put some of his class outline on the Internet. This is going to be fun!

Mentors noticed a change in the perceptions of technology use over the course of the partnership. A statement from one mentee captured the need to gain a vision of what can be accomplished through the use of technology, "one of the reasons people are not willing to learn new skills and knowledge is because they do not know the potential conveniences provided in what they do not know, or they do not know what they are missing." The following excerpt encapsulated this suggestion: "I [mentor] have been learning, as I needed something. That has worked very well for me. The problem is, I [mentor] don't always know that there is a need, or more than that, I don't always know that there is an answer to a need."

To ensure sustained interest and motivation, the mentor had to look for ways of eliciting this "need to know" in some of the mentees. The mentors did this by modeling appropriate use of technology when working in the classrooms.

In addition, the mentors learned to recognize and use "teachable moments" in which opportunities arose to introduce some new topic or idea, when it is most needed, when it is most likely to make sense, or when it is most likely to make an impact. The words of one mentor clearly illustrate this:

She [the mentee] talked about her teaching certificate and her attempt to renew it since it will expire next year. Someone told her that she could use WWW to access her record and see how many CEU hours



she earned that will be included in her certificate renewing. She was eager to know the way to do that. That was an excellent opportunity to introduce the WWW. It was easy to find the site since you had its address I stated to encourage her to start searching. The site that we looked at had many categories and she enthusiastically navigated through most of them till she found her record and located the needed information. This practice allowed her to explore and experience some features in the WWW. When her need was met, she enjoyed what she learned.

Another mentor learned from her mentee that she, [the mentee] was due to present in a conference, and this became an opportunity to introduce *PowerPoint* as a presentation option for her.

### TRANSFORMATION OF ROLES FOR MENTORS AND MENTEES

Most mentors started the project with an apprehensive attitude. This is indicated by the following quote from one of the mentors: “I went into my first meeting with the faculty with a kind of mixed feelings. I was partly concerned about my own level of technology knowledge, and did not really know how helpful I would be to the teacher.”

The partnership experience took the mentors and mentees through stages of encounters and experiences that changed their initial entering behavior. As described earlier, many of the mentors had to depend on their mentees to help them with troubleshooting at one time or another. Towards the end of the partnership, a number of the mentors reported a transition in their experiences whereby they had worked with the mentees to the point where the mentee were taking over the leadership of technology-related activities in the teaching environments and they, the mentors were taking the position of spectators. The following quotes from mentors illustrate this:

My mentee is becoming more confident and is gradually taking charge. The “bad” news is she may not need me for long at the rate we are moving. I am becoming more and more of a spectator with very little input and that looks good.

I feel like my work in this class, in regard to the use of *HyperStudio* is done. The idea was to get the teacher to a point where he is comfortable with the program, and is comfortably using it. I think this has happened with my teacher. His students are working aggressively on their projects, and he is answering their questions. The class is even

spending other hours, (other than the hour I am scheduled to be there). For example I learned they spent some hours working on the projects yesterday.

By the end of the partnership, most mentors went through a progression, which can be illustrated as “apprehension to co-learner to spectator.” The transition from apprehension to co-learning came about as the mentors experienced situations where they valued the need to adopt an “I am learning along with you approach.” The transition from co-learner to spectator occurred when the mentees became increasingly comfortable and confident with technology and was willing to take over leadership of class activities.

At the same time, the mentee passed through a similar transition. At the beginning of the partnership most mentees were not sure what to expect and a number of them were observers as the following excerpt indicates:

My mentee wanted me to teach the students. She watched as I showed the students how to use the software. She would sometimes do the activities with the students but all questions were directed to me from the students. I could tell she was uncomfortable with the computer and the students working at the computers.

Towards the end of the partnership the mentees were more willing to take leadership roles in the teaching/learning activities. The mentee transition can be described as “observers to co-learners to leader.” A number of the elementary teacher mentees completed various technology-based projects with their students without help from the mentor. Mentors noted throughout their journals during the final weeks of the mentoring partnership that they no longer felt needed.

Focus group meetings with the elementary teachers at the end of the partnership overwhelmingly supported the continuation of the mentoring partnership and its expansion to the middle school in the area. The mentors overwhelmingly supported the continuation of the mentoring project as an avenue for perfecting their own technology and teaching skills. All participants experienced a transformation in their understanding and use of computers in the teaching and learning process.

## References

Edutopia (The George Lucas Educational Foundation). (Fall, 1999). *Teachers helping teachers: The path to school improvement*. CA: San Rafael.

- Evans, T. (Feb. 2000). The new mentors. *Teachers College Record*, 102(1), 244-263.
- Franklin, T. (1999) *Teacher computer access, student computer access, and professional development as predictors of competency of K-4 Ohio public school students on the National Educational Technology Standards*. Unpublished doctoral dissertation: Ohio University.
- Janas, M. (1996). Mentoring the mentor: A challenge for staff development. *Journal of Staff Development*, 17(4), 2-5.
- McArthur, C.A., Pilato, V., Kercher, M., Peterson, Malouf, D., & Jamison, P. (1995). Mentoring: an approach to technology education for teachers. *Journal of Research on Computing in Education*, 28(1) 46-61.
- Stewart, E. (1999, Fall). Learning together: The use of mentoring for faculty development in the integration of technology. *Journal of Computing in Teacher Education*, 16(1), 15-19.