PLANNING AND EVALUATION SERVICE

CASE STUDIES—FIRST SET OF VISITS:

Preparing Tomorrow's Teachers to Use Technology

Final Report

Prepared for:

U. S. Department of Education
Planning and Evaluation Service
Washington, D.C.

Prepared by:

Mathematica Policy Research, Inc.
Washington, DC

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I. INTRODUCTION

In an effort to help schools, colleges, and departments of education (SCDEs) meet the increasing demand for technology-proficient teachers, the U.S. Department of Education (ED) established the Preparing Tomorrow's Teachers to Use Technology (PT3) grant program. The PT3 program assists consortia of public and private entities in developing and implementing teacher training programs that prepare prospective teachers to use technology to improve instructional practices and student learning opportunities in the classroom.

As part of ED's formative evaluation of the PT3 program, site visits were conducted by Mathematica Policy Research, Inc., for ED to 10 selected PT3 grantees. The site visits had two main purposes. The first was to obtain a better understanding of individual PT3 projects. Though the grant review and analysis procedure provided a broad-brush picture of the project partners, goals, and activities of all 225 grants, the site visits allowed an in-depth look at a small number of projects. The second purpose was to obtain comments from grantees on outcomes proposed for the PT3 program. Their suggestions were critical to the development of the performance measurement system.

Grantees were selected for the site visits through a two-stage process. First, we reviewed applications for projects that presented tightly developed plans in which goals were specific to the proposed project, and for objectives and activities that were aligned with those goals. Second, we presented a list of approximately 20 such grantees to ED for comment. Based on discussions with ED on each proposed grant, we selected 10 sites: five Implementation grantees

and five Catalyst grantees[1]. We conducted visits to all 10 sites between mid-February and mid-March 2000.

Two researchers conducted the one-day visits to each site. The visits consisted predominantly of in-depth interviews with various consortium members to obtain different perspectives on the PT3 project. Other aspects of the site visits included observation of technology training of K–12 and preservice faculty; viewing demonstrations of Web sites, technology products, online assessments, and automated project presentations; tours of technology-enhanced classrooms and computer laboratories; attendance at partners' regularly scheduled project meetings; and interviews with participating higher education faculty, preservice students, and K–12 teachers.

The visits were held at the lead organization's institution (except for one consortium that used meeting space provided by a for-profit firm). The format of the visit varied by grantee depending on the number and location of consortium partners. For some site visits, several partners were located near the lead organization and participated in the interviews in person. Other site visits consisted of a combination of in-person and video-teleconference interviews with partners. Some partners participated in individual interviews, others in group interviews, and still others in "rolling groups," with partners entering and leaving an in-progress discussion throughout the day.

The interviews covered a wide range of project-related topics: goals, objectives, activities, progress, successes, challenges, partner roles and relationships, state mandates, impacts, sustainability, funding, evaluation plans, and the effect of the larger environment on the project. At the end of each site visit, consortium members (always including the evaluator and usually the

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[1] Implementation grants support consortia in a comprehensive effort to infuse technology into the teaching and learning experiences of prospective teachers. Catalyst grants support regional or national consortia to stimulate and support significant reforms and large-scale improvements in the preparation of technology proficient teachers.

project director) reviewed in detail a list of proposed PT3 program outcomes that would be used to create the program performance report. Consortium members then specified the outcomes their project would address and those for which they would be able to provide assessment data to ED.

II. SUMMARIES BY TOPIC

This section highlights broad themes that surfaced during interviews with consortium partners across the 10 sites visited. The eight topics examined in this section include the following:

- ***Consortium Models.*** Presents three general models that consortia adopted to support collaboration among partners in conducting project activities and meeting stated goals and objectives.
- ***Expansion of Partnerships.*** Highlights the phenomenon of either adding new partners to the consortium or expanding the role of original partners since the submission of the grant application.
- ***Early Progress.*** Examines factors that may have promoted the early progress of grantees or offered challenges to grantees when initiating project activities.
- ***Promotion of Additional Activities.*** Explores the ways in which PT3 funding has been a catalyst for other activities and relationships.
- ***Grant Activities.*** Provides specific examples of activities being undertaken by PT3 grantees.
- ***Funding and Sustainability.*** Details grantees' perceptions of federal funding levels and their ability to sustain program activities after the termination of federal funding.
- ***Evaluation.*** Discusses consortia's evaluation plans and activities as well as the challenges evaluators expect to encounter.
- ***Performance Measurement Outcomes.*** Outlines grantees' comments on the proposed performance report outcomes.

The conclusion summarizes the overall focus of project activities, the progress of grantees' activities and evaluations, and our plans for the second set of site visits to PT3 grantees.

A. CONSORTIUM MODELS

The site visits revealed three different models of collaboration. In the first model, a majority of the consortium partners worked together on a major project activity. In the second model, partners worked separately on different aspects of a major project activity. In the third model, partners worked either individually or in small groups on different activities related to project goals. Because grants encompassed multiple activities, a single grant sometimes embodied different models of collaboration.

1. Model 1: Collaboration on a Major Activity

Six of the 10 projects fit the first consortium model in which partners collaborate on a major grant activity; that is, most or all partners work together both to plan and carry out a particular grant activity. In five of these cases, the major activity is the provision of technology-related professional development for preservice faculty and students. The sixth case focuses on developing outcomes that will assess the technology proficiency of preservice and K–12 teachers.

At one institution, trainers provided by the state department of education instructed preservice students, K–12 teachers, and college faculty on integrating technology into the curriculum. Select faculty from partner institutions of higher education (IHE) and local educational agencies (LEA) attend the training to learn about a variety of hardware and software and how to integrate technology into their instruction. After completing the training, college faculty use their newly acquired skills to apply the training model to preservice students at their own institutions, while K–12 teachers model integration-of-technology techniques to enrich preservice field experiences.

2. Model 2: Individual Work on Different Aspects of a Major Activity

In the second model, each partner in the consortium works individually on a part of a single major activity to achieve the overall project goal. For the one consortium that fits this model, the goal is to ensure that preservice students are technology proficient. One partner is developing standards for certification in technology to provide teacher preparation programs with goals for training preservice students. The state department of education is providing funds and technological expertise necessary to conduct preservice training activities. The partner IHEs are conducting preservice training to improve the technology proficiency of preservice students, and the regional education board is responsible for dissemination of the preservice training model.

3. Model 3: Individual Work on Independent Activities

In this model, partners work independently or with one or two other partners on independent activities. In five consortia, partners are working individually or in small groups on specific activities. Of the five consortia, three had partners conducting different activities, and two had partners undertaking similar activities.

When partners work individually or in small groups on separate activities, activities are often divided in accordance with each consortium partner's needs or expertise. The consortia that fit this model often worked on several major projects divided among smaller collaborations of partners. For other grantees, the consortium as a whole focused on one major activity, and individual preservice teacher preparation programs completed activities particular to their individual program.

Consortium partners that work in small groups on similar or parallel project activities are typically characterized by collaborations among more geographically dispersed consortium members. Often, a teacher preparation program partners with a local LEA in the consortium and

undertakes activities such as faculty training and mentoring that are similar to the activities funded at other IHE-LEA collaborations in the same consortium.

B. EXPANSION OF PARTNERSHIPS

One phenomenon observed during the site visits was the frequency with which changes in partnerships occurred since the consortia submitted their grant applications. Five of the sites had either added partners not included in their application or had expanded the project roles of the original partners. These changes reflect both an openness to modifying plans as unanticipated avenues of support arose and a willingness to remain flexible on the road toward achieving consortium goals.

1. New Consortium Partners

Four of the 10 consortia added new partners, often to bring greater expertise to the consortium. In one instance, a consortium added a partner because of the partner's work with virtual high schools and its expertise in modeling and visualization in preservice teacher education. In another case, the new partner is not receiving funds but plays a substantial role in the consortium by developing a Web site that will display assessment outcomes and preservice electronic portfolios. Typically, the new partner's decision to join the consortium is motivated by the desire to exchange information and build relationships. Grantees also noted that the PT3 grant itself was a factor in the new partners' interest in joining a consortium, even though the new members usually did not receive any grant funds.

2. New Roles for Original Partners

One consortium shifted the focus of its Catalyst grant and altered the roles of each consortium partner. The project originally had a regional focus; however, when all but one of

the preservice preparation programs in the consortium received an Implementation grant, the consortium broadened the project scope to a national focus. Rather than concentrating on changes in the preservice preparation programs in each state, the partners are developing resources and strategies to be used by teacher preparation programs nationwide.

C. EARLY PROGRESS

Clear variations were evident across consortia in the extent to which they had completed activities at the time of the site visits (five to six months into the first year). Although we did not undertake a process evaluation of the individual consortia during the site visit, we noted certain similarities among consortia achieving early progress. The similarities are discussed below, followed by a review of some factors consortia had to overcome in implementing planned activities.

1. Factors Promoting Progress

At sites where grantees had achieved early progress toward their project goals and objectives we observed two factors: the ability of consortia to build on products or activities established before the grant period and the existence of a consortium composed of partners who knew each other and had previously established working relationships. Several grantees benefited from one, if not both, of these factors.

Regarding the first factor, the ability of consortia to build on products or activities established before the grant period, one grantee had in place two building blocks that gave it a "running start" with its PT3 grant. First, with an educational technology-training center on campus, the consortium had the necessary technology infrastructure and equipment available at the beginning of the grant period. Second, the grantee had in place an established technology-training model. Prior to the grant, the partners had been using this training model to promote

technology proficiency among K–12 teachers. For the PT3 grant, the consortium applied the model to the preservice experience and was able to move quickly beyond the start-up process and to first round of training.

Regarding the second factor, the existence of a consortium composed of partners who knew each other and had previously established working relationships, the researchers found one consortium in which all seven IHEs were already members of a statewide educational technology organization and had collaborated to address the technology training needs of preservice and K–12 teachers. In the year before the grant, the organization had established working relationships with the other non-IHE consortium members to enhance the instructional use of educational technologies. The project director said these relationships were "a huge advantage," enabling members to focus on project activities rather than on building relationships.

2. Challenges

Both slow- and quick-starting consortia encountered logistical challenges that had an impact on their early progress. In particular, communication and coordination difficulties and geographic distance among partners were factors to overcome as the consortia began their activities.

Geographic distance among partners was cited by a few consortia. In one consortium, partners are separated by more than a one-hour drive. They have wanted to bring the faculty together for more frequent collaboration and training, but the distance has made joint activities difficult.

Communication has surfaced as a factor at a few sites as partners developed new relationships with other consortium members. For example, though partners in one consortium knew each other professionally before the grant, they had not worked together before. Their consortium activities now require the partners to learn how to work with each other and to avoid

becoming involved in each other's "political agendas." Another project director expressed a concern about how a feeling of "territoriality" among IHEs could affect project activities.

D. PROMOTION OF ADDITIONAL ACTIVITIES

At the mid-point of the first year of the PT3 grant, some grantees indicated that their project had already served as a catalyst for other activities. These activities can be grouped into two main categories: relationship building and increased dissemination of information and materials.

1. Relationship Building

A majority of grantees stated that the PT3 grant had served as a catalyst for building relationships both within and outside the consortium. One grantee noted that the PT3 grant had motivated them to submit a new Implementation grant application. Furthermore, the grant has led to collaboration with another IHE, which, prior to the grant, had not been fully included in the education community.

The project director for a second consortium said that, with the backing of federal funds, the consortium has been legitimized in the eyes of the state legislature and has a "bigger voice" when dealing with legislative issues. Another grantee noted that the PT3 grant had helped promote relationships at the national level, increasing collaboration with International Society for Technology in Education (ISTE) and other national organizations.

2. Increased Dissemination

Some grantees stated that the PT3 grant has stimulated dissemination of project information and materials to those outside the consortia. For example, two consortia noted that the training model used in their grants has had a regional effect on teacher preparation programs. Schools from other states have expressed interest in adopting or have already adopted the training model

for their teacher preparation programs and contacted the consortia about conducting training sessions for their preservice students.

E. GRANT ACTIVITIES

A majority of grantees we visited are involved in at least one of the following three activities: providing professional development opportunities for college and K–12 faculty; creating Web sites to promote communication and collaboration; and redesigning the curricula to integrate technology into instruction.

1. Professional Development

Some grantees are using grant funds for professional development for faculty members and K–12 teachers. In one model, consortium members participate in a five-day training session with two days of follow-up training. The goal of the training is to make participants (including education faculty, arts and science faculty, K–12 faculty, and preservice teachers) more comfortable with hardware and software and more familiar with adaptive and assistive technologies for students with special needs. By the end of the training, participants have created, implemented, and assessed several model technology-connected lesson plans that will be used in both K–12 and preservice courses.

Another consortium is training faculty to use two-way video and interactive distance learning classrooms in order to help train rural and urban communities across the state.

2. Web Sites

Several grantees are improving preservice teacher technology proficiency by creating a Web site to promote communication, share resources, and disseminate information. One consortium's

Web site will display the initiatives and goals of the consortium and increase communication among members. Eventually, the site will allow educators to share the process of producing electronic portfolios and display benchmark samples.

Another consortium is developing a Web-based professional assessment tool that allows preservice students and faculty to evaluate their skills across three levels of technology competency. Once their skills are assessed, individuals may select a particular competency area in which they have a low skill level, and the tool will match them with other individuals on the system that have mastered those competencies.

This system will also be used to house surveys for data collection. Individuals may create their own surveys to gather data on activities critical to supporting preservice teacher technology training. The system assists in the creation of the survey and then electronically houses the survey so preservice teachers and faculty may complete it online. This allows individual users across the country to develop surveys based on their own needs.

Another consortium is building a network that promotes collaboration among educators. They are engaging in four steps that will lead to the creation of this network, including: aligning and connecting existing networks; building an online culture by creating tools and developing guidelines so individuals can create different modules and networks; identifying the technological capabilities needed to support the new electronic-communities (e-communities), and identifying partners to join the e-community. This consortium also plans to develop and pilot the network framework and modules in various subject areas, and then refine and revise the frameworks and modules based on comments from users.

At one site, the consortium provides members (particularly preservice teachers) with the resources required to begin creating effective strategies for using the Internet as a classroom instructional tool and promotes interaction among preservice teachers, K–12 teachers, and college faculty. The site contains a search database specifically designed for the participating

educational sites, an online encyclopedia, additional language tools, and subject-related links for participants to use as a reference. Participating schools and classrooms can post information on the Web site about themselves and their projects. K–12 teachers can also post lesson plans and activities and share information and materials concerning the use of technology in the classroom or online classes. In addition, preservice teachers can create their electronic portfolios from this system. The site is customized to provide each participant with e-mail capabilities and participation in chat areas and listservs (automated Internet mailing lists) to share project- or subject-related information.

3. Curriculum Redesign

Many consortia are also focusing their grant efforts on redesigning the curricula for both preservice and K–12 students. For example, one grantee has created teams made up of students (including preservice and high school students) and preservice faculty. The students receive information on technology standards and the general technology design process, and the team works together to redesign the preservice curriculum by developing various technology-enriched activities and examining online resources. To encourage discussion and curriculum redesign, the grantees established a site which has an area for chat rooms and bulletin boards that allow for discussion among the various teams and the project director and coordinator.

Another consortium has created groups of faculty members and other interested educators for various subject areas (including English, math, science, and the social sciences) to provide an arena to share ideas about integrating technology and to identify subject-specific technology resources. Within these groups, faculty members share syllabi, participate in training sessions, discuss new technologies, and identify what materials they should be buying for their classrooms. Based on the recommendations from these groups, a depository will eventually be created that contains the appropriate types of software for various subject areas.

Some grantees promoted curriculum redesign while simultaneously conducting professional development and Web site activities. For example, one grantee conducted a training session that instructed college and K–12 faculty on redesigning their curriculum to integrate technology by combining the use of the project Web site with the development of lesson plans based on a specific learning model.

F. FUNDING AND SUSTAINABILITY

1. Funding

Though a majority of the grantees felt they had adequate funding to complete their project activities, two stated they did not have adequate funding for their planned activities because the amount they were awarded was less than the amount they had requested. Three other grantees said they had enough funding for their planned activities but could use additional funds for unplanned activities, including technology funds for development of a video Web site, training funds for partner IHEs, and travel funds to meet more regularly with distant partners.

Three institutions noted that they felt "the matching component [required by ED] was too high," and one of those indicated that, to get the 100 percent match, it had to grant a significant amount of faculty leave time. A project director from a fourth institution said he thought the consortium should be able to include as matching funds a partner's meeting room that held the faculty training. Finally, one grantee noted that the "the equipment issue was a big one" because applicants were limited by ED in the amount of funding they could request for equipment purchases.

2. Sustainability

Almost all grantees felt their activities would be sustainable after the termination of federal funds. Most stated that the funds supporting activities such as teacher training and curriculum

redesign would lead to changes that would be institutionalized before the end of the three-year grant period. Others noted that they would be able to find alternative funding sources, either from a partner institution or another organization, for staff salaries or for activities that would require maintenance (such as a Web site).

G. EVALUATION

Each site visit included an in-depth interview with the project evaluator. The interview was usually conducted in the presence of other consortium members who contributed to the discussion. The following section summarizes the evaluations underway by the 10 grantees.

1. Type of Evaluator

The majority of the sites (6 out of 10) are relying on an external evaluator only while three grantees have engaged an internal evaluator only. One grantee is using both an internal and external evaluator.

2. Evaluation Activities

At each consortium, the evaluators have proposed to conduct a variety of evaluation activities including:

- **Assessments** such as pre- and post-surveys of preservice students, college faculty, and K–12 teachers;
- **Interviews** with grant participants;
- **Application of rubrics** to evaluate revised curricula and electronic portfolios;
- **Observation** of preservice students in their field experiences and of college faculty modeling the integration of technology into instruction; and
- **Focus groups** to discuss project activities.

The three most frequently planned evaluation activities are pre- and post-surveys (seven grantees) and application of rubrics, and interviews (six grantees each). Less typically, some grantees will examine K–12 student achievement scores and Internet use (two grantees each).

3. Progress to Date

All of the evaluators had developed detailed plans to assess different aspects of the projects and to collect data from a variety of participants. Two of the visited sites had already completed assessment activities. The first surveyed preservice faculty and students on their technology skills and attitudes after a technology workshop. The second conducted two surveys with K–12 teachers and college faculty on their workshop activity. Three additional grantees have baseline data from other sources, including internal data collected earlier and data collected by separate organizations after other training activities. Because most grantees are at the beginning stages of their project activities, they do not yet have impacts to measure.

4. Key Assessments

Evaluators varied on the type of assessment they said would be most useful for their given evaluation. Most stated that the results from the application of rubrics and other types of document assessments would be most useful, because they would provide in-depth information about participants' technology skills and level of technology integration. Others were more likely to view online data collection, case studies, and surveys as their most promising data sources because such sources will provide a wide range of data.

5. Possible Challenges

The evaluators identified a variety of challenges they might encounter when conducting their evaluations. These difficulties can be grouped into two main areas: instrument development and faculty concerns with data collection. Some evaluators were concerned about the

development of an instrument that would capture all of the program effects, provide usable data to each consortium member, stay abreast of technological advances, and adjust for differences in each year's sample composition. Other evaluators cited faculty concerns as a possible barrier to collecting data. To overcome faculty concerns, evaluators discussed the need to ease faculty suspicions of an outside evaluator, motivate faculty to complete evaluation materials (surveys), and deal with faculty fears about their lack of technological expertise.

6. Expected Findings

Some evaluators elaborated on the type of information they expect to gather from the assessments. Overall, they anticipate that their results will provide information to determine the level of technology proficiency growth among faculty and preservice students, the institutional changes brought about by the grant, and project responsiveness to participants' needs.

H. PERFORMANCE MEASUREMENT OUTCOMES

At each site visit, one or more partners and the evaluator reviewed ED's program goals and indicators for the PT3 program, along with proposed performance outcomes. They discussed the applicability of those performance measurement outcomes to their own project. In general, the consortia said that the outcomes were applicable to their activities and intended results. One partner said, "It [the list of outcomes] sounds like we wrote it."

Nevertheless, the consortia did raise two general concerns with the proposed measures. First, some found the outcomes less responsive to Catalyst grant activities. Catalyst grantees were more likely to be either "providing leadership and oversight" to support the efforts of others to achieve such outcomes or "developing a process" through which others could achieve such outcomes rather than working to achieve those outcomes themselves.

Second, a couple of the grantees objected that the measurement outcomes failed to address the quality of the changes being implemented. One said, "Nothing on the list is measuring quality." The other, advocating for a "philosophy of education" undergirding the outcomes, recommended a more open-ended assessment in which grantees could provide narratives describing their activities and results.

Based on these comments, adjustments were made to the performance report to include more questions that would be applicable to Catalyst grantees. Optional, open-ended items were added to enable grantees to describe qualitative aspects of implemented activities.

III. CONCLUSION

A. FOCUS OF PROJECT ACTIVITIES

Though all grantees share the overall goal of improving preservice teachers' technology training, grantees have focused their activities on enhancing the ability of different participants in the preservice teacher training process. For example, several grantees are trying to improve the ability of college faculty to model the integration of technology into the preservice curriculum through activities such as mentoring and workshops. Those grantees may involve K–12 teachers in their reform efforts, with the K–12 teachers themselves fostering the college faculty's professional development or providing a technology-rich field experience for preservice teachers. Other grantees are focusing their reform efforts more directly on K–12 teachers. For example, they may be using college faculty and preservice students to assist K–12 teachers in improving the integration of technology. The efforts of still other grantees will benefit a broad population of faculty, preservice teachers, and K–12 teachers. One consortium, for instance, is developing an electronic clearinghouse to help disseminate technology-teaching tools nationwide.

As expected, most consortia are assessing the impact of their reforms on the participants (faculty, preservice students, K–12 teachers) on which project activities have focused. A few consortia, however, are looking for more widespread results. In addition to assessing effects of reform on faculty, preservice students, and K–12 teachers, they are examining for results from their efforts at the K–12 student level. For example, in one site visited, an evaluator will compare test scores of K–12 students taught by teachers who participated in the project's technology training with test scores of K–12 students taught by teachers who did not undergo the training.

B. SUMMARY OF PROGRESS

In the early stages of the grant period, project activities were progressing as grantees had planned. Almost all grantees had already conducted organizational meetings, professional development workshops, mentoring activities, and other activities.

Grantees were also making progress in conducting their individual grant evaluations. Although only a couple of the consortia had conducted baseline assessments, the evaluators had been active in gathering information from partners to use in further developing evaluation plans and tools; they had also amassed baseline data from other sources. The evaluation plans described ambitious efforts to assess different aspects of the projects and to collect data from different participants. Using the list of ED's indicators for the PT3 program (along with proposed performance outcomes) that was sent to sites shortly before each visit, all or almost all evaluators had matched their own goals, objectives, and activities with ED's indicators. Most indicated that their project aligned well with ED's indicators.

C. FUTURE SITE VISITS

The flexible structure of the first set of site visits allowed for a variety of activities and interview formats and lent itself to successful achievement of the goals of the visits, namely, to obtain a better understanding of individual PT3 projects and to obtain comments from grantees on proposed PT3 program outcomes. With the collection of a great deal of information on a wide range of topics, themes from the 10 sites surfaced. Further, given that the site visits permitted interactions with multiple partners as well as opportunities for observation, the visits yielded different perspectives and different types of data.

The second set of site visits, which will be scheduled mainly for September and October 2000, will retain the general format of the first set of site visits. By covering the same topics as the first site visit, the second set of visits will likely capture new information as grantees will

have progressed much further in their project activities. Questions will focus on changes associated with the goals, objectives, activities, and so forth, that occurred since the first set of site visits.

In addition to the above topics, the second set of site visits will introduce new subjects such as plans for the second year of the grant project. Other modifications to the site visit call for the involvement of additional consortium members as participants in the visits. Although a few interviews were conducted with college faculty and preservice teachers in the first round of site visits, increased effort will be made in the second round to involve more education faculty, college of arts and science faculty, preservice teachers, and K–12 teachers and administrators.