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# A Product-Based Faculty Professional Development Model for Infusing Technology Into Teacher Education

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Technology and its challenges are becoming more dynamic and global in nature, and one obvious problem militating against effectively training preservice teachers to use existing and emerging technologies is the inability of university faculty members to model advanced knowledge and skills in integrating technology into instruction and across the curriculum (Bielefeldt, 2000; Moursund & Bielefeldt, 1999; National Council for Accreditation of Teacher Education, 1997, 2003).

Moursund and Bielefeldt's (1999) survey sponsored by the Milken Exchange on Education Technology found, among other things, that (a) preservice and inservice teacher development programs have not kept pace with the rapid changes in quality and quantity of information technology, (b) most faculty do not model the use of information technology skills in their classes, (c) distance education and computer assisted instruction affected only a small proportion of students in teacher training institutions, (d) most student teachers do not routinely use technology during field experience and do not work under master teachers and supervisors who can advise them on information technology use, and (e) the number of hours of instructional technology integrated into other courses has a moderate correlation with reported level of skills of student teachers to effectively use different technologies.

The Moursund and Bielefeldt survey also found that (a) formal stand-alone information technology coursework did not correlate well with scores on items dealing with technology skills and the ability to integrate technology into teaching and (b) institutions that reported the highest levels of student technology skills and experience were not those with heavy computer course requirements, but those that made use of technology on a routine basis throughout the teacher training program.

Among several important issues identified by the Moursund and Bielefeldt's survey, one in particular stands out: if institutions of higher education are to increase the technology preparedness of new teachers entering 21st century learning environments, they must also increase the level of technology integration in their teacher education programs.

To accomplish this objective, the survey recommended that (a) technology should be integrated into other courses and School, College, and Department of Education activities, rather than limited to separate courses; (b) institutions should engage in technology planning that focuses not only on facilities, but also on the integration of technology into teaching and learning; (c) student teachers need more opportunities to apply instructional technology during field experiences under qualified supervision; (d) faculty should be encouraged to model and integrate technology; and (e) dissemination of effective technology integration based on PK-16 needs and grounded research is essential.

Other national studies made similar suggestions. The Task Force Report of the National Council for Accreditation of Teacher Education (NCATE) (1997) recommended focusing on faculty professional development and the reward and promotion system.

These concerns, though national in scope, reflect the myriad problems that face the Teacher Education Program at Winston Salem State University (WSSU), relative to technology integration and the ability of preservice teachers to demonstrate effective use of technology to improve instruction. For example, data from the Office of Student Services in the School of Education at WSSU show that although information technology was available in K-12 classrooms where preservice teachers did their field experience, they did not routinely use technology during such field experience (Office of Student Services, 2000). While some teacher education faculty members were much further along in the use of technology in their teaching, they restricted their use of technology to lower level skills and applications, neglecting its use as a pedagogically powerful tool for the construction and modeling of knowledge.

Very few viewed web-based instruction as an application of a repertoire of cognitively oriented instructional strategies within a constructivist and collaborative learning environment. Even fewer had moved beyond the static page to the interactive page that performs additional tasks such as querying a database, grading a test, providing feedback, and displaying real time conferences within the browser interface. Virtually none of them launched out to explore higher levels of technology uses and applications, such as visualization and modeling. These concerns reflect those noted in the Milken Exchange on Education Technology (1998) report and those Bielefeldt (2000) stated in his study—a follow-up to the Moursund and Bielefeldt survey.

Teacher education faculty must move beyond the "basement and first-floor" technologies with which they are most familiar and into the "upper levels" that incorporate advanced and multifaceted information technologies. Faculty themselves must become competent in the use and integration of existing and emerging technologies into instruction to significantly improve teaching and learning. It is only by being competent users, adapters, and integrators could they, in turn, become role models to preservice teachers (Bielefeldt, 2000; Milken Exchange on Education Technology, 1998; National Center for Education Statistics, 2000; NCATE, 2003).

This article discusses a successful product-based faculty professional development model used to (a) train teacher education faculty members to use and integrate advanced technologies into instruction and (b) infuse technology into all teacher education courses at WSSU. The model, its design and implementation, sample technology workshop topics, results, lessons learned, and recommendations for would-be adopters are presented.

## Product-Based Model

The model grew out of the Technology Infusion Project (TIP); a US Department of Education funded PT3 grant initiative for improving preservice teacher education. The goals of TIP, which has provided WSSU a sustainable response to the lack of or poor technology integration skills among its teacher education graduates are as follows:

1. Assist faculty members in aligning course content with appropriate professional standards, such as International Society for Technology in Education (ISTE), Interstate New Teacher Assessment and Support
2. Consortium (INTASC), North Carolina Department of Public Instruction (NCDPI), and other program-specific professional organizations.
3. Enhance collaboration between School of Education methods faculty and College of Art and Sciences secondary/content-area faculty.
4. Enhance the use and integration of advanc ed technologies as necessary teaching and learning tools in all teacher education courses
5. Facilitate the preparation of content- and technology-proficient preservice teachers at WSSU.

Major emphasis of the project was on providing technology -rich professional development for teacher education faculty members in using and integrating technologies into all teacher educations courses. TIP's "product-based approach" (Ireh & Bell, 2002) is similar to the job-embedded learning or field-based professional develo pment model (Loucks-Horsley, Hewson, Love & Stiles, 1997). This product-based model emphasizes ongoing, outcomes-based professional development that fosters continuous improvement (Flowers, Mertens & Mulhall, 2002).

The model was adopted based on participants' reactions and comments on the evaluation of prior workshops conducted for faculty by WSSU's Center for Innovative Teaching, Technology, Learning and Evaluation (CITTLE) and literature, emphasizing that faculty professional development should have specific outcomes tied to the appropriate context (Flowers et al., 2002; Guskey, 2000). Many teacher education faculty members did not like the pattern and the delivery method used by the instructional technology staff/experts from CITTLE. They showed more interest in workshops that focused on assisting them in producing something they could use immediately to improve their courses, their students' performances, or their research.

Consequently, rather than conduct a workshop focusing on a product, such as Mic rosoft FrontPage, we used a product-based approach focused on "helping faculty create instructional resources and make them available to students online." Workshop examples, illustrations and demonstrations were drawn from materials (syllabus, projects, assignments, handouts, rubrics, etc.) used by many of the participants in their teacher education courses.

Although the participants eventually used Web authoring software such as Microsoft FrontPage and Dreamweaver for developing their web sites, emphasis was not placed on learning it, but on developing good Web pages on which various kinds of instructional resources could be made available to students electronically 24 hours a day. Similarly, rather than conduct workshops primarily on PowerPoint, faculty m embers were taught how to turn their lessons and research findings into multimedia-rich presentations using various linear and non-linear presentation software.

Rather than teach Microsoft Outlook, they were shown, using real examples, how to collaborate and communicate with other faculty members within and outside the university community, cooperating teachers, and students using Microsoft Outlook in conjunction with other communication and collaboration hardware and software.

## Design of the Model

The product-based model was designed around predetermined needs of the teacher education program in general and its members of faculty in particular. Based on the needs identified, a series (4 -6 per semester) of technology workshops on multiple topics/skills (Table 1) and products that would result from the training were developed and implemented. In addition to providing general knowledge and skills, the workshops addressed the necessary skills faculty members needed to complete the agreed upon product. Usually, these series of workshops lasted between 4 hours (on week days) and 6 hours (on weekends) per day, with occasional breaks and meals served.

After completing each series of workshops, faculty members worked on their products individually. Several follow-up, one-on-one workshop sessions were also conducted for those who required further assistance or those who missed parts of the earlier workshop sessions. At this stage, several individuals formed peer/support groups for purposes of cooperation and collaboration. For the most part, these collaborations were between the content area faculty members from the College of Art and Sciences and methods/responsive pedagogy faculty members from the School of Education.

Guidelines were provided for the end products, along with deadlines for submitting them for review. Each completed product was reviewed, using a checklist/rubric, first by a peer chosen by the participant for content and standard requirements and then by the TIP coordinator and the TIP director for overall quality of technology integration. Each finished product was turned in with the checklist/rubric (visit http://tip.wssu.edu for sample checklists/rubrics). Participants were required to attend the workshops as well as complete the product(s) in order to receive compensation.

At the inception of TIP, an invitation was extended to members of faculty in the School of Education and the College of Arts and Sciences to register for several workshops to be conducted over multiple weekends to help them realign their courses with professional standards, improve teaching performance, and strengthen their skills in using and integrating technologies into their various courses.

Eighteen faculty members registered for the workshops during the first year. Workshop activities during the first year focused on basic and intermediate computer skills and redesigning and realigning courses (Table 1).

**Table 1.** Some Faculty Technology Professional Development Workshop Topics

| Year One | Year Two |
|---|---|
| 1. Basic Computer Skills | 15. Enhancing Web pages with Flash & Fireworks |
| 2. Project management | 16. Developing and using WebQuests |
| 3. Linear presentation-PowerPoint | 17. Enhancing and publishing multimedia presentations (Linear and Non-linear) |
| 4. Intermediate Computer Skills | 18. NETS/ISTE Standards for students, teachers and administrators |
| 5. Developing and using Web pages | 19. Creating digital portfolios |
| 6. Using the Macintosh Platform | 20. Authoring multimedia-rich content instructional resources using Lectora Publisher |
| 7. Data Storage and Backup | 21. Creating assisted courses |
| 8. On-line course development | 22. Data backup and storage, mapping and using LAN Drives |
| 9. Interactive Video Classrooms | 23. Scanning and creating digital images, using digital cameras and digital video cameras |
| 10. Synchronous and asynchronous instruction | 24. Using DVD+R/RW, CD-Rs and CD-RWs |
| 11. Scanning, and Photo Editing | 25. Streaming Media |
| 12. Desktop Publishing | 26. Enriching PowerPoint Presentations with interactive multimedia |
| 13. Spreadsheet and Graphing | 27. Enhancing Web-assisted Web-based courses |
| 14. Course Realignment and Technology Integration | 28. Using SAS inSchool (Web-based software) with preservice teachers. |
| | 29. Enhancing Web pages with Flash & Fireworks |
| | 30. Developing and using WebQuests |

The redesign and realignment involved rewriting course objectives, activities, outcomes, and evaluation to meet NCATE, INTASC, NCDPI, and PRAXIS II standards/principles and integrating technology competencies in them in line with ISTE's National Educational Technology Standards (ISTE NETS). It also entailed including at least three technology objectives/competencies/activities and multimedia-rich (developed using Lectora Publisher and/or PowerPoint) lessons/presentations in each realigned course. In addition, rubrics (visit http://tip.wssu.edu for samples) for all major course assignments such as portfolios, lesson plans, internship reports, and group projects were developed. Incentives for participating in the first year (2000/2001 academic year) activities (several technology workshops and the realignment of two courses) included financial compensation, release time and formal recognitions from department chairpersons and the Dean.

During the second year, emphasis was placed on using Year 1 activities and products as foundation for developing multimedia-rich instruction, as well as developing several asynchronous and synchronous courses. Workshop topics focused more on advanced computer skills (Table 1) and the integration of technology into courses. Small group instruction and more one-on-one tutorials were emphasized to support diverse ability groups and learning styles, and various authoring software were provided in our faculty computer laboratory for participants' use. Fourteen out of the18 faculty members from the first year registered to continue/participate and also agreed to develop (a) two web-assisted courses via Blackboard and FrontPage, (b) three multimedia presentations, (c) a student-friendly Web site and a digital portfolio, and (d) two WebQuest (Dodge, 2001) activities as the end-products. Incentives for the second year (2001/2002 academic year) included a well-equipped, color Pocket PC and financial reward.

Also, as part of the recommendations from the project's first year evaluation report, several members of faculty and cooperating teachers participated in a 3-day technology retreat at the North Carolina Center for the Advancement of Teaching (NCCAT) in Cullowhee, NC, in June 2002. The focus of the retreat was the ISTE NETS for students and teachers and their full integration into teacher education courses by both faculty members and cooperating teachers. It also strengthened the collaborative and cooperative endeavors already existing among the various constituencies (cooperating teachers, methods faculty members, technology experts, and Arts and Science faculty) of our teacher education program.

Hands-on activities during the retreat focused on understanding the ISTE NETS, integrating them into teacher education courses, developing course activities that address the standards, developing and using instruments to assess the activities, developing and using WebQuests (primarily for the cooperating teachers attending the retreat), and developing electronic/digital technology portfolios using Lectora Publishing (a multimedia authoring software developed by Trivantis in Corporation, Cincinnati, Ohio). The one-day training/workshop on using Lectora Publisher to create digital portfolios was conducted by a consultant/trainer from Trivantis Corporation, makers of the software. Participants created assessment instruments based on the ISTE NETS, digital portfolios (using Lectora Publisher), and WebQuest (in groups consisting two teacher education faculty members and three cooperating teachers) as the end products for the retreat. In addition to having all expenses paid, all members of faculty and cooperating teachers were also compensated financially and with personal copies of the multimedia software, Lectora Publisher.

## Results

An external evaluator has completed first- and second-year evaluation of the project and the product-based approach. Baseline data were collected via structured interviews from all but one participant. Appendix A is a draft of the structured interview outline for the first year, while Appendix B shows the second year outline.

The results (visit http://tip.wssu.edu for full details of both first- and second-year external evaluations results) indicate that teaching and learning have become more exciting; information is more current; communication among students and between students and faculty has been enhanced tremendously; access to course information and materials has improved; reinforcement of what is taught in class has improved because students have ready access to course notes; students who are absent from class have online access to course materials; quality of research papers, essays, etc., has improved because of access to the Internet and other online sources; students learn how to improve their own teaching skills so they become more effective classroom teachers; and evaluation of students' work and feedback about their work are more prompt (Ireh & Bell, 2002, Pearson, 2001, 2002). The workshop enhanced some participants' ability to more clearly articulate course requirements and relate them to performance objectives. In one of the external reports, Pearson (2002) stated:

> One respondent noted that prior to the workshop, I could not write instructional or performance objectives according to Bloom's Taxonomy. Another stated, I can now develop a rubric, which clearly spells out expectations for a culminating project, the different levels of performance, and the criteria for assessing the product at each level. I think about everything that I ask students to do. If it doesn't relate to standards, then I am leaving them out. I feel better about requiring them to do things with technology because I feel better about my ability to do it myself and show them how. (p.5)

An important unintended consequence that was reported in both first- and second-year evaluations was the networks developed among the participants. According to the TIP evaluation report,

> A major benefit from participating in the workshop was the opportunity to become part of new networks: I am now part of network of people who are interested in multimedia technologies. Had I not been part of the TIP workshops, I probably wouldn't be a part of that (network). Another major benefit was forming interdisciplinary collaborative groups. Before the workshop, we really didn't have much contact with the people in Education. Now, we (math/science faculty) are planning to form a program so that we can prepare science teachers. (Pearson, 2002, p.5)

There are ample signs of change in faculty efficacy regarding technology usage and integration. One of the participants stated in the project's evaluation report,

> What I had been doing was so rudimentary compared to what was required to be done... This also speaks to the high performance set by the project's director and coordinator. Another remarked that: I have seen people doing things that they were not doing before. (Pearson, 2002, p.11)

Another participant described how she is able to use advanced technology integration skills to inspire and challenge her students. She stated that instead of assigning a report to develop a PowerPoint presentation on an aspect of the Civil War (Summary Report type of communication), "I challenged my students to design a monument to commemorate the greatest single event in the Civil War or a 3-D model of the monument into a virtual reality display along with supporting their opinion with facts and cite their sources" (Analyze and Conclude type of communication).

TIP and the product-based model also helped produce a positive, unintended consequence. After completing only the first-year workshops (the first year's performance rubrics focused on the redesign of existing courses of study), faculty members used the technology skills and knowledge they had acquired to develop new web-assisted modules of instruction for lateral entry teachers in Middle Grades Education (MGE). The modules integrated the learning outcomes of the professional core and the MGE outcomes into cohesive units that required the students to produce digital portfolios of their work (visit http://tip.wssu.edu to access the products).

TIP has facilitated collaboration among various content area programs and the full integration of technology across the teacher education curriculum; it has strengthened the sense of efficacy (Hirsch, 2000) among participants in these professional developments. Many members of faculty have moved to the "upper levels" of technology integration by incorporating advanced and multifaceted information technologies. The following are examples:

1. All teacher education core courses and 28 others have been realigned with national and state standards, and technology has been integrated into them according to ISTE NETS for students and teachers.
2. Students no longer depend on taking one technology course to meet state and national technology competency requirements (faculty members incorporate ISTE NETS in their courses and they incorporate specific technology-related activities/products).
3. Student teachers develop digital portfolios with evidences/artifacts from all teacher education courses (including those offered in the College of Art and Sciences).
4. All faculty members know the ISTE NETS and have been trained t o either assist students develop digital portfolios or assess other students' digital portfolios.
5. All teacher education faculty members are able to develop (using software such as Lectora Publisher, Macromedia Flash MX, Adobe Acrobat, Dreamweaver, FrontPage, etc.) multimedia content and resources to assist students, create web-based and web-assisted courses, stream media for use in the classroom, develop online diagnostic and/or assessment instruments, use portable devices to collaborate with student teachers and peers, post grades online and make effective use of Blackboard's synchronous and asynchronous features, collaborate more effectively with cooperating teachers, conduct research in collaboration with peers outside the university, write and submit grants electronically (including attaching documents in PDF format).
6. Unlike prior to TIP, the use of laptops, CD-R/RWs, digital cameras and videos, LCD projectors, pocket PCs/PDA, Smart Board and access to networked/shared drives and resources have become standard among WSSU's teacher education faculty members.

The external evaluation report (Pearson, 2002) for the second year summarized the program participants' key issues:

1. The primary reasons for taking the workshops and completing the products are skill development and knowledge acquisition.
2. The project staff established high but achievable expectations (demanding workload).
3. The development of new networks, both interdisciplinary and with the teaching and learning center, are a worthwhile outcome of the workshops.
4. The structure and organization of the workshops contributed much to its overall success the performance of my students enhanced as result of the workshops.
5. Student performance was enhanced as a result of the workshops
6. The quality and accessibility of technical assistance (support) are significant factors in participants' skills and knowledge acquisition.

Perhaps the most significant outcome of TIP is that students have benefited from realigned courses and improved technology use and integration skills among our teacher education faculty. To see if this benefit is reflected in the performance of student teachers placed in actual K-12 classroom situations, the authors analyzed both feedback from exit interviews and the performance evaluations (from supervising faculty members, cooperating teachers, building principals, and K-12 students) of fall and spring 2002/2003 student teachers. There is an 89.5% increase in the rated ability of WSSU student teachers to use and integrate technology in the classroom in ways that positively and significantly impacted learning among their K-12 students during student teaching.

## Lessons Learned and Recommendations

Because of their varied levels of interest and competence, tremendous preparation and time are required in order to assist teacher education faculty in developing advanced technology use and integration skills. Maximum effort is required in designing staff development for diverse ability groups and diverse learning styles. Some tasks become quite complex for many and require one-on-one assistance. At times they are boring for those with advanced skills, and at other times, too fast for those who are novices.

It is beneficial to pre-assess participants before workshops so that they can be assigned to comparable peer groups. One participant commented, "Sometimes when groups got together and helped each other, we were able to really learn a lot." Another pointed out, "I was overwhelmed by the number of assignments...because I work at a much slower pace than most of my peers." Yet, another participant said, "I need structure because I am not very disciplined."

Technology workshops are a great avenue for networking with colleagues within and across disciplines, especially between School of Education and Colleges of Art and Sciences faculty. It has also facilitated collaboration among various content area programs and the full integration of technology across the teacher education curriculum. TIP participants believe that collaborating and working together are valuable learning tools. One participant asserted, "When opportunities are created, we really can work more effectively with one another." Another added, "If we work together, students will get the same message re-enforced." The developments of new networks are worthwhile outcomes.

While financial rewards motivated teacher education faculty members to participate actively in technology-related professional development programs, their interest in gaining useful skills was most important. The stipend was not a very important factor in their decision-making process to participate in TIP and the product-based approach to faculty professional development. Indeed, most of them indicated willingness to complete all the requirements without a stipend.

A high level of intrinsic motivation is required, as well as a desire to be proactive in strengthening one's courses and teaching. Therefore, any extrinsic rewards must be relevant to the work performed, and concerted efforts should be made to reinforce and nurture participants' intrinsic motivations. The majority of participants expressed preference to a personal digital assistant (PDA). For some individuals, the PDA represented more of an incentive than money, particularly because the PDA package included a miniworkshop on how to use it, and they believed that the PDA would be yet another tool that would enhance their productivity.

All of the TIP participants regarded knowledge acquisition as very important. One participant remarked, "I am intrinsically motivated...Don't get me wrong, I need the money but I want the knowledge more than anything." Furthermore, the participants believed their "new skills" were absolutely mandatory to compete in a more technologically sophisticated world. In the words of one participant, "I am going to be a constant learner when it comes to technology." Another added, "I want to know my technology as well as I know my subject."

Some concerns that emerged from the project evaluations were designing staff development for diverse ability groups and diverse learning styles, meeting the needs of the disabled in the design of multimedia material, and providing adequate equipment for faculty so that they could continue to practice and use their new skills in both their offices/classrooms and outside the campus (Pearson, 2002). Of the two who have not completed both the workshops and the products, both cited "time constraints" as the principal reason for failing to satisfy the requirements of the project. Imbedded in these time constraints are heavy teaching loads (e.g., 15 hours per semester), multiple campus responsibilities, supervisory obligations, or misjudgments of the time demands of the project. Both individuals in this category, however, intended to complete the requirements and were working toward this end.

Based on the experience gained from designing, implementing, assessing, and sustaining TIP and the product-based model, the following recommendations are proffered to interested readers, especially those who intend to adapt this faculty professional development model for infusing technology into teacher education. Workshop designers and implementers should review all the materials to determine the merits of grouping participants by level of proficiency. Likewise, the timing (during the academic year or during the summer) and duration of the workshop should be based on preassessment feedback.

To ensure the efficient coverage of certain topics in the appropriate timeframe, the mix of individual and group assignments should be carefully examined. We strongly recommend that more attention be paid to different learning styles. For example, some TIP participants reported that they were more comfortable working alone rather than in a group, while others preferred study guides with examples or models. Still, others preferred a much slower pace, with more individual attention. One participant cited difficulty multitasking (e.g., listening to the instructor, taking notes, and following the demonstrations, all at the same time).

Would-be adopters of this model should vary the structure of the workshop so that some demonstrations are presented to mixed ability groups and other topics to groups based on skill level. Also, more supervised practice time should be incorporated. Make certain that there is sufficient, properly working equipment (hardware and software) available for practice and that hours for accessing the equipment are appropriate within the context of participants' schedules. More specifically,

- Clearly describe the expected outcome or product to the faculty and include a performance rubric/checklist.
- Provide some tangible incentives.
- Provide the necessary tools, training and incentives to encourage the use and integration of technology into all teacher eduction courses.
- Get administrative endorsement of the model as the desirable approach for helping members of faculty develop technology integration skills.
- Seek, from chairpersons and deans, the recognition of course development as an important criterion for annual performance evaluation.
- Involve other disciplines, especially those housed in College/School of Art and Sciences.
- Seek cooperation or partnerships with K-12 technology proficient teachers.
- Develop assessment tools that tie outcomes to NCATE assessment processes.
- Provide student teachers with more opportunities to apply technology during field experience.

- Put in place strategies for sustaining the results and the interests/ motivations faculty members will develop.

## Conclusion

In order to train preservice teachers capable of integrating and using advanced technologies to improve instruction for all students, faculty development is the crucial enabler. Through increased emphasis on faculty professional development backed with incentives outside the traditional academic reward system, TIP has encouraged all teacher education members of faculty at WSSU to acquire advanced technology utilization and integration skills. They have embraced the idea that all technology instruction must be about teaching *with* technology and not *about* technology.

Through TIP and the product-based approach, the School of Education has integrated technology into almost all of its teacher education courses. The enthusiasm and creativity generated among members of faculty in using and integrating advanced technology into their courses has filtered down to preservice teachers/students. For example, before recommending any of them for state initial licensure, students develop "digital portfolios" to be assessed by faculty members and a practicing/cooperating teacher. The digital portfolio doubles as a recruitment forum for our public school partners and an evaluation of the effectiveness of the teacher education program's efforts.

Today, the Technology Infusion Project and other faculty development initiatives provide ample opportunities for faculty members to identify, develop, test, and integrate higher-level technology applications into the teacher education curriculum. In line with the university's motto, "Enter to learn ... Depart to serve," TIP is enabling WSSU to train teachers who know their content well, understand their students, and have mastery of a repertoire of effective pedagogical skills, including the use of advanced technologies to support higher level thinking and learning. In addition to guiding and facilitating, significantly, the development of advanced technology skills among teacher education faculty, the product-based model has become the guiding principle for planning and delivering technology-related faculty development workshops throughout WSSU.

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