By Beth Breiner

Creating Tech Wizards

Tech-Savvy Students Help Teachers Transform Practice

Thirteen pairs of students hover over computers, diligently working on their assignment. The task is to create, design, and record a content-specific podcast that will convince teachers of the value of podcasting in the classroom.

The students are members of the Technology Wizards program at Carbon Lehigh Intermediate Unit. The Intermediate Unit, located in eastern Pennsylvania, is a regional educational service agency supporting 14 school districts and two career technical schools in Lehigh and Carbon counties.

The Technology Wizards program, developed by the unit's Department of Instructional Innovation, is a radical departure from traditional educational professional development. Conceived by Assistant Executive Director Cathy Groller, the program seeks to transform the delivery of professional development and change traditional instructional practice by cultivating a cadre of student leaders equipped to provide teachers with technology training and support.

A desire to offer an arena in which technology-savvy students could shine, along with the need for the Intermediate Unit to provide onsite sources of tech support to teachers, fueled the creation of the program. During initial discussions about program design, members of the Intermediate Unit's Department of Instructional Innovation built a foundation of requirements supported by research-based studies. The consensus was that the program curriculum needed to:

- Align to NETS for Students
- Align to 21st-century skills
- Model best practices in education
- Model differentiated instruction and teaching to multiple intelligences
- Provide dynamic, high-quality, student-created examples of technology integration in content areas
- Focus on emerging technologies applicable across content areas
- Develop student technology integration coaches

Determining who would be eligible to participate was a major decision for the team. We decided to enlist sixth and seventh grade students first. By starting the program with students at this level, we ensured its sustainability and growth. In the program's second year, sixth, seventh, and eighth grade students would be eligible to participate. The design provided for the continued participation of the original members while allowing for the influx of a new group of technology wizards. The plan for the program's third year expanded yet another grade level, accepting participants from sixth through ninth grade. The development of a Tech Wizards Junior program for elementary students is also underway.

The First Year

The Technology Wizards program kicked off in October 2007. We asked principals in each building to nominate one or two faculty members as teacher advisors to the tech wizards and asked faculty members to nominate students for the program. To be eligible, students had to demonstrate a proclivity for technology and agree to participate in, and at times lead, professional development training sessions for teachers. Schools were limited to a maximum of two teacher advisers for the program and three students per teacher adviser.

In our first year, 26 sixth and seventh grade students participated in the Technology Wizards program, along with 11 teacher advisers, representing 8 of the Intermediate Unit's 14 school districts. The students and advisers met once a month from November through May at the Intermediate Unit to train on an emerging technology and to practice presentation skills. The final activity of each session of the program was the creation of an action plan for the technology wizards to transfer the training they received to the teachers in their home schools.

I led the development of the program and was delighted to receive nominations from 8 of the 14 eligible school districts. I had anticipated a response of 10–12 students along with their teacher advisers. It was both gratifying and a little intimidating to have 26 students nominated to the program in our first year. In fact, the sheer size of the group and the technological diversity of the participants was quite a challenge.

Six of the school districts participating in the program used PCs, whereas the other two districts used Mac-based systems. The Department of Instructional Innovation team and I had to

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prepare the content of each Technology Wizard training session to be applicable across technology platforms.

We were fortunate to have an advanced level of expertise and a variety of knowledge on our team. Throughout the year, every member of the department had to either lead or facilitate a training session for the technology wizards. Diahann Ouly, T.J. McKeon, Anthony Newberry, and Mike Cichocki each fill a special niche on the team, and their commitment to making technology an integral part of the learning process has been a driving force for the program.

The Sound of Learning
One of our greatest concerns was the delivery format. For years, the Carbon Lehigh Intermediate Unit had been an advocate of differentiated instruction, understanding by design, and teaching to the multiple intelligences. It was of utmost importance that the program content be delivered in a way that would model best practices for the educational theories that we promote. We had to be sure that we could walk the walk—not just talk the talk. If we could successfully model the theories in action as part of the Technology Wizard training sessions, the participating students and teacher advisers would be equipped to return to their home schools as advocates. They would be able to speak to the teachers in their home schools about firsthand experience in the successful application of these educational theories.

The design of the video editing session is an excellent example of content delivery in the Tech Wizards program. We differentiated the session on several levels. First, we separated the group according to PC or Mac users. This allowed us to provide training on iMovie for the Mac users and Movie Maker for the PC users. Because the Intermediate Unit is entirely PC based, an instructor from an educational partner led the Mac session.

At this session, students worked collaboratively on self-selected projects after a brief introduction to iMovie. We offered the PC user group a choice of learning options:

- Participate in an instructor-led training to learn about Movie Maker
- Work in small groups with video tutorials (created by Intermediate Unit Department members) and a PowerPoint handout to discover the essentials of the Movie Maker software application
- Work individually with the video tutorials and a PowerPoint handout to learn the specified essentials of Movie Maker

Following the initial learning period, we gave students in both sessions the task of working in teams to create a one-minute persuasive commercial that would convince teachers of the benefits of using multimedia in the classroom. (Find an example of the commercials at http://eschool.cliu.org/homepages/bbreiner2.html.)

The PC video editing session was an absolute revelation for all of us as educators. Not a single student in the PC session chose to work in an instructor-led format; every one of the students chose to work in teams or individually to learn through hands-on experience. Everything about the session was a break from the traditional classroom setting. The students worked in teams grouped about the room. There were no neat, tidy rows of students working at desks. The noise level was quite different from that of the traditional classroom. However, as one of my colleagues said, what we heard was the sound of learning. There was also the exuberance and enthusiasm of the students as they were all engaged in the task.

At the end of the video training session, students completed an exit pass form in which they identified three new things they had learned and how they had learned them, two things they still wanted to learn about video editing, and one question they had. The data revealed that 80% of the students identified working together in a hands-on practice environment as the most effective method of learning.

Expanding Reach
The Technology Wizards program has succeeded in reaching an audience beyond the students or teachers involved. Each group of participating students has instituted some form of student-led professional development in their schools. One group offers Tech Tuesday each month. Tech Tuesday training consists of a 45-minute period before school begins. Teachers interested in expanding their technology knowledge attend the session led by technology wizards with the help and support of their teacher adviser.

Another group has established a Technology Academy. The technology wizards stay after school to offer training and support to faculty members who attend the academy. Still another group has initiated student-teacher technology training appointments. Teachers approach the technology wizards with a request for training on a particular technology or help creating materials, and the students set up appointments after school. The group teacher adviser commented on an interesting and unanticipated result—although teachers have no qualms about breaking appointments with other teachers, they will not break their appointments with students.

Even when the Technology Wizards program was in its first year, we were able to measure its effectiveness. Tech-

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nology wizards and teacher advisers completed a survey in February 2008, and this is what the data revealed:

- All of the technology wizards participated in or led at least two professional development trainings with teachers.
- Five of the students participated in or led trainings for teachers four or more times.
- Twenty-two students indicated that teachers in their schools used technology in the classroom more frequently than the previous year.
- Ten students indicated that teachers in their schools used new or different technology that year.
- Hands-on practice and working in small groups were the two most effective methods of learning for the students.

The technology wizards planned to conclude their year with a showcase

of their work, an event that district superintendents, curriculum and instruction directors, technology directors, principals, teachers, and parents would attend. However, there was a surprise in store for everyone involved with the program. Carbon Lehigh Intermediate Unit has collaborated with Discovery Education for several years, and when Discovery representatives learned of the Technology Wizard program, they offered to host a special Tech Wizard Day at Discovery Communications headquarters in Silver Spring, Maryland. On June 4, 2008, members of the Tech Wizards, their advisers, and the CLIU 21 Tech Wizard Team participated in a field trip to Discovery Communication headquarters and the offices of the National Cable and Telecommunications Association.

To view complete details of the Tech Wizards program as well as examples of student work, videos of student presentations, and the Discovery Communication field trip, visit http://cliueducation21.wikispaces.com/Tech+Wizards.

Resources
Discovery Education:
   www.discoveryeducation.com
NETS·S: www.iste.org/NETS
Partnership For 21st Century Skills:
   www.21stcenturyskills.org

Beth Breiner has been involved with educational technology, differentiated instruction, and teaching to the multiple intelligences for more than 15 years. She has presented workshops on these topics at numerous conferences.