Spring 2004

Situating teacher education: From the university classroom to the real classroom

Pedro F. Hernández-Ramos
Santa Clara University, phernandezramos@scu.edu

Carol Ann Giancarlo

Recommended Citation
Hernández-Ramos, P. & Giancarlo, C. A. (2004). Situating teacher education: From the university classroom to the real classroom. Journal of Computing in Teacher Education, 20(4), 121-128.

This is an Accepted Manuscript of an article published by Taylor & Francis in Journal of Computing in Teacher Education in Spring of 2004, available online: http://www.tandfonline.com/doi/abs/10.1080/10402454.2004.10784494 http://files.eric.ed.gov/fulltext/EJ876864.pdf

Situating Teacher Education:
From the University Classroom to the "Real" Classroom

Pedro Hernández-Ramos, Ph.D.
Department of Education
Santa Clara University
United States
phernandezramos@scu.edu

Carol Ann Giancarlo, Ph.D.
Department of Education
Santa Clara University
United States
cgiancarlo@scu.edu

Christine Stortz
Teacher Development Center
Cupertino Union School District
United States
Stortz_Christine@pc.cupertino.k12.ca.us

Abstract: This paper reports on the first experience moving a required teacher preparation course ("Instructional Technology for Teachers") from the university classroom into an elementary school setting. The key motivation was to help future teachers become more adept at integrating technology into their practice by learning about commonly used applications and best practices in an authentic setting. In addition to lab time focused on the acquisition of computer skills, the course design included classrooms visits and observations, conversations with teachers and the principal, and development of a lesson or unit plan. The format was an intense one-week workshop co-taught by two university faculty and a school-based coordinator, instead of a quarter-long course meeting once or twice a week with a single instructor. Students reacted very favorably to the course format and location. Detailed analysis of the curriculum and future plans are described.

Introduction

Fifth year teacher preparation programs face the daunting challenge of helping student teachers become proficient in a wide range of skills, and become acquainted with an extensive literature on education theory, teaching and learning practices, and other topics in a short amount of time. Most new teachers exit our programs feeling that there's much left to learn (Dusick, 1998), and the value of what they have learned in the university classrooms seems of little relevance—if they have any confidence they can remember any of it by the time they get to their own classroom. Effective use of technology to support personal productivity, and especially for teaching and learning, is just one area where teacher preparation programs are perceived to fall short.

Given the perceived or real deficits in teacher preparation, practicing teachers are in need of opportunities for in-service professional development. Either to make up deficits or to advance specific skills or knowledge bases, the design of effective staff development models has been a constant challenge. The traditional in-service staff development model consists of taking teachers out of their school context to participate in "staff development" workshops, seminars, and other formats intended to bring teachers "up to speed" on whatever the topic may be. The explicit assumption is that teachers will be perfectly capable of assimilating large amounts of information in a short amount of time, and furthermore, that they will be capable of translating the experience into daily teaching practices.

Specifically with regard to technology, whether at the teacher preparation stage, or at the in-service stage, how to create effective and meaningful learning experiences that will carry over into teacher's daily practice has

been the subject of considerable effort and research. Bradshaw (2002) concluded:

> When staff development efforts include a presentation of theory and information, demonstration, practice with feedback, and coaching and follow-up over time, the transfer to the classroom and the return on investment in instructional improvement are significantly increased. (p. 134)

The key variable, thus, is "transfer to the classroom," meaning actual practice by the student teacher when they enter their own classroom. The gap between the university classroom where most preservice preparation takes place, or between the hotel meeting rooms or similar venues where most in-service staff development events happen, and the classrooms where teachers practice must be narrowed to the (ideal) point where the transfer rate is consistently high. One potential way to close this gap is to move teacher preparation courses into authentic venues.

Whether exposure to technology in pre-service programs happens in the context of other courses or in dedicated, "stand-alone" courses has also been investigated. For example, the survey conducted by the Milken Exchange on Educational Technology (1999) concluded:

> The most important finding of the survey is that formal stand-alone IT coursework does not correlate well with scores on items dealing with technology skills and the ability to integrate IT into teaching. IT coursework is a component of current technology standards for colleges of education and was cited by many survey respondents as a notable feature of their programs. Yet the current data does not support the idea that additional technology-specific coursework will greatly improve aspects of IT use in education. (p. 3).

Our teacher preparation program currently has one 2-unit course (ED271, "Instructional Technology for Teachers") dedicated to technology. What this means in practical terms is that students have one quarter where they take this course usually one day a week, in two-hour sessions. Given the new California state requirements expressed in Standard 9 (California Commission on Teacher Credentialing, 2001), this amount of time (20 hours of classroom instruction) is not adequate.

In addition to the amount of time, the location itself is a limitation, as the above referenced studies clearly suggest. Even if availability of technology were not an issue, the gap between the place of instruction and the context of practice remains. Our goal with the experience described in this article was to reduce that gap so that student teachers are more likely to use technology effectively in their own classrooms.

Background

The choice of location for the course outside the university was simplified because of institutional and personal connections. Our department has a long-standing relationship with a local school district, centered on an Internship program that has proved mutually beneficial over many years. At a personal level, the first author had worked at a corporation that had a working partnership with the district and the specific school (K-6, organized in "villages:" K-2, 3-4, and 5-6), where a Teacher Development Center (TDC) had been created as a consequence of this partnership. Leveraging the ongoing work at the TDC, the authors started working with the TDC coordinator to review the facility's capacity (up to 15 students) and start collaborating on the creation of a curriculum for the course.

A decision was made early on to modify the university course to align it more closely to the format used at the TDC. The course was changed from a quarter-long, once-a-week, two hours a session format into an intensive workshop that would meet for one week, every day, for 7 hours each day. The experience at the TDC with this format (Ringstaff & Yocam, 1994; Ringstaff, Yocam, & Marsh, 1996) for in-service staff development opportunities had been quite successful. The TDC curriculum was also modified slightly to meet the new state teacher preparation requirements. The newly developed technology course was scheduled for the summer session, and two week-long sections were conducted on consecutive weeks. To meet the host district's needs, the first week was reserved for Interns from the district (14 students), and the second week was open to Interns from other districts and pre-service candidates (11 students).

Course Description

Modifying the course, moving it from the university classroom to a school setting and changing the scheduled format, was only the first step. To meet the requests from student teachers for more "authentic" links between material covered in the classroom and what they anticipate needing in their practice, several requirements had to be met by the school site. Situating the course at the elementary school and TDC was possible because the school had adequate technology available for staff development purposes. Also, most or all of the teachers at that school are "master" technology-using teachers. By allowing the Interns and pre-service student teachers to visit their

classrooms and observe them in their daily practice, these master teachers served as role models that, in the best case, made it easy for student teachers to convince themselves that they, too, could teach with technology. These ideas were further addressed in scheduled conversations during the workshop week, where master teachers and the school principal (a former teacher at the same school) shared their personal and professional stories.

Co-teaching was modeled in this course by the faculty leading it. Teaching is usually a profession where individuals do not collaborate on a regular basis. Multiple reports (e.g., Dwyer, Ringstaff, & Haymore Sandholtz, 1990) and other research argue for increased collaborations among K-12 teachers (e.g., Fontaine, 2000), and yet few teacher preparation institutions are actively addressing this goal in their curricula and in the practices of their faculties. If it is true that "teachers teach the way they were taught," modeling co-teaching in this course will likely encourage future teachers to work collaboratively when their time comes.

In sum, there were three main components to our workshop experience:

1. The opportunity to observe teachers who routinely integrate technology into their daily practice, in their own classrooms and with their students, plus time to engage these teachers in conversations about their personal and professional evolution in regards to technology use.
2. The hands-on workshops focused on specific hardware (e.g., computers, digital video cameras) and software applications (e.g., Inspiration, HyperStudio, AppleWorks)
3. The requirement to work during the week on a curriculum standards-based lesson or unit of the student's choice, designed with the intention that it will be used in the classroom. Students are individually responsible for their work, but they were encouraged and given opportunity to collaborate and share ideas with their peers and the faculty during the development process.

In addition to daily attendance, students were required to complete reading assignments that provided a background on constructivist theory and technology integration. The readings were six issues of a newsletter (*TAP into Learning*) produced by the Southwest Educational Development Laboratory (SEDL, 1998, 2000). Along with brief theory presentations, the newsletters described specific software applications and their classroom uses, which students subsequently used in the course.

Teaching the Course

Each day at 8:30 a.m., class started with a conversation focused on the topic of the reading assigned for that morning (except the first day, when introductions and a course overview took place). We set this up as an opportunity for students and instructors to reflect together on key ideas, concepts, applications, and issues raised in the reading material. Two other types of activities took place in the morning. One was application-focused sessions led by one of the instructors, introducing software programs that students were encouraged to use when preparing the required lesson or unit plan. Among the programs presented were AppleWorks (word processing, spreadsheet, database), Inspiration, HyperStudio, Hollywood, iMovie, and MS Word. The second typical morning activity was classroom visits. Working with the TDC coordinator, teachers selected the best or most convenient times for our students to come through their classrooms. Because teachers gave us different times each day, our scheduled visits varied slightly from day to day.

Figure 1. View of the Teacher Development

Each student had access to his or her own computer for the week. All the applications needed were already pre-loaded. We encouraged students to practice individually ("free exploration" times were scheduled each day) and to consult freely with each other as they were learning about each application. Given the TDC layout, students sat in pairs at either side of the room (6 on one side, 8 on the other, and one in front if needed). The instructor station (including a computer projector) was in the middle towards the back of the room. In the center of the room were enough tables and chairs to accommodate everyone (students and instructors) during morning group discussions, conversations with teachers, and other meeting needs. This physical layout worked very well because it encouraged students seated together to collaborate with each other. The proximity of at least two other students in front or in back made it easy to float a question, for example, and get an answer from another student if any of the instructors were not nearby.

To learn software applications, students expressed a clear preference for a strategy in which the instructor starts from the very beginning (e.g., "This is what the icon for the application looks like in your hard disk") and

builds gradually from there. It is worth noting that all students were already familiar with personal computers, electronic mail, and web surfing, yet felt quite uncertain about their ability to master new applications in what they perceived to be a very short time and, in particular, about their capacity to understand how the application could be used for teaching. We knew this thanks to a brief "competency survey" the students completed on the first day. All three instructors made a point of emphasizing the value of a program's features to support specific teaching or learning needs, so that students would not focus excessively on the program for its own sake but rather kept the context of application in mind at all times.

The conversations with teachers from the host school were very valuable to support this perspective, since these teachers used the programs covered in the course in their routine work. Also of great value was the opportunity for our students to see children from the host school demonstrate examples of their past work, by pulling up files in their electronic portfolios from the school's server, launching them, and retelling the purpose of the work. Several of our students remarked that they were very impressed by the familiarity with the technology the kids exhibited, and how pleased they seemed to be able to locate their work from years past and still remember so much about those projects or assignments.

One of the topics in our curriculum was digital video. When the student teachers first saw it listed in the syllabus, several students expressed reservations about the value or relevance of the topic. Not surprisingly, however, most students listed the activity with digital video as their favorite for the entire week. This is what we did. Students were asked to form groups of no more than three people. As instructors, we allowed students to form their own groups. Alternatively, we could have formed groups based on pre-selected criteria such as grade level or content area. One of the instructors distributed the digital video cameras to the groups, offered basic instructions on their use, and set out the terms of the assignment. Contrary to what "best practice" in video production suggests, we deliberately gave the students no time to prepare a script outline or storyboard. With limited time (less than four hours), we knew that students would spend too much time and effort up front trying to agree on script ideas and get frustrated when they then had too little time left for editing and "post-production"—adding video and sound effects, titles, and so on. Thus, the assignment was for groups to go out and shoot film for about 20 minutes, with the only requirement being that each member of the group had to operate the camera as well as be on camera as the subject. The group product would be a video no more than two minutes long, including titles.

With no time to plan, students were quite creative and playful—one of the objectives for the assignment. All students very much liked the iMovie application, in part because it gave them a great sense of accomplishment by allowing them to come up with a "final" product that they could be proud of despite the limitations of the lack of time and inexperience. Without exception, all students understood the value of group work in the context of a project-based assignment, and how video could be meaningfully incorporated into learning opportunities across all grade levels and subject matter.

Co-teaching this course was perceived as very beneficial for both instructors and students. From an instructors' perspective, having colleagues with whom to share the teaching responsibilities was a great relief, especially given the intensity of the workshop experience. Co-teaching also allowed us to see creative and alternative pedagogical styles that will no doubt influence our future teaching efforts. From the students' perspective, seeing different people lead sessions and having the other instructors to call on for help—particularly during the application-focused sessions and when working on their projects—was highly appreciated.

The requirement to produce a lesson or unit plan by the end of the week was stressful for most students, especially those with little or no classroom experience. Though students were given the opportunity to collaborate and rely on each other for help, students did not consult with one another as much as we, the instructors, expected. Since students were effectively paired by the location of the computers they were working on, students interacted with their immediate neighbor much more than with peers in front or to the back of them, and much less with peers at a greater distance. The atmosphere we aimed to create, one of open collaboration in order to produce an individual work, was successful only to a point. Students seemed uncomfortable sharing and collaborating as a matter of course, rather than as a "mandate" in the context of a group project. Nonetheless, it seems important to us to maintain the environment of open collaboration in future instances of this course to keep building a sense of the value of collaboration for teaching, learning, and professional development in our future teachers.

An exercise where we asked students to participate in the development of the evaluation rubric for their projects was a particularly salient experience for us as instructors. The first week we scheduled this exercise for the fourth day. None of the students had ever participated in something like this, and several among them were clearly uncomfortable. As instructors, we realized that the main reason for the discomfort was the timing rather than the task itself. At the end of each day in both weeks the course was taught, we held a "Needs and Gots" session to reflect on what had happened. During that session in the first week, students agreed with one of their peers' view that while useful, the exercise should have happened earlier in the week when they were just getting going on the

project, rather than later when they are closer to being done. In sum, while they appreciated the value of the exercise for achieving peace of mind surrounding the expectations for an assignment, moving it towards the beginning of the workshop was a unanimous recommendation.

Because we conducted two sessions consecutively, we were able to implement this suggestion and others derived from our own observations during the second week. In addition to moving the rubric creation exercise to the second day, we shifted the digital video session from the second to the third day. The feedback from the first week clearly indicated that working with digital video was among the favorite activities, and having it in the middle of the workshop provided a welcome shift from the first two days and seemed to energize students for the last two days. Other adjustments were made in the schedule mainly from opportunities to visit classrooms. We also made changes in the way we presented specific applications (e.g., Inspiration, HyperStudio) based on our perceptions of success and student feedback.

Reflection is a key component of teacher practice that we try to instill in our students. Each day started with a discussion of the reading assignments and, from day two on, with conversations about related topics from the previous day's work. The lunch meetings with the school's teachers were more than question-and-answer sessions on practical teaching issues. If needed, instructors gently guided these conversations toward issues of professional and personal development, focused on technology integration. We were particularly interested in having the teachers talk about their perceptions of students' attitudes toward technology, and their experiences working in technology-enhanced environments. Thus, in addition to the practical wisdom shared by the teachers (e.g., what to do if the lesson you've planned with technology can't happen because the network is down or some computers are broken), our students received first-hand reports on how children in today's schools readily adapt to meaningful uses of technology in everyday teaching and learning—and how much they like it and seem motivated by it as well.

Student Evaluations

At the end of the week, we collected both formal student evaluations (a standard university form) and narrative evaluations based on a questionnaire created by the instructors. Based on personal experiences and data from the competency survey we administered at the start of each session, one of our goals was for the workshop to instill in all participants a positive attitude toward technology for personal productivity, teaching, and student learning. Despite the time limitations, which made it impossible to dedicate more than a few hours to learn a new application, we were particularly interested in helping students see the value of each of the applications and activities in terms of their teaching practice. We agree with Ross, Hogaboam-Gray, and Hannay (1999) that "Teachers who interpret their interactions with computers as indicative of high ability grow in confidence, regardless of the frequency of their experience" (p.93). Thus we wanted our students to emerge from this course with a positive attitude toward the use of technology for teaching and learning, and with a sense of confidence in their ability to master new uses of technology in a short time.

Our goals seemed to have been met, judging by the student evaluations. In the quantitative university evaluation form which contains eleven course-specific items, from week one (14 students) the lowest mean score (on a scale from 1 to 5, where 5 is highest) was 3.85 on the item "The course was well organized" (S.D.=0.86). The highest mean was 4.77 (S.D.=0.18) on the item "The instructor appears to enjoy teaching." The changes made for week two (11 students) indicate significant improvement. Only two items did not have a mean of 5 (highest), and they were still high (4.80 on "The course has contributed to my capacity for critical evaluation" and 4.90 on "He/She takes care to ensure that students are comprehending the subject"). These are some of the positive comments received in the narrative feedback forms: "Thanks for taking the time throughout the week to really ask us questions and feedback for changes or places for improvement." "I enjoyed it." "I really liked the iMovie application. I will be trying it with my class." "You were wonderful. I will miss this class." "Thank you. Seriously, this was the best class I took for all of my credential program. It was actually *useful*" [emphasis in original].

Less favorable comments focused on time pressures to complete the project and individual preferences when learning new technologies. The most significant feedback (from our perspective as instructors) was the recommendation to offer the course in a different venue for single-subject candidates, some of whom felt that although seeing technology in use in actual classrooms, by real teachers with real students, was definitely helpful, they would have benefited even more if the school was a middle or high school where the context of practice would be similar to that where they expect to work. We agree with this sentiment, and will explore possibilities among schools in our surrounding area.

Conclusions

Many barriers have been identified that block or limit the use of technology by teachers, both pre-service and in-service. For pre-service students, the time lag between exposure and practice, the difference in context of instruction versus context of practice, and the perceived relevance of what's learned in the university classroom versus what will be needed in the "real" classroom are among the most salient (cf. Milken Exchange on Education Technology, 1999). In the experience reported in this article we aimed to address several of the shortcomings at once. The overarching goal for this course—and for our program in general—is to improve on the fact that "only 20 percent of teachers feel well prepared to integrate education technology into classroom instruction" (CEO Forum on Educational Technology, 1999, p. 10).

For pre-service students in particular, having the class in a school with adequate facilities, led by faculty who model effective use of technology, being able to observe teachers who can serve as good models, learning computer applications with clear connections to practice (and time to explore them on their own), seeing elementary students relate to technology with ease and confidence, and working on a meaningful project for later use in their own classroom form a set of critical conditions. We are the first to acknowledge that the short time of this experience (5 days) is not enough to convert students into full-fledged, sophisticated, technology-using teachers. Longer sessions (e.g., summer institutes lasting three to five weeks) increase the comfort levels, proficiency, and likelihood of sustained use of technology (Ringstaff, Yocam, & Marsh, 1996).

Bitner and Bitner (2002) stated that "Teaching models using technology as a tool in the classroom to help students achieve must be provided. Teachers need to conceptualize how the use of various programs which facilitate teaching and learning [sic]. This can more easily be done if they actually see students using technology that has been integrated into the curriculum" (p.97). In this experience, our students witnessed first hand what a technology-rich school looks like, but perhaps more importantly, how teachers and students have successfully re-defined their roles to take maximum advantage of the possibilities offered by the new technologies. It is clear to us that the development of hands-on skills with specific applications and their uses in the classroom (and for personal productivity) should be an important component of any effort to promote technology integration. The context and purposes in and for which those applications will be used makes a critical difference for prospective teachers. To the extent that pre-service coursework can take place in a more relevant context, the better prospective teachers' attitudes toward technology and the likelihood of continued use will be.

Beyond the challenges involved with replicating this course in the future, we wish to identify a way to provide follow-up and ongoing support to the students (Bradshaw, 2002). Since the class project was a lesson or unit plan that students designed for use in their own classroom, we would like to have students communicate formally with us (instructors) without requiring it as a component of the course evaluation. Once students walk out of the university classroom, the expectation for future interaction is over—except in cases like this one where we would be interested in finding out how the lesson or unit delivery worked out. We would also be willing to assist, if in no other way simply by being there as external advisors. One strategy we are contemplating as a department is to set up a bulletin board-type online communication and collaboration system (e.g., FirstClass), which would be available to students even after graduation and as a forum for peer support as well.

Finally, thanks to this experience, our students became more aware of the factors involved in successful technology integration at the personal, school, and even district level. While the course was focused on development of their individual technology and teaching skills, the lunchtime conversations with the school teachers and the principal helped them understand that "The likelihood of the average teacher being motivated to use technology to change their classroom is more likely when both administration and valued colleagues agree" (Berg, Ridenour Benz, Lasley II, & Raisch, 1998, p. 119). In the end, we hope that our students have begun to see each other as colleagues willing and able to offer technical help and other types of support as they find their own path toward a teaching practice that incorporates technology in meaningful ways.

References

Berg, S., Ridenour Benz, C., Lasley II, T.J., & Raisch, C.D. (1998). Exemplary Technology Use in Elementary Classrooms. *Journal of Research on Computing in Education* **31** (2), 111-122.

Bitner, N. and Bitner, J. (2002) Integrating Technology into the Classroom: Eight Keys to Success. *Journal of Technology and Teacher Education* **10** (1), 95-100.

Bradshaw, L. K. (2002). Technology for Teaching and Learning: Strategies for Staff Development and Follow-Up Support. *Journal of Technology and Teacher Education* **10** (1), 131-150.

California Commission on Teacher Credentialing. (2001). *Standards of Quality and Effectiveness for Professional Teacher Preparation Programs.* Sacramento, CA: Author.

CEO Forum on Educational Technology. (1999). *School Technology and Readiness Report. Professional Development: A Link to Better Learning.* [Retrieved online 10/17/02 from: http://www.ceoforum.org/reports.cfm?RID=2.]

Dusick, D. M. (1998) What Social Cognitive Factors Influence Faculty Members' Use of Computers for Teaching? A Literature Review. *Journal of Research on Computing in Education* **(31)**2, 123-137.

Dwyer, D. C., Ringstaff, C., & Haymore Sandholtz, J. (1990). *Teacher Beliefs and Practices Part II: Support for Change. The Evolution of Teachers' Instructional Beliefs and Practices in High-Access-to-Technology Classrooms. First-Fourth Year Findings.* [ACOT Report #9.] Cupertino, CA: Apple Classrooms of Tomorrow.

Fontaine, M. (2000). Supporting Teachers with Technology: Don't Do Today's Jobs with Yesterday's Tools. *TechKnowLogia,* November/December, 14-16. [Retrieved online 10/2/02 from: http:// www.TechKnowLogia.org.]

Milken Exchange on educational Technology. (1999). *Will New Teachers be Ready to Teach in a Digital age? A National Survey on Information Technology in Teacher Education*. Santa Monica, CA: Milken Family Foundation.

Ringstaff, C. & Yocam, K. (1994). *Creating an Alternative Context for Teacher Development: the ACOT Teacher Development Centers.* (ACOT Report #18.) Cupertino, CA: Apple Classrooms of Tomorrow.

Ringstaff, C., Yocam, K., & Marsh, J. (1996). *Integrating Technology into Classroom Instruction: An Assessment of the Impact of the ACOT Teacher Development Center Project.* (ACOT Report #22.) Cupertino, CA: Apple Classrooms of Tomorrow.

Ross, J.A., Hogaboam-Gray, A., & Hannay, L. (1999). Predictors of Teachers' Confidence in Their Ability to Implement Computer-Based Instruction. *Journal of Educational Computing Research* **21** (1), 75-97.

Sandholtz, J.H., Ringstaff, C., & Dwyer, D. (1997). *Teaching with Technology—Creating Student-Centered Classrooms.* New York: Teachers College Press.

Southwest Educational Development Laboratory. (1998). Constructivism and Technology. *TAP into Learning,* **1**(1), 1-8.

Southwest Educational Development Laboratory. (1999). On the Road to Student-Centered Learning. *TAP into Learning,* **1**(2), 1-8.

Southwest Educational Development Laboratory. (2000). Communication: A Key to Learning. *TAP into Learning,* **2**(1), 1-8.
Southwest Educational Development Laboratory. (2000). Using What Learners Know. *TAP into Learning,* **2**(2), 1-8.

Southwest Educational Development Laboratory. (2000). Knowledge Under Construction. *TAP into Learning,* **2**(3) & **3**(1), 1-12 [double issue].

Southwest Educational Development Laboratory. (2000). Action + Reflection = Learning. *TAP into Learning,* **3**(2), 1-12.

Spillane, James P. (2002). Local Theories of Teacher Change: The Pedagogy of District Policies and Programs. *Teachers College Record* **104** (3), 377-420.