Preservice Partnerships Create Classroom Leaders

On-site classes benefit schools and teachers

By Cathy A. Pohan and Jim Dieckmann

Most traditional teacher education programs have technology components, but these courses are often removed from real life in K–12 classrooms. Without collaboration between K–12 schools and university programs, preservice teachers are unable to observe examples of classroom teachers integrating meaningful and authentic technology projects into the content areas. San Diego State University in California (SDSU) has developed a model of a collaborative system that is working well for both training preservice teachers and assisting inservice teachers while furthering the ultimate goal of improving student learning.

Teacher Preparation at SDSU

Preservice teacher preparation at SDSU is a fifth-year, two-semester program. Candidates take their first required technology course as part of their credential program and the second course during the induction years or within a master's program. In 1989, a partnership between SDSU and the Chula Vista Elementary School District was established. For more than a decade, the university and school district have collaboratively worked to develop an exemplary professional development school. One of the primary goals of this site-based credential program is to prepare a teaching force that has the skill and confidence to integrate technology into the classroom. We believe this goal is best accomplished when teacher educators are able to provide preservice teachers opportunities to observe exemplary teachers, to reflect on and discuss their ideas, and to collaborate with others on meaningful projects as they implement their ideas about teaching and learning with technology in real classrooms.

If educators hope to overcome the challenges associated with integrating technology into K–12 schools, it is imperative that the focus be on the teacher and students rather than on the technology. Technology must be integrated into every aspect of learning. Across all credential course work, preservice teachers in our program were asked to think about and demonstrate how technology could be used as a tool to enhance the communication of content and improve student learning. Through authentic assessments, preservice teachers such as Natalie Kelley developed the confidence, competence, and creativity necessary to take pedagogical risks once they graduate and are in their own classrooms. They also mentor their less technologically confident peers.

A Snapshot of Teacher Preparation

A couple of years ago the university invited library media specialist Jim Dieckmann (co-author of this article) to join the SDSU instructional team and teach SDSU's required technology course at Clear View Charter Elementary School. Dieckmann's experience working with the George Lucas Educational Foundation and recognition as an innovator in technology made this a perfect union. What made this collaborative arrangement so powerful was that preservice teachers had ready access to expertise from both content and technology experts as well as classrooms well-equipped with technology. Because Clear View is an internationally recognized model technology school, preservice teachers received a myriad of rich opportunities to observe K–6 teachers involving students in meaningful activities using technology as a tool to address specific needs in the classrooms. For example,

participants would visit classrooms to observe how younger students were learning basic word processing skills, how to scan personal photos or legally import graphics into classroom newspapers or create concept maps. They could assist sixth graders using HyperStudio and PowerPoint to complete their reports/presentations on an assigned ancient civilization. They could also watch fifth graders participate in an interactive dialogue about the anatomy of a beetle with a science professor at SDSU using a fiber optic link and an electronic microscope. After participating in these activities, preservice participants were asked to reflect and discuss their observations and ideas with peers and mentor teachers at Clear View.

For the past three years, Jim collaborated with the methods professors from SDSU to develop assignments that required our preservice teachers to integrate technology and subject matter content (Table 1).

Through these integrated assignments, preservice teachers learned how technology could be used to enhance teaching and learning within the context of real classroom instruction and content. A core belief held by those working in this collaborative is that inquiry-driven, project-based learning activities are the key to educating students to become active, lifelong learners. An example of one coordinated assignment integrating language arts, social studies, and technology that demonstrates the implementation of this core belief is the Web Inquiry Project (WIP). Preservice teachers were asked to develop projects requiring K–6 students to gather, synthesize, create, and present social studies content using technology as a tool. The planning process was as follows:

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1. Familiarize yourself with the California Social Studies Standards and then meet with your cooperating teacher to select the topic for your unit plan.
2. Identify a few big ideas and essential questions for this grade level and standard(s).
3. Search and evaluate online data archives that classroom students could use to develop and answer inquiry questions related to this unit's big ideas.
4. Using the backwards mapping process taught in your educational psychology course, plan the instructional unit for the WIP.
5. Create a motivational hook using one of the online resources and preparatory questions that will evoke more questions about the topic for the students.
6. Create an online resource list, a menu of learning products for the teacher, and an evaluation component for the WIP.
7. Describe the strategies that you will use to differentiate instruction to accommodate the range of needs in your classroom.

Another integrated assignment took place in the educational psychology and classroom management courses. Preservice teachers were required to articulate both their philosophy of teaching and overall discipline system to parents through either a beginning-of-the-year newsletter or a presentation to be used during an open house. Preservice teachers first created a concept map of the ideas that would be integrated into their newsletter or presentation. Participants said that this was one of the most challenging but relevant learning activities in the program.

Another exciting example of this program's collaborative and cooperative endeavors is the partnership that developed between Dieckmann and a SDSU science professor. Preservice teacher participants were given meaningful and authentic examples of, and experiences with, technology to help K–6 students develop deeper, enduring understandings of scientific concepts. Working in teams, preservice teachers assessed young students' thinking about a science

Table 1. Sample Assignments Integrating Technology across Credential Methods Courses

Integrated Assignment	*Description*	*Technology Skills*	*Methods Course(s)*
Parent Newsletter or Presentation	Create a beginning of the year newsletter or PowerPoint presentation for parents explaining your educational philosophy, student expectations and the overall discipline system.	Concept mapping; presentation; desktop publishing	Introduction to Educational Psychology, Classroom Management
Web Inquiry Project (WIP)	Using the Understanding by Design format for unit planning, create a WIP that uses research documents found on the Internet.	Internet search and evaluation of resources; concept mapping with Inspiration; simple Web page design	History/Social Studies, Language Arts
Digital Video Production	Create a visual reflection of K–6 students' scientific thinking (e.g., assess thinking about a science concept).	Video and sound techniques, digital video editing with iMovie	Science
Electronic Professional Portfolio	Create a Web-based portfolio to showcase technology projects, lesson/unit plans, educational philosophy, résumé, to be used for landing a job.	Web page design, Web posting with FTP, conversion of documents to other formats (PDF)	Student Teaching Seminar

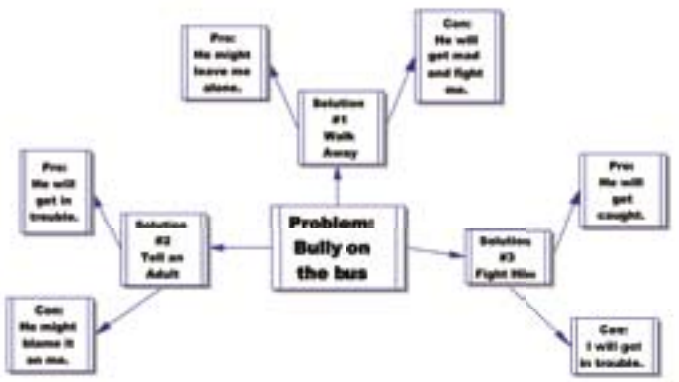

Figure 1. Student-generated problem-solving concept map.

concept (e.g., What makes clouds form?) through interviews and then applied their newly learned digital video and sound production skills to create a visual reflection of K–6 students' scientific thinking using iMovie.

Graduates Lead in the Field

An added bonus of the integrative IT assignments within this program has been watching the graduates become cooperative and collaborative members of an educational community. During their first years in teaching, many graduates of this program have taken on leadership roles in technology at their school sites and have helped their colleagues become more confident, competent, and creative.

Clear View recently hired two graduates of this school-university partnership program. These novice teachers have provided leadership on the Technology Committee and within their own grade-level teams. Seeing the fruits of their labors in their own students' work has been exciting for the graduates and the SDSU instructional team. One excellent example of this is recent graduate Natalie Kelley. With Kelley's expertise and assistance, the third grade team at Clear View created assignments that integrated technology with science content and language arts. The result has been that all students met the grade-level technology benchmark and demonstrated their developing scientific understandings in authentic and meaningful ways. At Clear View, the third grade benchmark is "a product of desktop publishing, either a brochure or newsletter, based on knowledge in a curricular area. This product is to include original artwork, scanned or created in a computer based drawing program." A sample of Kelley's third grade projects is provided in Figure 1. In the sample, students were asked to identify a problem in their lives, list three possible solutions to that problem (along with a pro and con for each), and use Kidspiration to create a visual representation of that problem-solution path.

Although many new teachers lack confidence or feel that they don't have time or enough computers to integrate technology, the more confident and creative novices realize that student products are well worth the time invested. They figure out how to get all students involved. Kelley explains to other first-year teachers and graduates of her program that:

> because there are not enough computers in the classroom for all the children, I use AlphaSmarts. … Even my second grade were scanning and importing personal photos, copying and pasting, adding textboxes, and editing. I couldn't believe it. And, when I was going through the SDSU program I was thinking, "I'm not going to ever have time for this." But, I integrated it into our literacy block. It was awesome, really! … Some of my team members weren't doing any of this before I joined the team and now they are.

Conclusion

Innovative technology projects such as those described in this article require a consistent group of committed school and university educators who share a strong belief in the importance of integrating technology into the curriculum. The authors feel extremely fortunate to have participated on a collaborative team that was willing to share ideas and diverse areas of expertise to create meaningful experiences that move novice teachers along the learning-to-teach continuum. Although it will be years before these young teacher participants reach an expert level at integrating technology into the classroom, there is already evidence of a developmental progression from learner to implementer to leader. The benefits of collaboration are many. For both preservice and experienced teachers, school-university collaboration results in an increased level of competency and efficacy in using technology as an instructional tool and instruction for K–6 students improves. The goal to graduate students who possess both the knowledge and skills needed for successful entry into the work force becomes a reality when public school and university educators collaborate toward that end.

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