

# A Technology Snapshot: Teacher Preparation Program and the Local Public Schools

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## Abstract

This paper describes the infusion of technology training into a university's special education program for intern teachers. As the teachers participate in their core classes they have the opportunity to immediately consider and plan for incorporating technology into their teaching to assist their special needs students. Through their class activities and course assignments they demonstrate technology knowledge and skills that they are able to immediately transfer to their classrooms. The program, in response to an informal inquiry into technology use in the interns' schools, is extending the partnerships with the schools to include technology training to benefit both the teachers and the students.

## Program Background

This article describes how technology is infused into a California State University special education instructional program to assist the candidates in developing competencies needed to support students' growth. This university serves 57 public school districts in northeastern California across a 43,000 square mile region. The candidates are those seeking a special education teaching certificate through the intern program.

Interns are individuals hired to teach but are not certified to teach special education students. The intern program exists because there is a continual shortage of special education teachers in California. The regional special education directors report the need for about 200 special education teachers within the next 5 years. For more than 15 years now, this university has offered a special education alternative certification program, which allows Interns to teach in special education classrooms while completing coursework for their teaching certificate over a 2-year period. An agreement with the

public schools allows the interns to be released from teaching 6 days per semester to attend classes on campus. Interns are also enrolled each semester in online classes. There is no required sequence of courses since the interns may start their coursework any semester, depending on when they are hired to teach. The required courses for all interns are as follows:

- Interns' Orientation
- Management of Learning Environments
- Curriculum & Instruction for Inclusive Settings
- Reading/Language Arts
- Methods for Teaching Math
- Survey of Child/Adolescent Psychology of Teaching
- Overview of Special Education
- Classroom Management
- Seminar in Classroom Reading Diagnosis/Remediation
- Laws/Regulations
- Technology in Specialized Populations
- Collaboration in Education
- Curriculum and Instruction: Mild/Moderate
- Student Teaching
- Health Education
- Assessment and Evaluation
- Field Experiences

### **Literature Review**

Besides the National Council for Accreditation of Teacher Education's (1997) recommendations for teachers to develop knowledge, skills, and dispositions to effectively incorporate technology into their students' lives, the International Society for Technology in Education (2002) recommended that not only should teacher preparation programs offer sufficient opportunities for the candidates to meet performance standards, but also that their cooperating school districts should offer them the opportunities.

Norton and Sprague (2001) suggested that candidates need to be aware that using technology in teaching helps students become more engaged in their learning through collaborative efforts, simulations, and actively constructing information through new knowledge. This special education program subscribes to a constructivist approach, working with the interns by creating a problem-solving environment that involves using technology appropriately in their own classrooms. In integrating technology into teaching, a teacher provides students with the knowledge and skills of using the required hardware and software that can be translated across the curriculum (Grabe & Grabe, 2004). As teachers improve learning opportunities for their students with technology, they become more knowledgeable and experienced in effectively incorporating it into their teaching (Hitchcock & Stahl, 2003).

Thorsen (2006) suggested that, since teachers work with diverse groups of learners, it is important to know how to design lessons incorporating technology that best facilitates their students' active learning. According to Darling-Hammond et al. (2005), technology fluency is gained by exposure not only to basic skills, but also to those technology skills necessary to guide students in conducting research and data analysis, creating multimedia presentations, and participating in videoconferences with other communities

of learners. When teachers see the results of effective use of technology with their students, they are more inclined to continue using technology (Male, 2003)

### **Technology Class Opportunities**

Faculty teaching in this program are able to model the effectiveness of incorporating technology into teaching by conducting classes in rooms equipped with wireless desktop/laptop computers, various software programs, and projectors. This program assumes the responsibility of graduating candidates who have the knowledge and experience to incorporate technology into their teaching to enhance their students' active learning.

Since the interns are practicing special education teachers, the course assignments and classwork are geared to address their immediate needs in learning how to teach. Whole day classes allow the time and opportunity for the interns to work with their instructors and colleagues to develop ideas on how best to address their students' needs by incorporating technology. In addition to taking a required technology course that addresses the state's standards and being exposed to various assistive technology devices and software programs for students with special needs, the candidates are given multiple opportunities to gain knowledge and experience to upgrade their technology skills through their curriculum, reading, and mathematics classes. The interns use WebCT to obtain course content information and syllabi, participate in chat room discussions, post material to share with colleagues, and maintain communication with the instructor through email.

The program's teaching environment provides the time needed to gain experience in using and incorporating technology into their teaching. During class, interns use [Inspiration](#), a graphic organizer software program, for unit/lesson planning and for creating an overview of how software programs and assistive technology devices could contribute to their students' academic growth. They also use [SmartDraw](#) for timelines, tables, and flowcharts. Depending on whether they work on a PC or Mac, they use Text Edit or [Premier](#) to learn how text-to-speech can support their students' reading and writing.

Besides using Microsoft Word and PowerPoint during class, the interns also work with [Laureate](#) software and [Kurzweil](#) to become familiar with additional communication software. Also, in class they use touch screens, alternative keyboards, switches, and [Quicktionary Pens](#) while considering effective use of these technologies. As the instructor guides the interns through specific course content, they use the available software to immediately work on a practical application for their own classrooms.

### **Technology Assignment Opportunities**

One major assignment in the curriculum and instruction class requires the interns to create spreadsheets or use grading software to track and report on their students' progress. Besides meeting individually with their instructor to discuss their data reports and analyses of the correlation between their teaching and their students' learning, they meet with other interns in small groups to share what they have learned and to solicit teaching ideas from their colleagues. Whether or not they use spreadsheets or grading software programs, they find the ability to track their students' growth contributes to their developing a more effective instructional program (Mulholland & Cepello, 2003).

Another course assignment requires the candidates to create [Web pages](#) that highlight how their students are using technology in the classroom. Once the interns create these Web pages, the instructor suggests they consider the benefits of having their students create their own content-based Web pages. Some of their ideas include students working in groups creating research reports, summarizing readings, or documenting what they are learning. Interns also develop [webquests](#) in various content areas to support their students' in developing problem solving skills and provide another avenue for working on basic skills. Another course assignment in several classes requires the interns to view and respond to online teaching videos that address reading and writing using technology. The site offers many supporting materials for each of the videos (notes, outlines, glossaries, and handouts) to enhance their understanding of the content. A follow-up discussion with the candidates focuses their attention on the value of combining videos with materials that guide their students in the learning of any content. Interns also are required to develop [PowerPoint presentations](#), either to provide an overview of a case study, a presentation on disabilities, or a review of assistive technology programs. The idea is for them to gain skills using the software and to explore how this technology might assist their own students. By providing the time and opportunity in class to develop technology competencies, the interns are able to transfer this knowledge immediately to their classrooms for their students' benefits.

The interns are encouraged to speak to their technology support individual in the school, if there is one, about downloading free demo software programs on a school computer that students can use. The interns then can try various software programs with their students to see how the technology can help them be more successful.

### **Technology in the Schools**

Through class discussions each semester, the candidates share their frustration about learning how to use technology to enhance their students' growth but not being able to because they find so little technology in their schools. To gather specific information about their schools' technology availability and to determine the type of technology support this program may offer the schools, the instructors emailed an informal survey to the 2004-05 interns, asking them to assist us in understanding their technology issues. They responded to the following:

What hardware have you seen available for the special education students?

Identify the computers, printers, and assistive technology devices.

What software programs are available for these students?

How are these students using technology to support their learning?

Although this was not a required assignment, 27 interns provided a snapshot into classroom technology used at 27 elementary schools by the special education teachers for students with special education needs. Table 1 provides a summary of the hardware and software the interns reported available in their schools. In these special education classrooms there were a total of 13 PCs and 4 Macs, along with an additional 4 Macs available for teacher use only. Of the computers identified within the classroom environments, more than half of the candidates reported that the computers were so old, they were not being used. One candidate in a Title 1 school commented that there were computers for six students in one room, but the computers were limited to Title 1 students' use only. Printers were indicated for only two special education classrooms with

just one actually working. One candidate reported finding a [Mimio](#) projector in the building and commented that she was the only one in the school who used it. Although the questionnaire did not inquire about computer labs in the buildings, several candidates reported labs that had 30 student computers, but with the comments that special education classes rarely were able to sign up for the labs.

**Table 1**  
*Summary of Hardware and Software Available to Interns in Their Schools*

<b>Hardware/Software</b>	<b>Summary Responses</b>	<b>Summary Comments</b>
Availability of computers in the classroom	13 PCs 4 Macs 4 Macs for teacher use	One-half of the computers are so old they are not being used  Four computers for 6 students but only Title 1 students can use them
Availability of Printers	2 classrooms	Only 1 worked
LCD projector	1 school	No one used
Computer Lab	25 schools	Special education teachers not using them
Accelerated Reader	11 classrooms	Used for taking tests
Accelerated Math	5 classrooms	Used for taking tests
Scholastic Reading Reader Rabbit Mario Brothers Career Job CD Math Steps	1 classroom	
Storybook Weaver Plato	3 classrooms	
Word Processing	5 classrooms	Used for writing a book report and project
Power Point	2 classrooms	Used for presentations
Typing Tutor	4 classrooms	Used to practice keyboarding skills
<b>Use of Computers</b>		
Playing Games only	7 classrooms	
Reward & Punishment	1 classroom	Reward for good behavior and students were not allowed to use the computer as a form of punishment for bad behavior

The Accelerated Reader program was available in 11 classrooms and the Accelerated Math program available in five classrooms. Scholastic Reading, Reader Rabbit, Typing Tutor, Mario Brothers, Career Job CD, and Math Steps were each identified once. Storybook Weaver and Plato were available in three classrooms. Some type of word processing was identified by five candidates, with PowerPoint being available in two classrooms.

Given the software programs available in these elementary schools, there was very little that students could do with the technology. Students were taking tests using Accelerated Reader and Accelerated Math. They practiced keyboarding skills in four of the

classrooms. In the five classrooms where a word processing program was available, students worked on writing a book reports or projects. One candidate reported students creating PowerPoint presentations. Seven candidates indicated that the computers were used for playing games only. Some reported that students did nothing with the computers. One candidate commented that the computer was used as a reward for good behavior and students were not allowed to use the computer as a form of punishment for bad behavior.

All but one intern commented that the other special education teachers in their schools did not use computers. Two interns reported seeing a speech teacher use assistive technology with students. No intern reported that assistive technology was included in the development of individualized education plans for their students. With the information provided by these candidates, it seems clear that technology to support their students' growth is not available.

### **Program's Response**

The interns were asked to report about their own technology skills at the end of their program to provide the university with feedback to effectively prepare future candidates. Many indicated that they wanted more practice with a variety of software programs, creating Web pages, downloading pictures and sounds from the Internet for projects, and assistive technology devices, and they wanted time to implement a unit using technology.

The interns expressed excitement about incorporating technology into their teaching, but what they use with students is limited by what is available in their schools. Adding information in the program about applying for grants to obtain hardware and software is now included, as well as suggestions on downloading free trials and applying for software reviewer opportunities. One intern reported that after informing her principal about how she could incorporate technology into her teaching, she was given money to purchase a computer for her class. Another intern reported that after sharing with faculty members the value of a Mimio projector with the computers in the classes, the school technology coordinator was able to purchase three projectors on e-Bay for the price of one.

At the same time that Title II of *The No Child Left Behind Act* required schools to document how teachers are integrating technology into teaching by December 2006, President Bush recommended that funding be eliminated for this Enhancing Education Through Technology category. Congress did not dismantle this state block-grant program, but cut spending by 45%, which eliminated \$221 million from the budget (Murray, 2006). Wolf and Hall (2005) suggested that educators contact their state representatives to inform them of the connection between technology and its impact on students' growth, as evidenced by documentation in the various content areas. Although teachers may not have the resources they need to fully integrate technology into teaching, they can make use of what is available with limited technology through demonstrations and connections with applications to daily life (Arquette, 2004). The more teachers have the opportunity to practice using technology, the more likely they are to use it in their classrooms (Michaels & McDermott, 2003).

This program continues to provide the environment for candidates to develop technology competencies that promote their students' academic growth and is developing a partnership with the school district's special education programs to assist them in developing competencies in technology that will translate into their teaching for their students' benefit.

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## Resources

Accelerated Math - <http://www.renlearn.com/math.htm>

Accelerated Reading - <http://www.renlearn.com/reading.htm>

Career Job CD - <http://www.jist.com/software.shtm>

Inspiration - <http://www.inspiration.com>

Kurzweil - <http://www.kurzweiledu.com>

Laureate - <http://www.lsys.com/>

Mario Brothers - <http://www.smbhq.com>

Mimio Projector - <http://www.mimio.com>

Plato - <http://www.plato.com>

Quicktionary Pens - <http://www.quick-pen.com>

Premier - <http://www.premier-programming.com>

Reader Rabbit - <http://www.learningcompany.com>

SmartDraw - <http://www.smartdraw.com/>

Scholastic Reading - <http://teacher.scholastic.com/products/readingcounts>

Storybook Weaver - <http://www.k12software.com>

Timelines - <http://www.smartdraw.com/exp/gan/home>

Typing Tutor - <http://www.tenthumbstypingtutor.com>

## Web page Examples

<http://www.geocities.com/cheristubborn/mypage.html>

<http://www.geocities.com/LesleighBrunelle/>

<http://www.geocities.com/donbaggott/intro.html>

<http://www.geocities.com/pvanoorschot2995@sbcglobal.net/nopictures2.html?10785978>

**Webquest/PowerPoint Examples**

<http://college.livetext.com/college/index.html>. Type in Visitor's Pass 4C6678D5.

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