

Professional Development in Teacher Education:

What Can We Learn From PT3?



By Leslie D. Hall, Clint Fisher, Sandra Musanti and Don Halquist

The familiar adage states that teachers “teach like they were taught.” The lack of technology integration in classroom teaching practices would then indicate that teachers are experiencing little technology integration in their teacher preparation programs. The literature identifies many barriers to technology use in teacher education. Institutional structures often do not support observation of exemplary peers or provide time to reflect on personal practices in teaching (Ertmer, 2003). Lack of a common vision and strong leadership, few incentives to change teaching practices and a shortage of hardware and software can lead to little faculty participation in technology integration initiatives (Finley & Hartman, 2004). Teacher educators are often skeptical about the usefulness of new technologies (Abdul-Haqq, 1995). However, Albion and Ertmer (2002) note that, “If beliefs are formed and developed through personal experience then it seems logical that changes in beliefs should also be effected through experience” (p. 35).

Reports of successful professional development for teacher education faculty describe models that might be replicated in local institutions. Modifying these models for local circumstances may provide the personal experiences that bring change to teacher educators’ beliefs and practices (Albion & Ertmer, 2002). Technology savvy undergraduates (Denton, Davis, Strader, Clark,

& Jolly, 2003; Wedman & Diggs, 2001) and K-12 practitioners (Murphy, Richards, Lewis, & Carman, 2005) have successfully partnered with university faculty members to bring more technology into teacher preparation courses. Collaborative groups in several settings (Cradler, Freeman, Cradler, McNabb, 2002; Graves & Kelly, 2002; Rosaen, Hobson, & Khan, 2003) show promise in the modeling of technology integration for preservice teachers. Popham and Rocque (2004) reported that faculty-as-students in a preservice technology course proved to be an effective form of professional development.

Here we examine 34 PT3 grants containing a teacher education faculty development component to explore the approaches taken, the barriers encountered, and the lessons learned from these grantees’ experiences. The grantees involved with these professional development initiatives provided rich data concerning the approaches taken to offer personal experiences that in many cases altered beliefs about the role of technology in teacher preparation.

Method

The data set for this document analysis consisted of grant reports, articles, websites and other data for 34 PT3 grants. Data organization and analysis involved a multi-step inductive process. First, pertinent data from each grant were inserted into tables containing six categories: data source, approach (to faculty development), participants, outcomes, barriers and insights (See

Table 1). Information on each grant was then placed into a data-reporting table containing three categories: institution, participants and approach. Next, grants were clustered based on approach to professional development. Grant clusters were then analyzed based on common and unique characteristics, barriers encountered and lessons learned. The small number of grants in most categories, the varying quality of reports and levels of description and the types of data included in each report posed challenges to the findings. Nonetheless, the commonalities and lessons to be learned reported in the conclusions are notable.

Workshops were designed to increase faculty technology skills and knowledge with most focused on the use of specific software such as web authoring, electronic portfolio development, online instruction (e.g., Blackboard, WebCT), multimedia software, concept mapping tools and K-12 educational software. Some focused on developing strategies to integrate technology in university classrooms.

Across these grants, identification of faculty needs (e.g., individual support) was an important factor for workshop success (Davidson-Shivers, Salazar, & Hamilton, 2005).

Data Source	Approach	Participants	+ Outcomes	Barriers	Insights
Grant report Article Presentation Other	Student mentors, Tiered faculty development, etc.	Teacher education faculty			

Table 1. Template for coding data from original sources

Approaches to teacher education professional development

Analyses of five approaches to faculty development are reported here. Workshops were defined as sessions of one hour to one day in length. Institutes were defined as sessions of two and a half days or longer. Data from the grants utilizing training modules and formal courses are not reported due to the extremely small number of grants (2) in each cluster. However, information from these grants informs the final statements. The approaches and the number of grants in each cluster appear in Table 2.

Approach	Initial Sorting	Reassigned	Final Clusters
Workshops*	14	1	14
Mentoring	4	0	4
Institutes**	4	1	4
Small Groups	4	0	4
Mixed Approaches	4	0	4
Training Modules	2	0	2
Formal Course	2	0	2

*Sessions of 1 hour to 1 day in length

**Sessions of 2 1/2 days or longer

Table 2. Numbers of grants clustered by approach

Workshops

Fourteen PT3 grants reported using technology workshops in faculty professional devel-

opment. Sessions were usually designed to "ensure that they are ongoing, content-focused, site-based, and involve teachers as active learners" (Strudler, Archambault, Bendixen, Anderson, & Weiss, 2003, p. 4).

In eight cases, workshops were supported through one-on-one mentoring to further develop the skills and knowledge acquired through the workshops. Foci of one-on-one support varied. For instance, Wichita State incorporated a broad-based network of mentors to provide individual training and support for participating faculty on technology based knowledge. Texas Woman's University combined workshops with

one-on-one support to help university instructors bridge the gap between technology and pedagogy.

To keep faculty interested in attending workshops, nearly all grants included some type of external motivation such as stipends and/or mini-grants. However, attendance by untenured teacher

education faculty and Arts and Sciences faculty tended to be low. As a group, teacher education faculty did have a higher rate of attendance than Arts and Sciences faculty when both faculties were included in the professional development initiative. Sustaining faculty commitment over

time proved to be difficult. Participation was not significantly increased through stipends or other types of extrinsic rewards. In general, faculty members were willing to participate but institutional constraints prevented them from doing so. For untenured faculty, publishing pressure and teaching duties played against their commitment to the grants' requirements. Grant reports and literature (Israel & Kasper, 2004; Wizer & McPherson, 2005) recognize the importance of department and college administrators' leadership in institutional change "to help faculty members facing the challenges and to enable faculty development training to make real impact on student learning" (Leh, 2005, p. 39).

Workshops were designed to increase faculty mastery of different technologies in accordance with their technology entry levels in skills and levels of integration (Howland & Wedman, 2004) and in direct relationship with their instructional needs (Davidson-Shivers, et al., 2005). Adapting workshops to multiple levels of skills and needs challenged these grants. To reach their goals, more advanced training or training adapted to teaching needs or curriculum objectives was provided. As a result, most participating faculty were able to display uses of technology in their classes and to include technology in course syllabi.

Workshops provided faculty with opportunities to work together on programmatic aspects of technology, in some cases in collaboration with classroom teachers. Project THREAD at the University of Nevada, Las Vegas, reported that faculty collaborated with classroom teachers on the production of materials uploaded to the Internet and used in teacher education courses (<http://www.unlv.edu/projects/THREAD/>).

The workshop approach created conditions for a cultural shift towards the integration of technology. This was evident when faculty interest and commitment produced an increase in the number of requests for individual assistance to further develop skills or instructional approaches with technology. In addition, workshops seem to have increased faculty levels of technology skills (self-reported in surveys) as well as their abilities to use technology integration in the curriculum.

Reports stated that as a result of participation in workshops faculty were able to: a) increase their level of technology proficiency (e.g., Wichita State University reported 91% of faculty reaching the highest levels of adoption of technology in year III, a 48% increase from the baseline); b) model in their classes the use of technology and use more technology resources for teaching; c) share personal and classroom experiences with technology integration with peers; d) increase the

use of online teaching tools such as Blackboard or WebCT (Wedman & Howland, 2003); and e) integrate electronic portfolios as part of teacher education requirements (Johnson, 2003). Data from student teacher surveys and interviews confirmed that the student teachers were aware that faculty integrated more technology in their courses. Purdue University reported that 99% of the participating faculty were using technology in the classroom with preservice teachers. Collectively, these data also showed that preservice teachers increased their technology skills as well as their capacity to integrate technology into their teaching and technology awareness.

Faculty willingness to participate and learn something new was an important factor in workshop success as was a committed leadership within colleges to promote a technology-using culture (Howland & Wedman, 2004). Two statements can be made from the data on workshops as a means of faculty professional development for technology infusion. First, professional development must consider faculty needs and input. Second, professional development approaches must be flexible, relevant and adaptable to multiple levels of hands-on skills and understandings of technology integration.

Mentoring

Four of the PT3 grants analyzed used graduate students to mentor teacher education faculty as the key focus of professional development activities. At the University of Missouri, Columbia, almost all faculty interviewees reported that their courses became more student-directed and collaborative after participation in PT3. Each faculty participant was teamed with a SWAT (Student Wizards Assisting Pre-service Teachers) Team member. The SWAT members met with faculty in their offices one time per week for 2-3 hours for individual teaching sessions. Each session focused on the faculty member's learning goals (i.e., learning basic skills, developing web pages, graphics, etc.). It was noted that faculty change and learning must be individualized and provided on an individual as-needed basis. The use of the student mentors facilitated this process.

"These 34 PT3 grants indicate that many different approaches to teacher education faculty professional development in the area of technology integration can be successful."

At the University of New Mexico graduate student mentors, Tech Guides, worked with teacher education faculty. All Tech Guides had classroom experience but were not all experts with technology integration. It was reasoned that the Tech Guides could engage in just-in-time learning with the hardware and software to compensate for their lack of skills. Faculty participants appreciated the teaching insights provided by experience that Tech Guides brought to mentoring. An early childhood faculty member commented about her Tech Guide, "I sense a mutual respect toward educating young children in ways that bring out their creative potential." The Tech Guide role was defined as a mentoring and collaborative relationship between graduate students and faculty. The protean nature of the role resulted from a three-year relationship involving joint work with the faculty as well as constant conversations among the Tech Guides, the professional development coordinator and the faculty participants. The relationships that evolved were based on mutuality, respect, compatibility, collegiality and understanding.

The ALTEC (The Advanced Learning Technologies in Education Consortia) Catalyst grant included ALTEC based at the University of Kansas, University of Nebraska, Texas A&M University, University of Oklahoma, and the Kansas Department of Education. Two of the campuses, the University of Nebraska and the University of Oklahoma, used students to mentor faculty. The University of Nebraska hired a graduate assistant to assume the management of the seven student mentors working with faculty. As the grant activities moved forward, more faculty sought student mentors. At the University of Oklahoma the mentoring model struggled and had to be redesigned. A graduate student was assigned to take on the role of professional development organizer. This student organized a series of activities for the faculty to facilitate technology integration.

Three major outcomes emerged across the grants using mentoring as their approach to professional development. Teacher education faculty revised their courses to integrate technology and model effective uses of technology. Faculty reported their classes became more student-centered and collaborative as a result of the grants. Faculty also mentioned a significant increase in their technology skill efficacy in several areas including professional and personal productivity and communication, web-based class management systems such as Blackboard and WebCT, inquiry-based learning

and problem-solving skills.

Common barriers appearing in the final reports for the grants using mentoring were faculty research agendas competing with grant implementation that created logistical strife for grant personnel, institutional pressures that took precedence over grant activities for faculty participants and the related barrier of time as an enormous factor in the amount of participation in grant activities in which teacher education faculty members engaged.

Three insights were gleaned from the students-mentoring-faculty approach. First was the necessity to individualize faculty support for learning and change that became instrumental in faculty participation. Next was the personal level of comfort necessary to create change with technology. Finally, the creation of a risk-free, collaborative environment allowed faculty to evolve into a learning community.

Institutes

Four grantees utilized institutes as their major approach to faculty professional development. These institutes ranged in length from two and a half days to two weeks. The SUNRAY Consortium brought together teacher education faculty members from nine institutions. All participants, who had previously shown an interest in technology, attended 5-day academies twice yearly for three years. In addition, they communicated via the website, listservs and a threaded discussion. The North Carolina A&T State University project offered both workshops and weeklong institutes for faculty and teachers. All four grants using this approach provided supplemental support in addition to the institutes.

The common barrier encountered across these grants was lack of faculty time to devote to professional development. Barriers for individual grants included a minimal number of partnerships with K-12 teachers for team participation in institutes (North Carolina A&T State University) and lack of technology in the College of Education and inconsistencies in hardware among K-12 buildings (University of Idaho).

Tangible products included faculty websites, lesson plans integrating technology for teacher education courses, shared course materials uploaded to the web, conference presentations, increased requests from faculty for individual assistance and more modeling of effective technology integration. The Alabama Department of Education PT3 project resulted in 285 preservice teacher education faculty, 28% of all teacher education faculty in the state,

receiving Intel certification. Ninety-nine percent of participants felt the curriculum was relevant to their teaching. At North Carolina A&T State University, elementary education faculty and elementary faculty partnered to create lesson plans, instructional websites, and WebQuests that can be found at <http://www.ncat.edu/~student3/pt3/index.html>. The SUNRAY consortium created a planning simulation prototype for administrators and faculty to aid in knowledge building and understanding as they engage with the processes, challenges and rewards of integrating technology into teacher education programs. *Building Pathways to Quality Teaching* (WestEd, n.d.), a prototype of the simulation will be published in fall 2006.

The SUNRAY Consortium found that leadership made the difference among the reported levels of success. Teacher education programs with strong leadership and vision provided time for planning, included rewards, and assisted the institutional change process. Less significant progress resulted where leadership turned over frequently or administrators were less supportive.

One insight gained from the Alabama Department of Education final report was that faculty incentives need not be stipends or other monetary rewards but can be related to tenure requirements or events for inclusion on vitas. The SUNRAY project report speculated that the adoption of electronic portfolios in the teacher education program and the NCATE adoption of ISTE technology standards might have impacted technology integration more than their PT3 grant.

Institutes with additional supporting activities proved to be powerful means of technology professional development for teacher education faculty. Collaboration within and across institutions enhanced the awareness and skills of participants in the SUNRAY Consortium. Increased comfort with hardware and software, institutional expectations of technology integration in preservice teacher education courses, and understandings of how a variety of tools can assist teacher educators in working within and across institutions reported by these grantees may have helped participants change personal beliefs about the role of technology in teacher education.

Mixed approaches

Four grants did not use a dominant approach to teacher education faculty professional development. Instead they employed combinations of workshops, short presentations, mentoring, institutes, mini grants, stipends, release time,

just-in-time support and/or software demonstrations by vendors.

These grants encountered many now familiar barriers: competition for faculty time, personnel turnover, lack of commitment at the department and/or college levels, turf battles and skepticism concerning the value of technologies in learning. However, in all cases, reports indicated that faculty incorporated much more technology in instruction while also increasing knowledge, confidence and competence with technology. Students at McMurry University reported increased use of websites, search engines and online course materials in their teacher preparation courses. California State University, San Bernardino, instituted an annual technology conference and developed a graduate course in instructional technology. Valuable technology resources can be found at their website (<http://www.ed.uab.edu/pt3/Partner%20showcase/index.htm>).

The theme across insights from these grants was change — the need for a common vision to sustain change, the importance of careful planning when grant activities impact the time and energy of many participants and acknowledgement that change takes place at the level of individuals. A meaningful insight from California State University, San Bernardino, is the reminder that it takes time to see results of change from initiatives like the PT3 grants.

Small groups

The small group approach based on providing faculty with the knowledge and tools needed to integrate technology across the curriculum and to model the inclusion of technology in the classroom to preservice teachers was used in three grants. Groups were created based on different criteria: 1) Kent State University introduced Technology Triads formed by an education faculty member, arts and science faculty member and a K-12 teacher with the technological support of a university student; 2) Southern Illinois University, Edwardsville, created Faculty Design Studio through which technology facilitators worked with groups of faculty to support the processes of learning and integrating technology; and 3)

“The major insight from this document analysis is the importance of flexible, multi-pronged means of supporting faculty members’ skills development and visions of technology use in teaching and learning.”

the University of Missouri, St. Louis, developed a staged model with cadres of faculty teaching the same courses receiving one-on-one technology assistance, training sessions and opportunities for mini-grants.

“Rather than expecting faculty members to make difficult career choices, it is recommended that grants use funding to release faculty members from part of their teaching for one term, thus freeing time and energy to participate in the complex work of change.”

Time and faculty commitment were the greatest challenges confronted. However, faculty redesigned courses to integrate technology and contributed to significant changes in the curriculum towards this end. For instance, through the L.I.T.E.S. project, Southern Illinois University, Edwardsville, faculty designed a suite of online tools to support the development of electronic portfolios. Other resources created through this grant can be viewed in the Outcomes section of the website (<http://www.siu.edu/~wnelson/PT3/>). The small groups approach highlights the need to create individualized, collaborative opportunities for professional development.

Conclusions

These 34 PT3 grants indicate that many different approaches to teacher education faculty professional development in the area of technology integration can be successful. All approaches to faculty professional development reported here supported increased integration of technology into teacher education. Levels of increase seemed to depend on quality of leadership, administrative support from departments and/or colleges, available resources and personnel and amount of faculty resistance to change. Final reports indicated many of the 34 grantees had institutionalized substantial changes in teacher education related to technology use and integration indicating they provided the personal experiences to bring change to teacher educators' beliefs and practices (Albion & Ertmer, 2002).

The major insight from this document analysis is the importance of flexible, multi-pronged means of supporting faculty members' skills development and visions of technology use in teaching and learning. Other insights include the importance of individualized, just-

in-time learning; faculty understandings of the relevance of proposed changes; and the ability of incentives to create interest in grant participation but not to sustain long-term participation.

The time barrier to faculty participation came as no surprise given the nature of higher education and the literature (Ertmer, 2003; Finley & Hartman, 2004). Tenure and promotion clocks do not stop during periods of change. Rather than expecting faculty members to make difficult career choices, it is recommended that grants use funding to release faculty members from part of their teaching for one term, thus freeing time and energy to participate in the complex work of change. These constraints, and others unique to a specific context, must be addressed if teacher educators are to engage in the personal practices that will influence technology integration in teacher preparation at institutional levels.

Leslie D. Hall, assistant professor, Washington State University, teaches courses in educational technology, media literacy and visual literacy. Her current research focuses on professional development in the area of technology integration for teacher education faculty.

Clint Fisher, Ph.D., is an assistant professor at the University of Colorado at Colorado Springs. His current research interests include using multimedia to illuminate culturally responsive teaching. He also facilitates the integration of technology into coursework to enhance teaching and learning with teacher education faculty and support the use of electronic portfolios to create reflective teachers for K-12 classrooms.

Sandra I. Musanti is a post-doctoral fellow in the College of Education at the University of New Mexico. Her research interests focus on preservice and inservice teacher education with emphasis on teacher collaboration and the impact on knowledge, identity and practice.

Don Halquist is a visiting assistant professor at SUNY College at Brockport, where he teaches courses in early childhood education and literacy. His current research interests include technology integration, sibling literacy and teacher identity development.

References

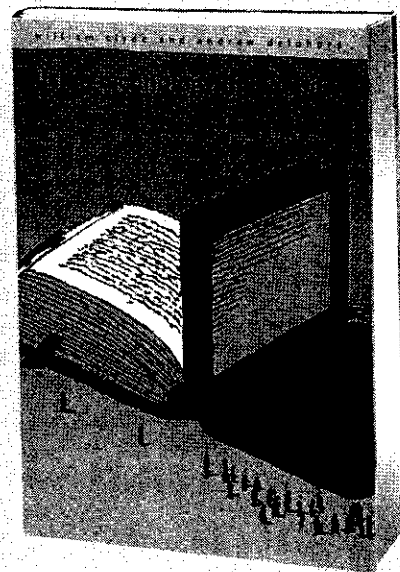
- Abdul-Haqq, I. (1995). *Infusing technology into preservice teacher education*. ERIC Digest. (ERIC Document Reproduction Service No. ED 389 699)
- Albion, P. R., & Ertmer, P. A. (2002). Beyond the foundations: The role of vision and belief in teachers' preparation for integration of technology. *TechTrends*, 46(5), 34-8.
- Cradler, J., Freeman, M., Cradler, R., & McNabb, M. (2002). Research implications for preparing teachers to use technology. *Learning and Leading with Technology*, 30(1), 50-54.
- Davidson-Shivers, G. V., Salazar, J., & Hamilton, K. M. (2005). Design of faculty development workshops:

- Attempting to practice what we preach. *College Student Journal*, 39(3), 528-539.
- Denton, J., Davis, T., Strader, A., Clark, F., & Jolly, D. (2003, February). *Technology professional development of teacher education faculty by net generation mentors*. Paper presented at the meeting of the Southwest Educational Research Association, San Antonio, TX. (ERIC Document Reproduction Service No. ED 477 711)
- Ertmer, P. A. (2003). Transforming teacher education: Visions and strategies. *Educational Technology Research and Development*, 51(1), 124-8.
- Finley, L., & Hartman, D. (2004). Institutional change and resistance: Teacher preparatory faculty and technology integration. *Journal of Technology and Teacher Education*, 12(3), 319-337.
- Graves, S. B., & Kelly, M. A. (2002, June). *Faculty technology professional development: A pedagogical and curricular reform model*. Paper presented at the meeting of the National Educational Computing Conference, San Antonio TX. (ERIC Document Reproduction Service No. ED 475 931)
- Howland, J., & Wedman, J. (2004). A process model for faculty development: Individualizing technology learning. *Journal of Technology and Teacher Education* 12(2), 239-263.
- Israel, M. S., & Kasper, B. B. (2004). Reframing leadership to create change. *The Educational Forum*, 69(1), 16-26.
- Johnson, G. (2003). What does it take to integrate technology into the culture of preservice teacher education program? In *Proceedings of Society for Information Technology and Teacher Education International Conference 2003* (pp. 976-979). Norfolk, VA: AACE.
- Leh, A. S. C. (2005). Lessons learned from service learning and reverse mentoring in faculty development: A case study in technology training. *Journal of Technology and Teacher Education*, 13(1), 25-41.
- Murphy, K. L., Richards, J., Lewis, C., & Carman, E. (2005). Strengthening educational technology in K-8 urban schools and in preservice teacher education: A practitioner-faculty collaborative process. *Journal of Technology and Teacher Education*, 13(1), 125-39.
- Popham, J. A., & Rocque, R. (2004). Faculty-as-students: Teacher education faculty meaningfully engaged in a preservice technology course. *Computers in the Schools*, 21(1/2), 115-26.
- Rosaen, C. L., Hobson, S., & Khan, G. (2003). Making connections: Collaborative approaches to preparing today's and tomorrow's teachers to use technology. *Journal of Technology and Teacher Education*, 11(2), 281-306.
- Strudler, N., Archambault, L., Bendixen, L., Anderson, D., & Weiss, R. (2003). Project THREAD: Technology helping restructure educational access and delivery. *Educational Technology Research and Development*, 51, 41-56.
- Wedman, J., & Diggs, L. (2001). Identifying barriers to technology-enhanced learning environments in teacher education. *Computers in Human Behavior*, 17(4), 421-430.
- Wedman, J., & Howland, J. (2003). Technology use and values of preservice teachers and faculty: PT3 results. In *Proceedings of Society for Information Technology and Teacher Education International Conference 2003* (pp.3603-3607). Norfolk, VA: AACE.
- WestEd (n.d.) *Teacher quality simulation*. Retrieved January 6, 2006, <http://www.wested.org/cs/li/view/pj/340>
- Wizer, D. R., & McPherson, S. J. (2005). The administrator's role: Strategies for fostering staff development. *Learning and Leading with Technology*, 39(5), 14-17.

New in paper

USING TECHNOLOGY IN TEACHING

William Clyde and Andrew Delohery



This welcome book and its accompanying CD-ROM offers down-to-earth advice for busy teachers on how best to use instructional technology. Written in an anecdotal, non-technical style, the book and CD-ROM cover how to use technology to promote collaborative learning, develop student research skills, and use assessment and feedback.

"I know of no other book that approaches this subject this way. The idea of having a reference work that is organized by routine instructional needs and cross-referenced with technological interventions is unique."

—Ed Klonoski, Connecticut Distance Learning Consortium

"This is a practical manual that can give traditional instructors in all disciplines 43 specific ways to perform course tasks more effectively with the technology that is currently available. The directions are clear and sequential."

—Frank Christ, professor emeritus at California State University, Long Beach, and visiting scholar at the University of Arizona

193 illus. \$25.00 paperback (includes CD-ROM)



YALE University Press
..... yalebooks.com