By Aileen M. Owens

Do Your Teachers Need a Personal Trainer?

Technology integration happens when we remove barriers, incorporate appropriate pedagogy and instructional strategies, and provide opportunities and support for teachers and students in the classroom. Assisting teachers in the classroom as they gain the confidence and skills needed to be successful in sustaining new practices is a critical element in the integration process.

Therefore, what better place to provide professional development than in the classroom alongside teachers and students? This process requires a paradigm shift away from the train-the-trainer approach to more of a "personal trainer" method. But how can one instructional technology coordinator provide ongoing sustainable staff development for hundreds of teachers without a budget and without a staff? We found the answer through a partnership with Duquesne University Instructional Technology Department, which is reshaping and redefining the coursework for preservice education and changing instructional strategies for our teachers.

Juggling Too Many Demands

As instructional technology coordinator for Mt. Lebanon School District in Pittsburgh, one of my main responsibilities is to offer daily technology integration training and support for teachers before school, during teacher planning times, at lunch time, and after school. The process requires a series of 45-minute weekly meetings (generally four to six depending on the size of the project). I help the teacher or team of teachers identify a concept that students have the most trouble learning. We brainstorm ways to enrich the lesson by identifying available resources, technologies, and instructional strategies that may increase learning or allow the teacher opportunities to teach the concept in a new way. Teachers create the vision, and I support them by researching available resources, helping them implement the new technologies, creating the project management plan, and then helping them implement the lesson in the classroom.

After their first experience, teachers almost always select a new project, and we begin the process again. The flaw in

Preservice Teachers Learn the Ropes While Helping Classroom Teachers Integrate Technology into Their Lessons

this system is that it is labor intensive, and although the results are excellent and teachers are able to sustain the use of technology, one instructional technologist cannot meet the demands of all 365 of our teachers.

Brainstorming a Solution

Searching for guidance, I met with my former professor, David D. Carbonara, director of instructional technology for the Department of Instruction and Leadership in Education at Duquesne University. Carbonara had recently restructured the undergraduate preservice teaching curriculum at the university to include instructional technology practices. Students graduating with a teaching degree now possess many of the skills that students in the master's of instructional technology degree program have.

Carbonara and I came up with a plan that eventually would become the Student Internship Program for Instructional Technology. Carbonara would identify students whose skills would match areas where teachers needed support. In class, his students already were creating technology-integrated lesson plans mapped to state and national standards and were already well versed in how to select appropriate instructional strategies. My role would be to provide additional training on tools specific to our district, match students to teacher needs, and provide project management.

Reaping Rewards

During the first semester of the project, five student interns volunteered in grades 1–5 in various district schools. Here are some of the things they accomplished:

- Robert Weiss, Lauren Ruffing, Stephanie Wolbert, and Dana Barger taught second graders Microsoft Word for note taking and netTrekker for conducting online research. For their animal research projects, the elementary students used netTrekker to download pictures and used its read-aloud feature to gather more information from sites that they had difficulty reading on their own. Students compiled this information and created multimedia reports using PowerPoint, which parents were invited to view during a presentation at the end of the year.

- While teaching Word, Robin Harding, Bethann Stoneback, and Julie Snyder noticed that students from three classes were repeating similar mistakes. For example, students would complete the steps to make changes in font, text size, or color but became frustrated when the changes didn't appear because they had failed to highlight the text first. To reinforce the steps, Weiss created an interactive game titled "Are You Smarter than Your Computer?" based on the game show *Are you Smarter than a Fifth Grader?* Students divided into teams and answered quiz questions, such as: "If you want to change the font on the paragraph you just wrote without using the shortcut keys, what steps would you take?" or "If you want to tell your computer to delete the sentence you just wrote, what are three ways you can do this?"

- Weiss helped fifth graders at Markham Elementary make podcasts for a Veterans' Day website.

- Wolbert helped students in Hoover Elementary's second grade classrooms create reading fluency portfolios using PowerPoint and Audacity software.

- Weiss created a skills center link for kindergarten students at Hoover and Jefferson elementary schools.

- Ruffing and Wolbert provided a half-day districtwide in-service training to 15 teachers on how to use netTrekker.

The interns became so well regarded at Lincoln Elementary School that Marilyn Reinhard, the instructional support teacher, requested an intern to support 20 English language learners (ELL). Ruffing, a student intern in her junior year, had just completed her first semester and agreed to

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continue for the remainder of the year to work in the ELL classroom once a week. The school purchased an interactive whiteboard and a projector and supplied four student computers, and Ruffing trained ELL teacher Darlene Wuthrich to use the technology. Ruffing researched and created context-embedded lessons for interactive whiteboards. She also worked with Reinhard to have students in grades 1–3 narrate their own interactive multimedia stories so students could help teach their parents English at home. In addition, Ruffing worked with fourth and fifth graders to create multimedia reports about their lives.

Everyone Wins

The benefits of partnering with Duquesne University were enormous. Teachers got training and support in the classroom, where it was most needed, and were able to implement their vision. They got far more support than they could have received from one instructional technology coordinator. In fact, in one morning we provided teacher training across three classrooms in one school, and in another school, two student interns were able to complete 52 podcasts for the entire fifth grade and train the classroom teacher as well.

The Duquesne University students benefited, too. They got experience providing teacher and student training in the classroom, and they created and implemented authentic lessons to include in their portfolios. Ruffing continued her work at Lincoln as a student teacher, completing her student teaching in the spring.

The Program Evolves

This year the internship component became part of the instructional technology curriculum at Duquesne. In addition to student interns, Lincoln Elementary also got help from Duquesne students enrolled in the Instructional Technology III class. Preservice teachers arrived at Lincoln in early October and were introduced to the math curriculum and to this project. Elementary math facilitator Anita Schuler presented an overview of the math curriculum, and fourth grade teacher Stacy Mahling demonstrated changes in instructional strategies introduced by new technologies such as the interactive whiteboard and document camera.

Preservice teachers created lessons using the interactive whiteboard to teach and reinforce math vocabulary for each unit in the math series. They aligned the lessons to state and national standards; included student outcomes, teacher outcomes, and an interactive formative assessment; and suggested instructional strategies. During lesson development, Carbonara provided additional lessons and strategies for using the document camera in the math curriculum.

In November, preservice teachers presented their lessons to a Lincoln panel. During the critique, Lincoln teachers offered insights regarding how the lesson could best fit into the existing curriculum, and students made any necessary changes before submitting their final projects. Those lessons are hosted on our district server and have become part of an interactive lesson library for our teachers. We've also put them on a wiki, so we can share them with teachers outside the district.

We invited preservice teachers to return and co-teach the lessons with teachers in the district or to provide training and support during teacher planning time.

Last semester, Duquesne students created wiki templates to help teachers incorporate 21st-century skills in the classroom. For example, students working with Rae-Ann Macosko, a fourth grade science teacher, are creating wikis to be used as collaborative science notebooks for each hands-on science unit. Students working with Tammy Fowler, a fifth grade social studies teacher, are creating wiki templates for the writing process as they prepare reports on notable U.S. citizens.

Duquesne student Emily Grimes worked with the first grade teachers at Foster Elementary to develop student portfolios, and Courtney Wilkins created interactive lessons for Stacy Maehling's fourth graders and interactive whiteboard training for Lincoln teachers.

We realize there is much work ahead of us, but we are hopeful that we have found a solution that will benefit teachers, students, and preservice teachers as we work together to improve teaching and learning. In these financially trying times, school districts are forced to make difficult budgetary decisions. This is the type of program that is an investment in our most precious resources—our teachers. Providing ongoing training and

support allows teachers to be successful. On top of that, it's cost effective—the district provides valuable teaching experience to the Duquesne University interns, and the interns enable us to expand by three- or four-fold the technological support to our own teachers and students.

Acknowledgment

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Resources

Audacity: http://audacity.sourceforge.net

Duquesne University student intern lessons: http://ittsbyaileen.wikispaces.com

netTrekker d.i.: http://school.nettrekker.com/frontdoor

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