

# **Three Preservice Programs Preparing Tomorrow's Teachers to Use Technology: A Study in Partnerships**

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## Background for the Study

In 1995, the Office of Technology Assessment reported to Congress that “Technology is not central to the teacher preparation experience in most colleges of education. . . .most new teachers graduate from teacher preparation institutions with limited knowledge of the ways technology can be used in their professional practice” (Office of Technology Assessment, 1995, p. 165). The report in which this statement appeared, *Teachers and Technology: Making the Connection*, was a wake-up call, and over the past eight years, much progress has been made. Teacher education institutions—with the help of federal, state, foundation, and private-sector funding—have invested hundreds of millions of dollars in computer hardware, software, Internet connections, faculty training, and technical support. The federal government’s Preparing Tomorrow’s Teachers to Use Technology (PT3) Program has, during the past five years, made more than 500 grants to teacher education programs, totaling close to \$400 million, with matching grants doubling that figure. Standards for new teachers require training in technology, and the National Council for Accreditation of Teacher Education requires substantial technology focus throughout all programs it accredits.

This turnaround came about in a time of the ’90s boom economy, when state budgets were strong and federal programs were generous. Today’s economic environment presents a different picture. Higher education is feeling the impact of cutbacks in state budgets, shrinking endowments, and limited funding sources; every program is under scrutiny for ways to trim dollars. In this environment of reduced funding, policymakers are taking a hard look at the impact of every program and expenditure, and big-budget items like technology are particularly vulnerable for scrutiny. What has been the impact? Who is doing a good job and who isn’t? How do we know? Are critical educational needs being met by the programs that prepare new teachers, and is technology part of this effective preparation?

With these concerns as background, in the winter/spring of 2002, the North Central Regional Educational Laboratory (NCREL) began a series of studies to answer a critical question: How well are teachers prepared to use technology effectively in urban and rural classrooms? For purposes of these studies, NCREL defined *rural institutions* as those in which at least 50 percent of the student teaching placements and initial job placements are in schools located in rural areas. *Urban institutions* are defined as those in which at least 50 percent of the student teaching placements and initial job placements are in schools located in the core city in major metropolitan areas. The initial study (Fulton, Glenn, Valdez, & Blomeyer, 2002) sought to find out what beginning teachers learn about teaching effectively with technology in urban and rural classrooms. NCREL assembled a research team (Fulton et al.) and laid out a research design.

Two background papers were prepared. The first, *A Perspective on the Renewal of Teacher Education*, (Glenn, 2002a) provided a perspective on teacher education renewal over the past several decades; the current education agenda; and teacher education in the context of a competitive, networked environment. The second, *Emergence of Technology Standards for Preservice Teacher Education*, (Glenn, 2002b) provided background information about how technology has become a part of the teacher education program.

## **Study Methodology: Year One**

With these papers as background, six institutions were selected for study. They were chosen because of their links to urban or rural PK–12 communities, and for their commitment to preparing preservice teachers to use technology as an integral part of instruction. The institutions selected for the first phase of this study were Appalachian State University in Boone, North Carolina ([www.ced.appstate.edu/](http://www.ced.appstate.edu/)); Florida State University in Tallahassee, Florida ([www.coe.fsu.edu/](http://www.coe.fsu.edu/)); University of Texas at El Paso ([www.education.utep.edu/](http://www.education.utep.edu/)); University of Wisconsin–Milwaukee ([www.soe.uwm.edu/pages/welcome/](http://www.soe.uwm.edu/pages/welcome/)); Western Illinois University in Macomb, Illinois ([www.cait.org/coehs/](http://www.cait.org/coehs/)); and Xavier University in New Orleans, Louisiana ([www.xula.edu/education/](http://www.xula.edu/education/)).

Each institution was visited by one of the four researchers over 2\_ days in the spring of 2002. The visit to the school or college of education also included a visit to two or more K–12 schools where student teachers from the institution were assigned for observations and student teaching. Interviews and focus groups were held with the dean and director of teacher education, faculty from methods courses, technology support personnel, supervising teachers, preservice teacher candidates, and recent graduates. A common protocol of questions was used, and summaries of all interviews were written by the four researchers on the study team. After the researchers met as a group to compare findings, a draft report was created by the editor. After review by the dean or assistant dean at each institution, the final report was completed in December 2002 and placed on the NCREL Web site (Fulton et al., 2002).

The initial study provided important insights into the issues surrounding technology’s role in the college, school, or division of education and in partner schools. It was clear that much could be gained by taking a more in-depth look at three institutions, with repeat visits conducted by the three remaining members of the research team working as a group. The first study described what was taking place in the institutions and the factors that influenced technology issues, and it focused primarily on the colleges, schools, and divisions of education. What was missing was an understanding of what was happening in the PK–12 schools where the teacher candidates observed, did their practice or student teaching, or became teachers. Therefore, a follow-up study of three of the institutions was designed for the spring of 2003.

The report of the follow-up study is provided here. With a greater focus on lessons to the field more broadly, this report is intended to serve a wider audience of education policymakers at the school, district, higher education, and state levels. Before examining the findings from the current study, it is useful to review briefly the initial findings from Year One.

## **Summary of Year One Findings**

Given the selection criteria (institutions with evidence suggesting they had strong programs in technology preparation and in preparing graduates to teach in high-need urban and rural settings), it is not surprising that there were more commonalities shared among the six case sites than differences separating them. Seven core features emerged:

- *Strong leadership for technology integration by the dean or director of teacher education.* Despite turnover among deans in the institutions in the study (only ASU and Xavier have had the same dean or director of teacher education over the past five years), the leaders at these institutions, past and present, have placed and continue to place a high priority on both integrating technology into teacher education and the school, college, or department of education—and on creating and sustaining strong connections with the school districts in their service areas. In the case of technology, this has meant committing significant college resources, seeking grants for building a technological infrastructure, creating the support infrastructure to sustain the use of technology, and rewarding faculty for technology use. At these institutions, like many others today, one of the hiring prerequisites for new faculty is proficiency with and interest in technology.
- *One or more “technology superstars” trusted by the faculty.* Most of the original sites have one or more faculty members who took an early interest in technology and have modeled its use on campus. These early adopters provided role models on their campuses during the early days of technology integration, and even as faculty technology use expands, the leadership of the original faculty technology enthusiasts remains important. Newer faculty, hired in part for their interest in technology applications in their fields, are supplementing this base of superstars who model innovative uses of technology on their campuses.
- *Effective technology support staff.* In each of the original cases, there was close to 24/7 on-site technical assistance. This support was equally valuable for students and faculty. All the institutions in the case sites had a person or persons who provided the link between faculty teaching needs and faculty technology needs. Often these persons developed expertise in a particular area (e.g., presentation software, Web development, online course design) and took pride in assisting colleagues in learning these skills. As a result of this just-in-time support tailored to the personal needs of the particular faculty member, faculty on these campuses were building confidence and beginning to move beyond technology use for their own personal productivity and into activities such as posting course materials and discussions online, creating personal and class Web sites, and designing coursework that requires laptops and wireless network access in class.
- *Significant external funding sources, particularly federal grants.* Each of the original sites used external grants and donations to jump-start technology implementation in their campuses. Federal grants, particularly the PT3 program, have been especially influential. Writing these grants focused planning initiatives and, as has been the case with many PT3 grants, required working relationships among faculty (both within and outside the school, college, or department of education) that might not otherwise have been as forthcoming. And, due to the size of these substantial grants, they have put technology in the spotlight in the college of education and given the faculty in the education schools and the colleges themselves greater visibility as technology leaders on the campus as a whole. The federal government is not, however, the only source of important technology funding that bolstered these institutions’ programs. As often happens in the world of grants and foundation support, money begets money. Funders like to support institutions that show they have been recognized by others as good bets, and grants enhance an institution’s ability to continue to provide the necessary matching funds needed to secure additional

grants. Grants have also made it possible to bring closer collaboration with local schools, as in the case of the UWM partnership with the Milwaukee Public Schools, ASU's ability to share recycled computers with local partnership teachers, and UTEP's work with the El Paso schools. (These factors were influential in the decision to focus on these three institutions for follow-up study in Year Two.)

- *State mandates focusing attention on technology.* Perhaps the most important driving force for technology integration has been the push of state mandates that require that all teacher preparation graduates either demonstrate technology competence or have fulfilled a certain number of course hours in technology use. These mandates drive curriculum design, course activities, and assessment measures, and these were clearly reflected in the priorities found in the first six cases. State mandates have forced faculty who could be considered “late adopters” of technology to begin working toward incorporating it into their teaching. Similarly, National Council for Accreditation of Teacher Education (NCATE) standards have pushed the implementation of technology throughout all schools and colleges of education seeking this accreditation. Taken together, each individual state's technology requirements and general adherence to NCATE's unit-level requirements for technology integration across both NCATE-approved and NCATE partnership programs have concentrated attention on technology integration in all six sites.
- *Continuing challenge of influencing faculty outside the college of education (e.g., arts and science classes).* There was a common refrain across all sites: It has been difficult for the schools, colleges, or departments of education to have an impact on the teaching modeled by faculty from departments outside the school or college of education, where education students take the majority of their course work. This theme is common in teacher education but seems a particularly prominent issue with technology. However, in most of the cases, external grants have encouraged partnerships with noneducation colleagues, especially with science and mathematics faculty.
- *Strong links to the local school community.* In each of the institutions studied, partnerships with the local communities were a high priority. Technology often supported and encouraged even stronger connections, but this was against a backdrop of strong local school partnership initiatives that already existed in the schools and colleges of education. The sites with strong links to urban schools were particularly focused on ensuring that their teacher candidates were prepared to work in multicultural, high-minority settings. Rural schools in the first set of cases also formed strong local-community linkages.

### **Design of the Year Two Study**

With these findings as the base, the Year Two study was designed to look in greater depth at three of these sites. Appalachian State University (ASU), University of Wisconsin–Milwaukee (UWM), and University of Texas at El Paso (UTEP) were selected as three with particularly strong PK–16 partnerships, the area of special concern in the Year Two study. These three institutions were chosen for further study because they represent three distinct types of partnerships. Although ASU is set in a rural area, it has a variety of partnership districts stretching across a wide geographic area. In contrast, UWM partners only with the Milwaukee

Public Schools, part of a particularly strong university-city linkage supported by the entire university. The third site, UTEP, is a blend of these two: While predominately serving the urban district of El Paso, it also partners with several rural and suburban districts on the outskirts of the city.

The three institutions agreed to help secure permissions for the NCREL team to visit local K–12 schools and meet with student teachers, supervising teachers, and recent graduates teaching in the local schools. The two- to three-day visits to each site were conducted in May 2003, with all three NCREL researchers visiting ASU and UTEP as a team and two researchers visiting UWM. The focus of these visits was to examine the impact of the partnerships at the K–12 school level and technology's role in the partnership; therefore, the research team spent less time on the college campus and more time in the K–12 schools. They spent less time talking with faculty and education staff and more time with cooperating teachers, supervisors, principals, student teachers, and recent graduates.

The visits, however, began with a campus meeting to get an update on what changes had occurred since the 2002 study visit. Of particular importance were issues related to teacher education, technology use in the college and teacher education programs, and the current internal and external issues impacting the college and its K–12 partnerships. Because the focus of this study was on the partnerships between higher-education organizations and schools and how technology fit into the partnership, all those interviewed were asked how partnerships were created, how they evolved, and the benefits and issues that have emerged. They were also asked about technology's role. Teachers and staff at the partner schools were asked for their assessment of student teachers' and beginning teachers' readiness to teach, particularly their ability to integrate technology into instruction and deal with the challenges of teaching in an urban or rural environment. Students and recent graduates, interviewed in their K–12 teaching or student teaching settings, were asked about their preparation to teach in an urban environment (or, for those who were teaching in a rural area, if they had been well prepared for that kind of setting), their assessment of their preparation to use technology as a part of instruction, their beliefs about the issues surrounding the use of technology in their classes, and their assessment of areas in which they believe they need to continue to grow if they are to use technology effectively.

Brief reports on the case visits are found in the appendixes to this report. What follows here is a summary of what was found and the lessons learned from this review.

## **Year Two Findings**

The core findings from the initial study were reinforced by the follow-up study. Strong leadership from the dean or university administration, external funding, technical support for faculty and students, and incentives and recognition for faculty continue to be foundational elements for a program that effectively integrates technology into the preparation of new teachers. These conditions are requisites for a teacher education program that seeks to prepare candidates to use technology effectively, and they must be maintained over time.

In addition, the institutions studied for these cases appear to have taken the steps that research studies indicate are necessary to sustain a strong university-school district partnership. These

kinds of partnerships do the following: (1) begin as voluntary endeavors, (2) create a shared vision at the onset, (3) use outside resources to sustain funding, (4) have a formalized governance structure, (5) examine and reflect on the collaborative process of the partnerships, and (6) meet informally to build trust and camaraderie (Rice, 2002). At all three institutions, time and resources are allocated to making the partnership work. This foundational work is essential if partnerships are to sustain the “shockwaves” and external pressures noted in the sections below.

### **Shockwaves From a Weak Economy**

This study was undertaken in 2003, just one year later than the first set of cases undertaken in the spring of 2002, but in this short time period the impact of a weakened economy with resulting state budget cuts had begun to take its toll. Technology issues for both higher education and K–12 schools are magnified during times of financial stress. Hardware continues to need replacing and upgrading, faculty and staff continue to need training, and all need support. New technological resources continue to evolve and place pressure on current teaching methods. All of the institutions in the study are facing the consequences of budget reductions and the implications of what happens when current external grants come to an end.

Adding to the internal issues related to technology are those that impact typical partnerships such as continued training for members and the delivery of programs and materials. For example, considerable resources are being used by the Milwaukee Partnership on a Web-based educational portal involving both partners. As resources become more constrained, new questions and issues will emerge. Baker (1994) found similar issues a decade ago. The institutions studied in Year Two are holding on to their “nonnegotiable” support for technology, but it is a struggle.

This belt-tightening affects partnerships as well. It is difficult enough to maintain a PK–16 partnership in the best of worlds. As was seen in the time-intensive demands of keeping the Milwaukee Partnership Academy moving forward, a PK–16 partnership is a full-time job that requires extra resources and staff, along with substantial time commitments of representatives of the partnership organizations in attending meetings and more meetings throughout the year. When each institution in the partnership is facing its own budget challenges, as well as the changes in personnel and direction these often create, finding people, time, and resources to support a partnership is made even more difficult. It is tempting to return to the old ways of limited contacts and “laissez-faire” collaboration rather than continuing to devote long hours to activities that bridge the district/higher-education borders.

The real question is what will happen when the current sources of partnership and technology monies end, with the expiration of PT3 grants at UWM and ASU, and the conclusion of UTEP’s Technology Innovation Challenge grants. Is it possible to maintain the level of effort, much less scale the partnerships up to a new level, in a time of change? As recipients of the new five-year, multimillion-dollar Teachers for a New Era grants from Carnegie, UTEP and UWM seem well positioned to move their partnerships forward. Since a major focus of the high-visibility Carnegie grant is to enhance district and university partnerships, it will be interesting to follow these institutions’ progress in solidifying and deepening these PK–16 relationships. Similarly, UTEP’s new National Science Foundation (NSF) math/science grant is likely to create an

infusion of funds and program leadership for linking the College of Education with local school districts, as is UWM's new NSF mathematics partnership grant.

Nevertheless, universitywide budget cuts are a serious challenge to the status quo, not to mention innovative programs.

### **Changes in Leadership**

One of the greatest challenges to partnerships is a change in leadership and key personnel (Smith, 1992). In the college of education cases examined in this study, the stability of the partnerships has been bolstered through continuity of deans and key technology project leaders, and continuing support from the universities' top leadership.

However, major changes have occurred at two of the three sites that may impact the partnership futures. In the summer of 2003, UWM's chancellor, Dr. Nancy Zimpher, resigned to become president of the University of Cincinnati. Dr. Zimpher was author and chief proponent of The Milwaukee Idea, a framework for university/community partnerships across all areas of need and interest. It is too early to say what the impact of the loss of this strong partnership proponent will mean for UWM's partnership with local schools.

UTEP also underwent a change in leadership at the time of this second year of the study. The prior dean, who had led UTEP's college of education for the previous decade, had stepped down just as we began the second-year study. The acting dean, Dr. Josefina Tinajero, had long been active in local partnerships programs while she was on the faculty. When appointed as permanent dean in August 2003, Dr. Tinajero indicated that she would continue her strong support for technology and for working closely with the El Paso partnership districts. She also has made it clear that she wants to be seen as a "technology dean" and has taken several steps to support technology initiatives in the college, as described in the case study in Appendix B.

Finally, while each of these sites has also experienced turnover among the superintendents in their partner districts, they seem to have weathered this change without a loss of support for partnerships.

In summary, it is important that support for the partnerships runs deeper than just the top-level leadership and that this support is embedded in the fabric of the university/district relationship. Michael Fullan (2001) suggests that a cloning of leadership is important to sustain reform. The best leaders, he maintains, leave a legacy of leaders, creating new leaders who can take their place when they depart.

### **Political and Practical Priorities**

Technology has, in many ways, been moved out of the spotlight as new issues take precedence in today's schools. Over the past year, the impact of the No Child Left Behind (NCLB) Act of 2001 has grown much clearer. Schools are struggling to meet their annual yearly progress goals, and testing looms large in every district around the nation. New teachers, fresh from teacher education programs steeped in constructivist, learner-centered, inquiry learning techniques and

philosophy, find themselves in schools that require them to teach in more didactic, narrowly focused ways to assure their children will do well on the tests that drive instruction. In light of highly visible issues, technology integration often takes a back seat to testing pressure. Does the use of technology bring up test scores? The question is asked repeatedly by those seeking to justify technology expenditures. While the research shows that when technology is integrated in a total school reform model, it can substantially support improved student achievement (Waxman, Lin, & Michko, 2003), it is still difficult (and inappropriate) for advocates to point to a simple cause and effect impact of technology on student achievement. Each of the teacher preparation sites in this study has partner schools on the NCLB “failure list.” For these schools, more than just technology integration or a strong partnership is at stake.

Changes in state policy also impact teacher education programs. In Wisconsin, for example, portfolios are just being implemented statewide under new teacher education program approval regulations. Conversely, the North Carolina legislature recently voted to drop the portfolio requirement for permanent certification. This decision is likely to send a message to colleges that the portfolios required of graduating students may not be part of a long-term career record of artifacts demonstrating competence. How this will affect the technology portfolios required of ASU education graduates is yet to be seen. Will other state departments of education follow suit and drop portfolios as being too expensive to create and maintain, even though technology makes the updating of portfolios a more efficient process? This too is an open question.

### **Placements and Supervision Challenges**

Differences in approaches to teaching also are having an impact on the role of technology in the school setting. For example, in Milwaukee, direct instruction and prescribed teaching programs for reading are being used in a number of schools. As seen during the site visits, direct instruction and scripted teaching techniques do not utilize computers and related digital technologies. Technology’s role, therefore, in the school is significantly diminished as teachers have less time and support for its integration. Advocates also suggest that they see a better link between direct instruction and increased test scores. When direct instruction is promoted as a better means of raising test scores, teachers are likely to ignore project-based computer activities that support skills and knowledge not as likely to be measured on standardized tests that form the basis for NCLB ratings.

These changing priorities and practices highlight classic teacher preparation problems: (1) Should schools, colleges, and departments of education prepare students to teach in the schools they enter, or prepare them for schools of the future? (2) Should they prepare change agents? The reality, of course, is that new teachers must be able to teach in today’s schools; however, if schools are to continue to meet the need of tomorrow’s citizens, new teachers must be prepared to be leaders in the renewal effort. Based on the research for this study, it is evident that in schools where the environment supports teaching strategies that integrate technology, entering teachers continue to develop techniques to use technology. New teachers in schools that, for example, favor direct-instruction strategies, may use technology from time to time but not as an integral part of the classroom.

Finding good placements for student teachers has always been an issue for teacher education programs. They look for sites where the school models what a good school is like and has model teachers with whom the students may work. Given that most programs have over 100 student teachers, finding model sites is a challenge in itself. But finding model sites that actually use technology and also have the characteristics noted (schools that model what a good school is like and teachers who model good teaching) is made even tougher when the goal is also to give teacher education students a chance to see technology well integrated in instruction. Ultimately, finding a good teacher wins over whether or not he or she is using technology. Even programs that are dedicated to integrating technology struggle with this issue, and these sites are no exception.

The problem extends to the selection of supervisors for new teachers. Most supervisors are former teachers who have retired or quit for family reasons; not surprisingly, they typically have limited experience teaching with technology. Yet these are the individuals charged with evaluating a student teacher's teaching, including, in the case of North Carolina supervisors observed at the ASU sites, evaluating the student's technology integration in lessons. If the evaluation is to be more than just a check sheet (indicating a slide presentation was used or a video shown), supervisors may require professional development so they understand how technology can best support learning across various grade levels and disciplines. But at none of the sites did we find evidence that supervisors had professional development to guide them in understanding technology as a teaching resource.

### **Technology's Impact on Partnerships**

Technology is a double-edged sword when it comes to its role in partnerships: in some ways positive, but potentially negative due to the demands it places on all sides. Clearly, in each of the institutions studied in Year Two, technology had been a key element in forming or expanding many of the partnership links. For example, PT3 technology grants at UWM were the source for the Technology and Urban Teaching Partnership that brought the School of Education and three elementary schools together in a working partnership. The elementary schools benefited from new resources and support that enabled them to make significant changes in how technology was used in the school. Student teachers benefited from their placements in these schools. Similarly, ASU's PT3 grant made it possible to extend the partnerships with schools in the districts around Boone, North Carolina. And the Technology Innovation Challenge grants from the U.S. Department of Education in the late '90s enabled UTEP to establish positive working relationships related to technology with the local schools in their collaborative.

In all these cases, university/district partnerships had existed before, but they were extended, expanded, and, in many ways, solidified under the shared funding received through the federal funds.

The nature of computers and other technologies—the fact that everyone is playing “catch-up” in terms of getting enough equipment, adequately training enough personnel, and providing timely support—makes it extremely valuable to share expertise through a partnership. What was seen in these schools was that the technology expertise went both ways. Sometimes it was the technology specialist at the university training 12 teachers or providing the equipment (as in

ASU's excess computer/teacher grant and training programs). In each case studied, student teachers, well trained and confident in their use of technology, were often a bridge bringing new knowledge of teaching and technology into the classrooms where they were completing their student teaching experiences—modeling for the supervising teachers how technology can support student learning.

Technology can also provide extra value to a partnership, a vehicle to tighten the bonds of an existing partnership and to extend its reach while providing solutions to long-standing problems. Three examples of this were raised in these cases. First, technology enables partners to communicate with each other in a more effective manner. E-mail, for example, ensures that messages can be sent and received, that access is not limited to a specific time, and that even some decisions can be made without face-to-face meetings. All partners used the Internet and Web pages as important linkages. Because e-mail is so much a part of the fabric of society, it is often overlooked as an important mechanism for sustaining partnerships.

Second is the growing movement to online delivery of courses. Partnerships that are scattered across a wide geographic area or located in urban areas with heavy traffic seek alternative ways to provide continuing professional education. The sites involved in this study are all exploring how they can reach out to educators who find it difficult to come to campus for classes and to a more diverse group of students. While each site has off-campus sites, ASU and UTEP are also exploring how they can offer more of their courses online.

Creating online courses and online programs fosters a variety of discussions within the institutions and with their K–12 partners. Online courses indeed increase enrollment figures and, in some cases, generate additional revenue. However, online delivery also creates workload and curriculum issues as well as resource allocation problems. What is clear is that at ASU and UTEP, online delivery is being considered very seriously and has grown even in the year since the first case studies were conducted. How this new venue will impact the overall partnerships is yet not known.

Third, technology adds value to the partnerships because of the potential it brings for building community. A frequently cited complaint among the student teachers and new graduates interviewed in this study was their sense of feeling isolated once they entered the classroom—cut off from peers and faculty who had previously supported them academically, technologically, and emotionally while in the university. In this, they echo the sense of “sink-or-swim” isolation experienced by most new teachers. But projects like Milwaukee's Professional Support Portal, an online environment of support for new teachers, offer a viable alternative. The portal provides a way to maintain a long-term link between faculty in higher education and the new teachers they send out into the districts, or among cohorts of students who trained together and are now scattered across many districts, or between instructional specialists throughout a district with new teachers who need ready access to their advice and assistance. While this project is still in its early prototype phase, it is a model worth watching for replication.

## Summary Comments

One encouraging finding from this study is that new teachers are entering the schools well prepared in the two areas central to this study: confident and ready to use technology as a tool for instruction and generally prepared for the culture of the urban or rural schools in which they are student teaching or working after graduation. Whether an urban school in Milwaukee, a country school in the Blue Ridge Mountains of North Carolina, or a predominantly Hispanic school literally on the border of Mexico in El Paso, the judgment made by teachers, principals, and supervisors was positive. As one of the ASU supervising teachers noted, regarding the student interns and graduates with whom she worked, “These student teachers or graduates bring technology skills with them as they enter the classroom, and they come eager and ready to use whatever technology they find in the schools.” That kind of new teacher expertise is a valuable resource districts should value and exploit to support learning among the communities of teachers in the schools where these graduates work.

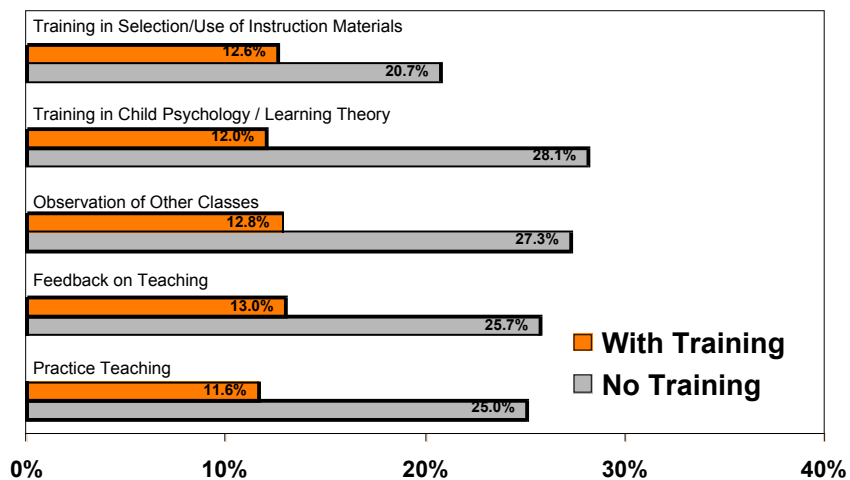
It was rewarding to find that veteran teachers in these sites did in fact acknowledge and welcome the technology expertise of these student teachers and recent graduates. While novice teachers have much to learn in other areas of teaching and managing the classroom, technology expertise gives them a chance to shine among their more senior colleagues. It is a phenomenon that appears to be unique to technology. While this may not be the case for new teachers around the country, new teachers prepared by these three institutions come with a “technology pedigree” that makes principals more interested in hiring them and gives them an extra boost along the way. Nonetheless, the challenge remains: How can we be assured of not wasting the talent of these new teachers if they find themselves in classrooms where they do not have the technology available to apply these skills?

The teachers interviewed for this study generally reported being comfortable in dealing with the culture of the schools in which they are teaching and prepared to work with the diverse groups of students they find there. But they echoed another theme common to new teachers: It is the nature of teaching itself that has them exhausted and often overwhelmed. When new teacher graduates from ASU were asked, “What do you wish they had taught you?” one recent graduate’s impassioned response was “How emotionally draining teaching is!” She thought for a moment and then added, “Well, they probably did tell us that, but I didn’t understand what they meant until now!”

As stated in the report of the National Commission on Teaching and America’s Future (2003), the first few years of teaching are turning points in a new teacher’s career. Almost one third of all teachers have left after the first three years, with the numbers much higher in schools in high-poverty areas. Without support, they lose heart, burn out early, and are deeply disappointed not to be able to achieve their dreams of making a difference in children’s lives. It is a critical time, and as Figure 1 shows, the quality of their teacher preparation makes a difference.

Figure 1

## Teacher Preparation Reduces First Year Teacher Attrition - 2000-01



From *No Dream Denied: A Pledge to America's Future*, p. 84. Used with permission of the National Commission on Teaching and America's Future (NCTAF). Original analysis of the 2000–01 Teacher Follow-up Survey, National Center for Education Statistics, conducted for NCTAF by Richard M. Ingersoll, University of Pennsylvania.

But the preparation and support of a new teacher should not end with the handshake and diploma at graduation. A true partnership between teacher preparation institutions and their districts should extend to support for the teachers they prepare, all along the road from “student” to “intern” to “novice” to “veteran.” Colleges of education should know where their graduates go to teach, how they are doing, how long they stay, why and where they move, and how successful they are in their teaching. Accountability for, and continued investment in, their graduates’ success should not be a legislated mandate but a part of the vision of schools and colleges of education. It is a way of evaluating what works in their programs and what does not work.

There was little evidence of follow-up with graduates among the schools visited for these cases; in this, they are not unique. But, as schools with commitments to partnerships, it seems a logical next step. The Carnegie grants will foster this kind of analysis. And, with the technological resources at hand, continued communication and interactions are more feasible than has been possible in the past. For example, ASU has considered the possibilities of hosting a digital portfolio for graduates as they advance in their careers, as well as offering continuing education for them online as they indicate areas where they want to advance their skills. UWM is working with the Milwaukee Public Schools in developing the online portal to support beginning teachers with a mentoring and induction support model that would involve university faculty as well as district mentors. Each institution could conduct research on effectiveness of various aspects of their teacher preparation program (e.g., technology use by graduates and how it affects teaching

style or student achievement) by drawing on the extensive district databases on student achievement.

It is past time to begin to understand the role of technology in student learning. We are approaching a critical mass of technology in the classroom and yet are faced with never-ending budget demands for new and better hardware and software and subsequent professional development needs. Is the expenditure to meet these needs worth it? There are rich opportunities now for this research, because of the number of schools like the schools visited in these cases (e.g., Milwaukee's Hartford Elementary) and the possibilities offered by strong partnerships. The questions are rich, and the opportunities are great for extending knowledge of how children best learn and how teachers best teach.

*Editor's Note:* This report is part of a multiyear study conducted by NCREL. Year One of this study was highly focused on literature reviews, criteria for selection, and selection of sites. Years Two and Three were devoted to site visits and analysis of the case studies. In Year Four, NCREL will develop self-assessment tools useful to other higher-education institutions. Those tools will be based on work and findings from the first three years of related work. They will address concerns from the field regarding the role of schools of education in preparing technology-savvy teachers who are able to integrate technology into teaching and learning. Like this study and the Year-One reports, these tools will be made available to the field through the NCREL Web site.

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## **Appendix A**

### **Case Study of Appalachian State University**

#### **Overview**

Appalachian State University (ASU) is located in Boone, North Carolina. Set in the Blue Ridge Mountains, Boone has approximately 26,000 residents, half of whom are the university's 13,800 students. Another 800 students live off campus. Students come from all over the state, but only a small number (approximately 1 percent) of students are from outside North Carolina. The university comprises the College of Arts and Sciences, the College of Business, the College of Fine and Applied Arts, the School of Music, the Reich College of Education, and the Graduate School. With approximately 1,900 students, the Reich College of Education (RCOE) is one of the largest colleges at ASU and the second largest teacher education program in the UNC system. Approximately 60 percent of RCOE students are in the four-year undergraduate program, and 40 percent are in graduate programs. RCOE has approximately 23 master's programs in education, including a master's in educational administration, an education specialist's degree in education that can lead to superintendent licensure, and a doctorate in education that can also lead to superintendent licensure. ASU began as a normal school for teachers 100 years ago, and, according to the dean, its teacher preparation roots reflect the highly respected place that the RCOE holds within the University.

RCOE has been accredited by the National Council for Accreditation of Teacher Education (NCATE) since 1954 and received its latest review in the spring of 2001, receiving "continuing accreditation with no weaknesses" for the next five years. Since the state of North Carolina began rating teacher education programs four years ago, ASU has been in the most highly rated tier of both public and private institutions with teacher preparation programs.

Dr. Charles Duke has been dean of RCOE since 1995, and Dr. Henry McCarthy the assistant dean and director of teacher education since 1996. As administrators and faculty point out, the college prides itself in preparing teachers who are regarded as "the best in the state." This seems justified by data on recruitment of students and outcomes of RCOE graduates. For example, under the North Carolina incentive program to encourage talented students to enter teaching, 400 full four-year scholarships (Teaching Fellows) are awarded annually to students for use in North Carolina teacher preparation programs. RCOE has the largest program in the state. Each year, ASU receives almost twice the number of candidates it can accept. The maximum allowed at any one institution is 60; ASU last year had approximately 100 Teaching Fellows applicants. According to Dr. Duke, each year anywhere from 10 to 20 of the applicants with these scholarships who are unable to be accommodated under ASU's Teaching Fellows quota choose to come to ASU even if they cannot apply their scholarship, with the hope that it can later be converted if another Teaching Fellow drops out during the freshman year.

ASU graduates also fare well upon graduation. Approximately 11,000 ASU graduates are currently teaching in North Carolina. They are actively recruited for teaching positions throughout the state, with some receiving signing bonuses that many districts across the state pay for highly qualified new teachers. Over 99 percent of the RCOE graduates who seek continuing licensure in North Carolina successfully complete the licensure process. Data are not collected

on RCOE graduates in terms of staying in teaching—the statewide attrition rate is relatively low, hovering around 13 percent to 14 percent per year compared with approximately 16 percent nationwide (National Commission on Teaching and America’s Future, 2003). However, one measure of the quality of the teacher preparation program is the fact that in a state that ranks first among all states in the number of teachers certified by the National Board for Professional Teaching Standards (NBPTS), 16 percent of the NBPTS-certified teachers in North Carolina are ASU graduates.

### **Leadership’s Impact on Partnerships and Technology Preparation**

The dean has made one of his highest priorities the integration of technology across the teaching program at RCOE. Partnerships with local school districts are also central to his vision of the college’s role within the community. Dr. Duke’s commitment remains strong despite the challenge of funding cutbacks and the ending of several federal grants. ASU is the lead institution for the \$1.29-million PT3 grant, the Appalachian Rural Teacher Technology Alliance, which ran from 2000 to 2003. Despite the ending of this major grant, Dr. Duke has brought a number of funding initiatives under an umbrella that continues to support partnerships and technology initiatives.

Dr. Duke’s approach to faculty development with technology has been creative. In 1995–96, the Spangler Program, a special state funding initiative for technology, provided an opportunity for ASU to enhance its faculty support for technology. Dr. Duke hired a technology/curriculum specialist whose primary focus is helping faculty integrate technology into their teaching. Using internal RCOE funds, he also added two other positions: a technology facilities coordinator and a technology network/hardware specialist. Together, these three positions help support student and faculty use of technology. According to the dean, this “three-legged stool” for support is a critical piece of the success RCOE has had in building faculty expertise. Although there is technology support from the university as a whole, the technology support team at RCOE goes beyond what the university system can provide. Dr. Duke put it this way in the first year’s visit: “The faculty needed that just-in-time support. We have three terrific people, and our faculty loves them. The atmosphere in which faculty learn best is one to one, so this is the best way to have faculty respond.”

Other initiatives in the college continue to support faculty growth and professional development. Although most colleges provide some support for faculty to attend professional conferences, Dr. Duke made grant or university funding available to encourage groups of faculty to attend professional meetings and conferences together as a team, gathering before and after sessions to discuss what was learned and how the new research, instructional tools, or teaching techniques might be applied in their teaching at ASU. For example, with faculty-development support funding from ASU’s PT3 grant, a team of 14 faculty from various departments within the College of Education attended the Society for Information Technology and Teacher Education (SITE) conference in Albuquerque, New Mexico, in March 2003. The technology/curriculum specialist coordinated a series of meetings at the conference center each morning and evening for the faculty team to meet and discuss the day’s sessions, what each had learned during the day, and what knowledge they had gained that could be applied to programs back on campus.

Most recently, Dr. Duke has set aside \$75,000 from university funding to support a faculty grant program called Successful Applications of Learning Technologies (SALT). The request for proposal (RFP) says faculty members are invited to submit proposals (two to five pages in length) related to the use of technology in the RCOE curriculum and in related programs. Proposals are to address the innovative use of technology in the context of enhancing teaching and learning or solving existing programs faced by the college, with priority given to proposals involving collaborative teams of faculty. The RFP encourages inclusion of faculty outside the college and K–12 faculty and administrators. The intent is to support program development using emerging technologies to create distributed communities of practice to support students, particularly those off campus, in their learning and development. From four to fifteen one-year grants of \$5,000–\$20,000 each will be awarded in late July 2003.

Besides being a strong incentive to use technology, these grants appear to support two other goals the dean identified as important to his vision for the college. The first has been to encourage faculty to work more collaboratively. As Dr. Duke noted, “Shifting from ‘my research’ to ‘our research’ can be messy!” The second goal has been to confirm for faculty that the college recognizes that faculty research can be in the context of service, as, for example, working with a K–12 teacher in investigating what is happening in the classroom as a part of working more directly in the school environment.

Like other institutions in this study seeking to reach out and serve a broader population beyond the campus boundaries, ASU is faced with the necessity of finding alternative means to deliver courses and support teacher candidates and teachers in the field. The dean has worked to encourage faculty to put more courses online, as a way of providing more outreach and support for off-campus programs, and to work more directly with technology. And, as is found in other sites, there has been concern among faculty as to how online courses will affect teaching quality.

In a meeting on this issue, attended by NCREL researchers as a part of the case visit, approximately 20 faculty members from across the college shared their concerns with the dean about design, content, and skills issues related to teaching online. Some of the questions, debated quite extensively were these: Who should determine whether a course is to be provided online? What preparation of students is necessary to enable them to take advantage of an online course? How does one create a constructivist perspective in an online course? Faculty interest was high, and discussions were heated, especially around the issue of class size. At the conclusion of the meeting, there was agreement that, with support from the technology/curriculum specialist and ASU faculty who had begun to offer online courses themselves, more courses would be developed for online use, but these courses would include both face-to-face and online components and would have no more than 20–25 students.

### **Impact of State Policies**

The state of North Carolina places an emphasis on assuring that teachers acquire the skills necessary for teaching with technology. Although the state initially required all preservice students be tested in an Essential Technology Skills Inventory, the test is no longer required. Instead, each teacher preparation program is given responsibility for assuring that its graduates meet the technology skill requirements through “completion of a technology product of learning

that is evaluated by a panel of Institutes of Higher Education and public school faculty.” At ASU, students take a required course in which they complete the National Educational Technology Standards (NETS) self-appraisal created by the International Society for Technology in Education (ISTE) as one of a number of required activities in the course. Based on this self-assessment, faculty directed students to resources (e.g., tutorials, workshops, software) to help them build skills in identified areas of need.

All teacher education students must also complete a technology portfolio prior to student teaching. The portfolio is intended to give students a way of producing, collecting, and revising artifacts (lessons, modules, unit plans, resource materials, and other instructional materials) that can be used during the field experiences. A basic template has been created by the Teacher Education program staff, and artifacts are developed during the students’ program. A final check sheet is included in the student teaching handbook for the instructors and supervising teachers to sign. All competencies must be met in order to receive a passing grade for the student teaching period. Programmatic oversight is an issue; there is wide variation across professors and supervisors as to what is acceptable.

With support from the technology/curriculum specialist, many of the RCOE students put their portfolios online and continue to maintain these “tefolios” after their student teaching is completed. There also has been a general movement, for the teacher preparation program, toward the use of portfolios that demonstrate a range of teaching competencies well beyond technology skills.

In the NCREL case study visits, students gave mixed reports on the value of the technology portfolios: Some student teachers demonstrated their telefolios with great pride, but others, who seem less interested in technology, felt the technology portfolios were “busy work” that provided no value to them in their student teaching. Until recently, portfolios were required for North Carolina teachers in order to obtain a full professional license after two years of teaching. However, the state legislature, under pressure from some teacher groups, has pulled back on this requirement, and initially licensed teachers no longer have to prepare portfolios in their second year. The requirement for technology portfolios or other portfolios within a teacher education program, however, was not affected by the North Carolina State Board of Education’s change in policy. Interestingly, some ASU students, looking toward the future, reported that they valued the experience of collecting multimedia documentation of teaching lessons and skills as something they could apply when submitting evidence in support of NBPTS certification. They felt the ASU portfolio gave them a head start, especially in creating the video documentation of teaching a lesson, in their professional careers.

### **Partnerships and Technology**

RCOE is part of the ASU-Public School Partnership that extends over a 2,000-square-mile area of geographically isolated terrain. Eight school districts and 115 schools are part of the partnerships, and teacher preparation students are placed in a number of these schools for early field experiences, internships, and student teaching. Most are placed within a 50-mile radius of ASU for early field placements. Since Watauga County has only one high school, many student teachers, as Boone residents say, go “off the mountain” for high school placements at schools

within a 20- to 40-mile radius. Approximately 240 student teachers are placed in student teaching assignments each semester, and although the state requires 10 weeks of student teaching, RCOE provides more—15 weeks for each candidate. Another 700 students have internships/observations in schools each year.

The college is expanding its student-placement options and now works with about 30 different districts for student teaching placements, including partnership districts and the urban and suburban districts of Winston-Salem, Greensboro, Charlotte, and Raleigh. There are also opportunities for students to visit schools in New York City and Washington, D.C., and a program in Mexico. The Mexican program allows students to take up to five weeks in Guadalajara after completing ten weeks in North Carolina. The variety of internships and field experiences is a source of special pride with Dr. McCarthy, assistant dean for field experiences.

Each teacher education student must conduct 30 hours of classroom observations, designed to be done early enough in the program so teacher candidates can be steered into other directions if teaching doesn't seem right for them. Fifteen weeks of student teaching is required, either in one site or split into two seven-week sessions in two sites. (The last week in either plan is spent observing other schools.) Additional field experiences are integrated with methods courses that students take as they progress through their programs and culminate in the 15 weeks of student teaching.

The large number of schools in the partnership districts means that in some cases it isn't possible for the coordinator to know all the cooperating teachers well, as was observed in one school visit. Nonetheless, many of the relationships with cooperating teachers have gone on for many years and are built on strong, cooperative relationships between ASU and the host schools. The cooperating teachers we met described these partnerships as important for them in a number of ways, and the partnership districts have begun to formally acknowledge the importance of supervising student teachers as a valued professional development activity for the cooperating teachers. For example, ASU has recently negotiated with partnership districts that a cooperating teacher can receive up to three renewal credits for each student teacher he or she supervises. Districts determine how many of these renewal credits can count towards recertification. (In most cases, it is three in a five-year period).

Cooperating teachers visited for this case study described most ASU student teachers with whom they have worked as very well prepared, particularly in the area of technology. Several of the classes led by student teachers observed during the case study visit confirmed the ASU students' comfort level in using technology:

*Student teacher D.M. involved his honors English class in a thoroughly engaging multimedia lesson on the writings of Daniel Defoe and Samuel Pepys, using a combination of technologies. He recorded his own dramatic reading of the text on audio tape for students to listen to as they read along silently; he used a SmartBoard for students to record the contrasts between the two authors' descriptions of the plague; and he projected on the SmartBoard a Web site that has a "classic comic" version of the Robinson Crusoe story. Students were assigned roles in the story to read aloud. The student teacher also showed them*

*the class home page he created on his personal Web page, encouraging them to post definitions of words in the style used in Samuel Johnson's dictionary. The use of technology was seamlessly integrated into what was a very complex but well-designed lesson, and every student in the class was actively engaged throughout the class period.*

*In the same school, another student teacher, J.M., taught a mixed-ability group of high school sophomores, juniors, and seniors a series of major Supreme Court cases (e.g., *Korematsu Vs. United States*) in the Economics/Constitutional Law class. She used PowerPoint® as an organizing vehicle for showing an Internet site on Japanese internment camps in World War II, along with a video clip from the movie *Snow Falling on Cedars* that portrayed the impact of internment on Japanese Americans. While this teacher's style was more presentational or didactic, and less interactive than that used by the previously observed student teacher, her use of media appeared to help make complex content more accessible and engaging to her students.*

Whenever possible, student placements are made with technology-using teachers, but this is not always the case. (In neither of the classes cited above was the supervising teacher particularly skilled in using technology, although both valued the way their student teachers were using technology to support their lessons.) One way ASU seeks to encourage the use of technology in supervising teacher classes is through the Cooperating Teacher Surplus Computer Program. In this program, the college donates "excess" computers (i.e., those that are going to be replaced because of upgrades in the college) to local schools that do not have adequate technology. A three-year cycle of upgrading computers in the college means that each year approximately 20 to 25 computers are classified as excesses. Cooperating teachers at local schools in which ASU teacher candidates are placed are invited to apply for these computers after attending a three-day workshop in the summer, led by ASU's technology/curriculum specialist, to gain knowledge about the uses of computers in their teaching. As a result of this experience, and as a culminating activity, they write the proposals and are then provided the machines. This project has been described as a win-win situation: The teachers get professional development targeted to their individual teaching goals; the schools get nearly new technology (all computers are warranted by the university, and teachers can get technology support if problems arise); and the college is able to keep its computer inventory up to date while assuring that student teachers have technology in the schools in which they are placed.

One of the cooperating teachers visited in the case visit was Kay Company, the biology teacher at Avery High School. In the class visited as a part of this study, her students were using PowerPoint to present information on various medical conditions they had researched and prepared reports on. Company has attended technology workshops offered by ASU and received five computers through the Surplus Computer Program. She has also acquired additional technology (e.g., a SmartBoard and video cameras) through other grants. She models technology integration in her classes and helps her student teachers use technology in her classroom. Because Company is preparing for her NBPTS certification, she does not have a student teacher this year, although she has been a supervising teacher for ASU teacher candidates for many years in the past.

Based on comments from teachers in schools visited, most cooperating teachers at the partnership schools value the monthly subject-specific (e.g., English, math, science, social studies) focus groups where teachers and education faculty meet to discuss teaching in the content areas. These focus groups are open to any interested teacher and include teachers from many schools, cutting across all districts in the partnership. High school faculty at Avery High School, interviewed for this study, reported that they learn a lot from the ASU faculty. As one indicated, “I feel I could pick up the phone and call anyone from ASU and they’d help me.” Apparently the learning goes both ways. Outcomes were practical, for example, English teachers prepared online tips for first year teachers, and science teachers distributed “care packages” of materials for experiments to student teachers at the beginning of the year. Outcomes were also philosophical, for example, based on what ASU faculty heard from the high school English teachers—that “teacher candidates were being prepared to teach college English” but not the North Carolina standards—they made adjustments to “bring it down to the real level of the kids.”

The case study made it clear that, even in a state with a reputation for supporting technology, most schools in ASU’s partnership area are far from being “high tech.” Many schools still have a limited number of computers in the classroom, with the exception being those classes of teachers who have applied for and secured special grants (e.g., the ASU Surplus Computer Program). As was seen in the other case visits, more technology activity is likely to be found in the computer labs than in classrooms.

Equipment is often cross platform and variable in terms of age and power. Schools face the challenge of upgrading equipment at a time of budget cutbacks. In this case visit, as was true in the other two sites, there was some use of laptops on carts to increase classroom access, along with the occasional SmartBoard and distance learning lab, but no classes were observed in which handheld devices, tablet computers, or other “cutting-edge” applications were in use. Consequently, although ASU’s student teachers and graduates are ready to teach with technology, they are often disappointed by the resources they find when they enter the schools. Still, several graduates commented that, if they found their schools lacking the appropriate resources, they were prepared to write proposals to get technology they deemed necessary for their students to learn.

University faculty serve as supervisors of student teachers whenever feasible. For the varied off-the-mountain placements, however, local teachers or retired teachers are hired as adjuncts and conduct the field supervision of the student teachers. In addition to the regular university supervisors, academic consultants for each content area in the secondary and K–12 areas visit student teachers once or twice a semester.

This case visit confirmed what has been found to be a problem common to many teacher preparation programs: the lack of technological sophistication in supervisors. Most supervisors, who typically have been retired for a number of years, often have limited knowledge of and skills in using technology. At best, the vast majority are beginners. Although ASU has provided workshops for supervisors, it is on a voluntary basis. This means that the majority have not been prepared to carefully assess student teacher use of technology. These supervisors, unaware of the best educational uses of technology, are unable to guide student teachers in best practices with

technology. Yet they are the ones who “sign off” on student use of technology in lessons required for their technology portfolios. This is an area of concern to ASU. As the dean reported, “This is unfortunately accurate, but we’re working on it. Come back in two years and take another look!”

### **Concluding Comments**

ASU is typical of state institutions that prepare a large number of teachers but are located in a rural area: They graduate many more teachers than can be placed in local schools. While the setting of ASU and many of its partner schools in the area is rural, students must also be prepared to work in suburban and urban schools where most vacancies occur. And, with students scattered across a wide geographic area, problems emerge—diversity of placements; contact with cooperating teachers and collaborative schools; and wide variation in technology expectations, access, and skills. Nonetheless, ASU has a track record of preparing teachers who are sought out by schools throughout the state, in part because of the strong skills they have acquired in teaching with technology.

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## **Appendix B**

### **Case Study of University of Texas at El Paso**

#### **Overview**

The University of Texas at El Paso (UTEP) is located in the city of El Paso in far-northwestern Texas across the Rio Grande from Juarez, Mexico. El Paso has a population of 800,000; El Paso and Juarez together form an interconnected metropolitan area of 2.5 million people. More than 70 percent of UTEP's 16,000 students are Hispanic, and most are first-generation college students who come from the El Paso community. The UTEP College of Education prepares about 600 candidates each year for initial certification through the undergraduate program. Approximately 60 percent of these graduates come from the community colleges feeding into UTEP and enter at the junior year. Another 150 are prepared through the Texas Alternative Certification Program, in which candidates teach full-time in an elementary, middle, or secondary school while employed by a public school district, and complete a one-year internship plus 20 semester hours of university coursework.

More than 70 percent of the teachers prepared at UTEP are Hispanic, making UTEP one of the largest entities in the country that prepare Hispanic teachers. The link to the local community is strong: Approximately 60 percent to 80 percent of the teachers in its partner districts come from UTEP. The faculty counts as an indicator of success not just the fact that districts seek out UTEP graduates, but also that they are told that teachers prepared at El Paso become the change agents for other teachers in area schools.

Partnerships between the university and the local schools are central to the mission of the University of Texas at El Paso. The College of Education's Web site indicates the commitment to serving the Hispanic community: "The mission of the College of Education is to prepare effective teachers, counselors, diagnosticians, and school administrators, who successfully address the problems of schools and other youth-serving agencies, especially in communities with a significant Hispanic population" (University of Texas at El Paso, 2001).

#### **Leadership's Impact on Partnerships and Technology**

Long-term leadership at the university has provided a history of support for the partnerships found at UTEP. The president, Dr. Diana Natalicio, has championed service to the El Paso community since her appointment almost 15 years ago. The provost, Dr. Stephen Riter, has been at UTEP for eight years. Both Dr. Natalicio and Dr. Riter have also been supportive of the College of Education in its role preparing educators for the local community. As of the writing of this report, one of the four major headings on the home page for the UTEP Web site ([www.utep.edu](http://www.utep.edu)) is "Teaching as a Career," signaling the importance placed on teacher education at UTEP.

The College of Education also benefited from continuity in leadership as it built up its programs. Dr. Arturo Pacheco was dean for 10 years and served as chair of the Teacher Education Department. Dr. Jorge Descamps was at UTEP for 28 years, the last 10 years serving as assistant dean of the College of Education and the chair of Teacher Education. However, both of these leadership positions changed in 2002. Dr. Josefina (Josie) Villamil Tinajero, former associate

dean and a member of the administrative team, was serving as acting dean at the time of the visit and in the summer of 2003 was appointed permanent dean. Dr. Tinajero also directs the nationally acclaimed Mother-Daughter/Father-Son programs with the local community. Dr. Tinajero is a noted author and featured speaker in the field of bilingual education and in the recruitment and retention of Hispanic students in higher education.

Dr. Elena Izquierdo has taken Dr. Descamps' place as chair of Teacher Education. After working in the K–12 environment as a teacher, assistant principal, principal, and director of civil rights, she returned to El Paso—"home" and a community where she believes she can make the greatest impact.

Dr. Tinajero stated her intention to expand the emphasis on community partnerships and on technology in the college. Her first action as acting dean was to provide a summer retreat for faculty, in which technology was, as she put it, "the number one issue." One of the UTEP technology "superstars," Dr. Henry Ingle, led the discussion on how faculty can better integrate technology into their teaching and the development of online courses. The campus technology support director, Eldon Posie, also attended the faculty retreat, along with a new faculty hire, Carol Awalt, technology integration specialist, whose job it is to work with faculty in technology integration. Awalt conducted a survey of faculty needs and concerns and is working with faculty on a one-on-one basis with appropriate hardware and software. She sees her job as getting staff up to speed to the point that some time in the future a separate course will not be necessary. She wanted to focus on assisting them with lesson plans and using technology for specific learning concepts. She noted that alternatively certified teachers are almost always better prepared.

Dr. Tinajero's leadership in her year as acting dean was important in securing funding for technology in the face of state budget cuts impacting all parts of the university. The state cut the College of Education's budget by 7.5 percent (as a result, the hiring of new or replacement faculty was cut from eleven to four positions) and the technology budget by 50 percent. Nonetheless, Dr. Tinajero was able to get a higher technology allocation from the university administration this past year than in the previous year. In fact, the technology allocation for the College of Education is the highest in the university, and in this past year all the college's funding requests for technology from the university have been approved. Much of the technology in the college needs upgrading, and Dr. Tinajero was pleased when she was able to get approval for doubling the student technology fee making it possible to focus on upgrading technology in the college.

Despite the ending of several grants that had supported technology initiatives in the past (e.g., the five-year Technology Innovation Challenge grant from the U.S. Department of Education), half the technology efforts in the college continue to be funded by outside money. A \$100,000 grant from the Texas Infrastructure Fund has made it possible to put wireless hubs throughout the education building. Additional funding from the El Paso Partnership made it possible to increase funding for hardware acquisition. Two new staff have been hired with primary responsibility to assist faculty and school partners with the integration of technology. And, a recent \$29-million grant from the National Science Foundation's Math/Science Partnership will create a new emphasis on using technology to support the teaching and learning of mathematics and science in the partnership schools. While not a technology grant per se, UTEP's selection as one of the Carnegie Corporation's grantees in the Teachers for a New Era program will also extend the

visibility and support for strong K–16 partnerships between the university (both in teacher education and the arts and sciences) and the local school districts.

Dr. Tinajero believes that leadership “from above” is important to convince faculty to seek out grants with technology as a focus. It is also necessary to have this top-down encouragement for faculty to redesign courses to better employ technology. For example, she is urging faculty to submit courses to the statewide higher education group that is promoting the use of online courses across the system. With design and proposal assistance from Dr. Ingle and his staff, ten College of Education courses have each received \$15,000 to \$17,000 to redesign their courses for online delivery.

Dr. Tinajero also believes that UTEP has a special niche in its expertise in bilingual education that will serve it well in the outreach it can offer through online courses, especially as expectations grow among those who live and work in the many rural areas far from the university. Some online courses will be aimed at helping paraprofessionals meet the certification requirements of the No Child Left Behind Act. However, faculty concerns about the courses are similar to what was heard by researchers in other case site visits, such as these: Will sufficient students enroll? What might be the impact on faculty workload and on their work in the schools? Will teaching quality suffer?

### **Partnerships With Local Schools**

El Paso County has approximately 135,000 students attending public schools. More than 80 percent of these students are Hispanic, and nearly 75 percent qualify for free or reduced-price lunch. A large number have limited English proficiency and require bilingual or English-as-a-second-language instruction. The overall dropout rate is approximately 30 percent, although pupils in the region generally score at the state average in achievement tests.

The UTEP College of Education prepares a significant number of beginning teachers for the districts in the metropolitan area. During the case study visit, it was not possible to observe student teachers or to meet with them, because classes at UTEP had ended for the semester. However, the research team met with recent UTEP graduates now teaching in El Paso schools, teachers completing their two-year certificate program funded under the 1998 Technology Innovation Challenge grant, and visited three of the El Paso Partnership schools. The El Paso Partnership was created in 1996 with support from the first U.S. Department of Education \$3.5-million Technology Innovation Challenge grant awarded to the district. This five-year grant, awarded in 1995, was followed in 1998 by a \$10-million Challenge grant, which ended in 2003.

The College of Education is expanding its partner school network to bring 12 local schools in the El Paso Partnership into a Professional Development School (PDS) status, where teacher preparation classes are taught and serve as centers for professional development and research. University faculty from the School of Arts and Sciences are also involved in teaching in the schools for the secondary education majors.

The PDS model, however, is expensive and creates a problem for faculty because it requires them to spend so much time off campus and out in the schools. As has been noted in the literature about partnerships, faculty express concerns about finding time for publication, research, and graduate-

level guidance in the context of increased time demands for time spent in local schools. In the face of budget cutbacks, there has been some pressure from the provost to reconsider whether the intensive field-based model is worth the extra expense and effort. Dr. Tinajero is trying to work out a model that will have faculty rotate through work in the partnership schools. The real question is yet to be answered: Does the intensive, field-based model create better teachers? The research to date is inconclusive.

## **Partnerships and Technology**

Interviews with recent graduates and the faculty in partnership schools suggest that graduates of the UTEP College of Education enter the classroom well prepared to begin teaching in the El Paso schools. The new graduates were satisfied with the methods courses in their teacher preparation program as well as clinical preparation they experienced. They also graduated feeling ready to teach with technology. The biggest challenges these students faced in their first years of teaching were not technological concerns, but rather knowing how to deal with the problems the students bring with them from home. Graduates noted that they would have preferred to have more information on appropriate agencies to which they can refer students when particular social problems are identified.

The Challenge Program, funded through the 1995 and 1998 U.S. Department of Education Challenge grants, has been the major technology professional development program for teachers in the El Paso Partnership. (Five teachers from each of the participating schools volunteer to participate for this two-year program.) There have been nearly 500 teacher technology leaders and 200 master teachers with master's degrees trained through these programs to date.

During the case visit, interviews were held with a focus group of seven of the teacher technology leaders completing the final year of the program. Several recent UTEP graduates who participated in the Challenge Program described it as one of the best programs they have ever experienced. They believe the program, with its student-centered, constructivist approach to using technology, taught them practical skills and gave them quality experiences in using technology to help advance student learning.

In the Challenge Program, teachers learned to use various software packages and technology for problem-based science activities. They also mentioned a number of Web sites their instructors shared with them as being helpful in their teaching. The Challenge Program enabled them to learn how to use software including BIOSIMS, WebQuests, Geometry, and Sketchpad, as well as National Geographic and language-arts Web sites that could be used in lessons supporting content needed for the Texas Assessment of Knowledge and Skills (TAKS) state test. They also learned to use computer-based laboratory probe ware to collect and analyze information, and they created a parent-awareness Web site. These teachers noted that they especially appreciated the opportunity for self-reflection and the help in learning which teachers to draw upon as sources of information and resources.

The goal of the Challenge Program is for teacher technology leaders to learn technology-integration skills over a series of monthly meetings and to become informal mentors to other teachers in their schools. Teachers participating in the program receive a laptop that can be used

as long as they remain in their school, and they receive a certificate at the completion of the program.

The teachers from the Challenge Program reported that they chose to be part of the program for a variety of reasons. Some had never been trained with technology, and this was the first chance to learn. Others had some experience but wanted to improve their skills and deepen their knowledge. Teacher skills in technology at the completion of the program ranged from novice to experts. While the time commitment was considerable for participating teachers, they all reported it was worth the time spent. The mentoring commitment varied in terms of how it was structured at each of their schools, and in the amount of support provided by administrators to enable them to conduct any mentoring activities. In most cases, this technology mentoring was informal with little time set aside during the school day to assist their school colleagues and with no funding set aside for hiring substitutes for classroom visitations or in-school training time.

### **Three Partnership Schools**

Three partnership schools were visited as a part of the case study: Canutillo Elementary, Ysleta Middle School, and Bowie High School. In each of these schools, strong principals and staff have been instrumental in employing technology to give students positive experiences that enhance their self-images and help them gain confidence in themselves. These partnership schools may not be typical of what is found around the district, but they were made available to the research team in order to demonstrate sites that are exemplary in the ways they use technology.

*Canutillo Elementary.* Canutillo Elementary School serves a low-income community of 800 students, 94 percent of whom are on free or reduced-price lunch. Now in his sixth year as principal, Hector Girón immigrated to the United States from Mexico and is working on a doctorate in education at UTEP. Describing himself as dedicated to the improvement of all children, Girón is a technology advocate. He oversees two buildings, a PK–4 school wired with an average of four computers per classroom and an older building housing the fifth and sixth graders also containing considerable technology. The school has received computers from various federal and state grants but is facing problems found at several sites in this case study: replacing aging equipment as well as meeting the increasing expectations of both students and teachers as they become more sophisticated with technology. At the time of the case visit, Canutillo had submitted a grant proposal to the Beaumont Foundation for additional funds for hardware.

The school is moving toward a greater emphasis on the use of laptops because they can be moved from class to class via a mobile lab, can take advantage of the wireless network, and are particularly important for project-based learning activities, which the school emphasizes.

Canutillo is a Professional Development School for UTEP and last year hosted 22 student teacher interns in the fall semester and 16 in the spring. The student teachers observe modeling of technology integration in the classroom. Twenty-five of the 45 teachers on staff at Canutillo have participated in six-day workshops on technology integration provided by the school.

Girón believes that technology is a powerful tool for all children and that it is critical that children from poor families have access to and the ability to use technology in their learning. One of the

most powerful uses of technology at Canutillo has been to help make all students competent in both English and Spanish. Students use both English and Spanish Web sites with instruction emphasizing cognitive understanding of both languages, not just conversational knowledge. Teachers at Canutillo integrate technology into the curriculum and almost all content areas by including Web page development and information gathering on the Web in classroom instruction. Teachers feel this use of technology helps students develop social skills as well as achieve better on state achievement tests. Wherever possible, teachers make a great effort to make learning experiences relevant and useful to solving real problems, and they believe technology helps them do that.

Technology is also used at Canutillo to reach out to the broader community, and computer labs are open for parents one day a week. Parent involvement “at their own comfort level” is emphasized at Canutillo; parents may come with their children to the library, to computer labs, or just to sit in on class to observe. It is not unusual, according to Girón, to find parents in the cafeteria eating with their children. Once a month, there are parent meetings for which parents set the agenda. In early May 2003, the school hosted a technology fair, and 300 parents attended. Canutillo administrators and teachers believe that technology plays an important role in their students’ education, and they see technology as a positive factor contributing to the school’s high (80-percent to 90-percent) passing rate on state exams. They believe that community members understand this important contribution by technology.

*Ysleta Middle School.* At Ysleta Middle School, where a similar percentage of students are on free or reduced-price lunch, the principal, Barbara Trousdale, a 12-year veteran, has also been very resourceful in finding ways to support technology initiatives in the school. Site-based control of the budget has been helpful because it has allowed flexibility in how the school uses its resources. For example, building funds and other resources have made it possible for Ysleta to wire all of its classrooms, provide all teachers with laptops, and equip two computer labs. Mobile laptops have also been very important here. On the other hand, much of the equipment is aging and needs upgrading, and replacement will be a significant issue for the school.

The faculty at Ysleta cited several technology initiatives as especially valuable to them: UTEP’s 1995 Challenge grant program, the Netschool Laptop Initiative, and the 1998 Challenge grant program for technology leader teachers and master technology teachers. Even though the school is well equipped by most standards, one of the mathematics teachers noted, “We have labs and I have three machines in my room, but it is never enough because if I had more I would find even more uses.” Faculty are also aware that the technology is coming to the end of its useful life, and that budgets are so tight that replacements are unlikely soon. This is a worry for teachers who have grown accustomed to integrating technology into instruction.

When asked about the value of the partnership with UTEP, the educators at Ysleta reported that the partnership has expanded their horizons and introduced them to more research on student-centered practices, which has led to greater student motivation and fewer classroom disruptions. They maintain that the partnership works to the mutual benefit of the university and the school.

*Bowie High School.* Bowie High School, located in South El Paso, just over the border from Mexico, also serves students who are predominantly from high-poverty backgrounds. A

substantial number of Bowie students are recent immigrants from Mexico. Technology is spread throughout the buildings on the campus, but most of the school's computers are clustered in content-area labs. In the literacy wing, a computer lab is heavily used for developing English literacy skills. A mix of computers of varying ages and brands are employed to assist students on their language and writing skills as well as learning core content. Students are asked to create reports using Microsoft® Word®, PowerPoint®, and HyperStudio®. Teachers commented that combining technology tools with specific assignments improves student learning of the content and their ability to use appropriate English words and grammar.

Another example of technology supporting content was demonstrated in the math computer lab managed by a former mathematics teacher. In this lab, students use or develop lessons that expand and support content in the mathematics curriculum. One mathematics teacher has worked closely with students on a project in which they researched various careers on a Web site and used a spreadsheet to enter data on the skills required in their chosen field, its entry-level and average pay scales, and other relevant information. According to the math computer lab teacher, the hands-on involvement of this teacher (the district's first National Board Certified teacher) in creating and overseeing the technology-supported activity in the lab was unusual. She found that it was more often the case that classroom teachers fade into the background or even leave the lab while the computer teacher conducts the math lab activities.

Bowie will house a new program, the International Business and Public Affairs Academy, taking 60 students per year, starting with the freshman class in the fall of 2003. Funded through the district, the academy builds on the international flavor and many international resources in El Paso. Bowie also has a modern, state-of-the-art technology center on its campus, with classrooms for computer-assisted design, television production, graphics, and other classes about technology. At the time of the case visit, Bowie had made the network and computers in the technology center available for specially trained district teachers who were creating online courses for student remediation in the El Paso Online Academy. The Online Academy makes it possible for teachers to assign whole courses, course sections, or course modules that students can study online as needed for extra help or when they must repeat courses. The Online Academy is seen as a different way to help students master needed content in a self-paced manner, presented in a format that goes beyond the content found in textbooks in face-to-face classroom courses.

### **Challenges for the Partnership**

School and higher-education personnel interviewed for the case visit reported that the El Paso School District has a serious problem with teacher retention. In this, the district mirrors the nationwide problems noted with new teacher attrition: Nationally, 40 percent of all teachers leave teaching by their fourth year of teaching (National Commission on Teaching and America's Future, 2003), and El Paso is no exception. According to Dean Tinajero, the numbers are similar in El Paso: Forty percent of new teachers leave by their fourth year of teaching. Dr. Tinajero believes that teachers leave the profession because they are not supported in their schools and experience unsatisfactory working conditions and low pay. Many leave teaching for higher-paying jobs in immigration and security work in the expanding employment market along the Mexican border. As one way to help stem this tide, the UTEP College of Education is working with

districts to develop a teacher-retention plan. As a first step, they created a retention institute that researches the reasons teachers leave the profession.

### **Concluding Comments**

UTEP is an example of a teacher education program highly integrated into its community—candidates are recruited from the local area and prepared as high-quality teachers committed to returning to teach in their local schools so that the next generation of students will be successful learners. UTEP faces many challenges in accomplishing this task but has been successful in attracting major new sources of funding (e.g., the NSF math/science grant and the Carnegie Teachers for a New Era grant) that will help position the institution as it continues to move forward as a college of education that builds successful partnerships to support technology-competent teachers.

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## **Appendix C**

### **Case Study of University of Wisconsin–Milwaukee**

#### **Overview**

The University of Wisconsin–Milwaukee (UWM), located in the state’s largest city, is the only urban campus within the University of Wisconsin system. UWM has approximately 24,500 students, with 149 degree programs in 11 schools and colleges. In addition, the School of Continuing Education serves more than 47,000 people per year.

The School of Education has five departments: Administrative Leadership, Educational Policy and Community Studies, Educational Psychology, Exceptional Education, and Curriculum and Instruction. The last two departments are primarily responsible for the teacher preparation program. In the fall of 2002, the School of Education had 79 full time faculty and 1,998 undergraduates, 499 master’s candidates, and 111 doctoral candidates. UWM is the only institution in the state that offers a Ph.D. in urban education.

Each year, approximately one half the approximately 1,250 students enrolled in the teacher education program are participating in the student teaching programs, which average 30 hours per week for 20 weeks, supervised by 48 full-time or part-time faculty. The School of Education’s 2003 entering class, numbering 305, was the largest entering class in 30 years.

In July 2003, the UWM School of Education was selected as one of seven new recipients of a five-year, \$5-million grant from the Carnegie Corporation to improve teacher education. The grant is part of the Teachers for a New Era initiative, designed to research and demonstrate the most effective, evidence-based methods of preparing teachers for today’s classrooms.

UWM’s proposal for the grant highlighted collaborative teacher preparation efforts within both the university and the community. The School of Education partners with the College of Letters and Science and the Peck School of the Arts at UWM to improve teachers’ academic preparation in content areas. In announcing the grant, Dr. Alfonzo Thurman, dean of the School of Education, said, “Improving teacher education is a university-wide effort.” Richard Meadows, Dean of UWM’s College of Letters and Science supported this statement, noting “We’ve been a partner with the School of Education for more than 20 years. This grant will give us additional resources to continue those efforts. We’re very happy to be an active part of this project.”

#### **Leadership and Partnerships With the Urban Community**

Community-university partnerships are at the core of UWM’s urban mission. Leadership for these partnerships starts at the highest level. Dr. Nancy Zimpher, former chancellor, was instrumental in creating The Milwaukee Idea, the university’s initiative to

forge vital and long-lasting community-university partnerships that enhance the quality of life for all. ... Since its inception in 1999, The Milwaukee Idea has brought together hundreds of people from the community and the university in partnerships that address

challenges in education, the environment, health and economic development. (UWM School of Education, 2003c)

Named UWM chancellor in the summer of 1998, Dr. Zimpher helped to develop a similar community partnership in The Ohio State's Columbus neighborhoods as dean of the College of Education and executive dean of the professional colleges there. When she came to UWM, in her first campus speech, Dr. Zimpher offered her vision of the power of community-campus partnerships; "It's not just us serving the city. It's not just the city serving us. It is the notion of together building a city and university that are the heart of metropolitan Milwaukee. This is the essence of [what we will call] The Milwaukee Idea." In a speech to the faculty in September 2003, Dr. Robert Greenstreet, interim chancellor, stated that he intends to continue supporting The Milwaukee Idea and that the institution will move "full-speed ahead" with its initiatives, including its community partnership initiatives.

One example of The Milwaukee Idea in action is the Milwaukee Partnership Academy (MPA), the university's partnership with Milwaukee Public Schools (MPS). Supported initially in 1999 by an \$8-million U.S. Department of Education Title II Teacher Quality grant, the MPA was created as "an urban P-16 council for quality teaching and learning." Addressing systematic issues across educational institutions, this citywide organization is dedicated to the enhancement of teaching and learning in MPS. The specific goal is to assure that every child is performing at or above grade level in reading, writing, and mathematics. Priorities include, among others, implementing a comprehensive literacy agenda, creating school-based learning teams to foster data-based reform at the school level, aligned professional development for teachers and administrators, citywide tutoring, and data-based decision making.

The MPA is a system-to-system collaborative reform model rather than a partnership between the university and just a few selected urban MPS schools. As a communitywide effort to revitalize urban schools across Milwaukee, seven institutional leaders make up the MPA's original Executive Committee: the Metropolitan Milwaukee Association of Commerce, MPS, the Milwaukee Area Technical College, the Private Industry Council, UWM, the Milwaukee Teachers' Education Association, and the Milwaukee Board of School Directors. An additional business partner, the Greater Milwaukee Committee, was added to the Executive Committee in August 2003.

The MPA is an active, hands-on organization governed by a unique multipart structure. The Executive Committee is made up of the chief leaders of the eight major partner organizations. Meetings are led alternately by the superintendent of MPS, William Andrekopoulos; the executive director of the Milwaukee Teachers' Education Association, Sam Carmen; and the interim chancellor of UWM, Robert Greenstreet. It is important to note that the culture of the partnership is such that the leaders of the primary partners do not send substitutes or representatives to the meetings of the Executive Committee or the monthly board meetings; they attend themselves. The MPA also includes a board of directors, made up of broad representation from the metropolitan community; representation from other local (private) institutions of higher education; the deans of the School of Education, College of Letters and Sciences, and the Peck School of the Arts at UWM; board affiliates, who represent a wide range of community organizations; and the Implementation Team, which is the action arm of the MPA. The

Executive Committee meets biweekly; the entire MPA membership meets monthly; and the Implementation Team meets weekly to do the hard work of translating the MPA goals into a sustained plan of action to improve education for the children of Milwaukee. The Implementation Team manages a network of work groups that also meet weekly to carry out the various priorities. Reflecting how important the organization is considered by the state, the lieutenant governor or another representative of the governor attended most meetings until a change of administration, and the state superintendent of public instruction attends all meetings herself, only rarely sending a representative from her office.

According to the MPA Web site,

As this structure becomes institutionalized in the Milwaukee community, the goal is to ensure responsiveness to various community stakeholders, create an annual focus for partnership activities, and provide a stable financial basis for increased teacher and other needs in the Milwaukee Public Schools. (Milwaukee Partnership Academy, 2002a)

Through the MPA, UWM takes a holistic view of education by helping the K–12 school system prepare the students who will attend UWM in the future, thus raising the quality of students in the university. The community also benefits economically from a well-educated population. As all MPS schools begin to improve from the partnership, UWM can draw on a larger pool of K–12 partner schools in which to prepare all of its student teachers. Equally important, the MPA, and especially its Implementation Team, provides a shared forum for discussing and decision making about all aspects of how resources are deployed to improve the quality of teaching and learning. As a result, technology, which, like other issues, formerly was discussed in isolation in the district, is now discussed in the context of the priorities of the MPA and in relation to achieving its goals, with representatives of all of the lead partners at the table, simultaneously providing input and learning more about each aspect of the issues at hand. As a more public forum for discussion of and action on how education is carried out, the MPA is creating a new organizational culture around education in Milwaukee.

In addition to the Title II grant, several other grants were awarded to UWM and MPS in 1999 as the MPA was getting started, including a Preparing Tomorrow’s Teachers to Use Technology (PT3) implementation grant and a PT3 catalyst grant, a Title II recruitment grant and two GEAR-UP grants, totaling \$26 million inclusive of the Title II grant. While these initial grants provided the catalyst for the partners to initiate the MPA, today the MPA is becoming an institutionalized way of “doing business” in education in Milwaukee. It has focused the priorities of the community with regard to education and has begun the hard work of aligning human and fiscal resources to meet these priorities. Finally, grant writing is aligned with these priorities as well.

In addition to the nearly \$26 million in grants that initiated the partnership, in the past year the MPA has garnered an additional \$36 million, including the Carnegie Teachers for a New Era grant, a \$20-million Mathematics Partnership Grant from the National Science Foundation (NSF), and a Small High School grant from the Bill and Melinda Gates Foundation. The NSF grant will support improving mathematics teaching and learning across the PK–16 continuum and represents a communitywide partnership designed to improve

mathematics teaching and learning, and to reduce the number of students who require remedial mathematics at the postsecondary level.

The partnership continues its work in system-to-system reform despite the change in the MPS superintendent in August of 2002 and the change in the chancellor at UWM in the fall of 2003. The MPA recently received a state award from the Wisconsin PK–16 Leadership Council as an exemplary practice partnership in the state. UWM is a full partner in all MPA initiatives and activities. One area of special note is the Teacher-in-Residence Program, aimed at creating stronger links between the teacher preparation program and classroom practice and developing teacher leadership skills in and retention of veteran urban teachers. Cohorts of MPS teachers spend two years on special assignment to UWM, working in every phase of the teacher preparation program, including the College of Letters and Science and the two-year urban pre-teacher education program at the local community college. In the first cohort, there were 19 teachers in residence, and 13 MPS teachers are in the current cohort. They have helped align the teacher education curriculum with content standards in the MPS schools, worked with student teachers in clinical practice experiences, assisted with school-based learning teams throughout the city, participated directly on the MPA Implementation Team, and provided input into the Professional Support Portal, the district’s electronic mentoring initiative. Moreover, they have used the opportunities available at the university to gain important skills in technology in their development as teacher leaders, including video-editing capabilities.

At the inception of the MPA, the following vision of teacher education reform was offered on the MPA Web site in conjunction with the Title II grant:

The overarching goal of the Title II Grant is to develop a comprehensive teacher education prototype preparing K–12 teachers for high need schools. This prototype will draw from best practices and enabling policies across a national network of urban partnerships and leverage various program components and high quality teacher education materials back across selected sites in a redesign process. Teacher preparation as necessarily both a partnership and an all-university endeavor will intersect with school and community renewal. The prototype calls for major, aligned changes in the letters and sciences, professional preparation, and entry into the profession so that the outcome is a more coherent, protracted and potent form of teacher preparation. (Milwaukee Partnership Academy, 2002b)

### **The Urban Mission of the School of Education**

UWM has another urban visionary to provide leadership for this partnership in the person of Dr. Alfonzo Thurman, dean of the School of Education since 2001 and the chancellor’s deputy for education partnerships. He has led his faculty in what he calls a shared commitment to meeting the needs of today’s multicultural society and students from diverse backgrounds. He believes the college should work with the entire district. In an e-mail, he states, “We are looking systemically at changing, first of all, the way the district teaches literacy. Our work in schools is to implement the comprehensive literacy initiative, and much of our focus is in the professional development of teachers, guiding the work of the literacy coaches and the leadership teams and

working to sustain that work through the Milwaukee Partnership Academy” (A Thurman, personal communication, n.d.)

The School of Education’s mission statement confirms the centrality of its urban focus:

The mission of the UWM School of Education is to contribute to the improvement of learning environments in a multicultural, urban society through the preparation of professionals for school and community settings, the production of high quality research, and service to educational and community organizations.

Our teaching, research, and service are responsive to the needs of the community and reflect a visible commitment to diversity, equity and excellence. (UWM School of Education, 2003a)

Students of color make up approximately 77 percent of the 106,000 students served in the MPS’s 160 schools. In contrast, approximately 70 percent of the teaching force is white (Hains, Maxwell, Tiezzi, Simpson, Ford, & Pugach, 1997). To bring a more diverse teaching force into the local schools, the UWM School of Education has sought to expand its number of students of color, growing from 9 percent in the early ’90s to 18 percent in 2003. Several specialized grant programs have also addressed the teacher diversity challenge. The Milwaukee Pathways to Teaching Careers Program, supported by the DeWitt Wallace-Readers Digest Fund, has supported bringing paraprofessionals and emergency licensed teachers through the teacher education program at UWM. An earlier federally funded program, EXCEL, supported the recruitment of underrepresented populations interested in working in early-childhood education.

UWM has had a long history of commitment to preparing its students for urban schools. To enhance the education of teachers who are well prepared to teach in an urban setting, the School of Education created the Collaborative Teacher Education Program for Urban Communities. Starting in the early ’90s and continuing over a number of years, faculty worked to renew this commitment and create a framework for reforming early childhood, primary/middle, and special education programs, with a renewed focus on urban teaching and learning, and a substantial integration of special and general education. At that point, special education became a postbaccalaureate-only option; primary/middle regular education has both an undergraduate and postbaccalaureate option. The first cohort of students in the special education program entered in 1996, and the first cohort in the regular primary/middle program entered in 1997. Annually, approximately 250 students complete their degrees and certification. Each year, UWM students make up more than 40 percent of all new teachers in MPS. Retention data are available only for paraprofessionals from underrepresented groups who were part of the Collaborative Teacher Education Program for Urban Communities; these data indicate that more than 90 percent of graduates who are paraprofessionals have retained their positions in MPS for five years. This is a commendable record of retention when compared to national data showing that 46 percent of all teachers leave teaching by their fifth year of teaching (National Commission on Teaching and America’s Future, 2003). Documentation of retention of UWM graduates in MPS will be part of the Carnegie Teachers for a New Era initiative.

Undergraduate students or students who enter special education preservice programs from the undergraduate program at UWM have had a pre-education experience. Students enter the program as members of a cohort of 20–25 students and proceed through their preparation with the same set of students. For undergraduates, the urban focus begins before students are formally accepted to the education program. Students who declare a major in education enroll in the required School and Urban Community block, a combined course and introductory field experience taken in the freshman or sophomore year. The course, Introduction to Urban Teaching, with its emphasis on urban teaching and social justice, provides students with an early familiarization with education in an urban environment. Through the course, potential education students are judged whether or not they are ready to commit to working in the urban education program, and these judgments form part of the admissions requirements to the School of Education. Each year, a small number of students decide not to pursue teaching in an urban school as a result of their introductory experience.

The UWM graduates and student teachers interviewed in this case visit report that the School of Education’s seven core values, which have a strong commitment to equity and social justice, form an excellent foundation for teaching urban students. They learn to examine the varied cultures, beliefs, and perspectives that students bring to the classroom, and strive to create lessons that address equitably the needs of all students. Students quickly learn to recognize the challenges. As one student noted, “We need social work experience. How far do we go with this particular child, what can we do to help family, what resources could I draw on in the community, etc.?”

In addition to their professional preparation, undergraduate students in the primary/middle program enroll in two 18-credit academic minors (called focus areas) in the College of Letters and Science: one in mathematics or science and one in humanities or social studies. During the professional program in the junior and senior years, students participate in a teaching experience in an MPS school each semester selected to match the goals of their academic block. Each semester students participate in a reflective seminar that revisits the program’s core values, and in which they reflect on their learning experiences and upon the roles they will undertake as urban educators.

The College of Education at UWM has chosen to partner with the entire MPS district rather than a selected number of schools; therefore, students have field experiences throughout the city. It is, according to Thurman, a two-way partnership, with the university learning from the school and community at the same time it works to address the needs of that community.

### **State Regulations and Impact**

Teacher certification in Wisconsin, like that in many states, has been impacted by recent teacher quality legislation. The new law states that a content test will be required for those license applicants who complete programs after August 31, 2004. Secondary teachers must pass a test in their content area and primary/middle education majors must pass a single test covering language arts, math, science, and social studies.

The law also requires that in order to be certified, prospective teachers provide a portfolio as evidence of their impact on student learning. The portfolios are assessed at least three times during the teacher education program. Showcase portfolios have been used for several years in the primary/middle teacher education program. With the new state legislation, portfolios have expanded to become developmental records of progress as students move through the teacher education program. Beginning in the introductory Schooling and Urban Community block as part of the UWM teacher education admission process, portfolios will include developing understandings of the program's core values with appropriate artifacts and personal goal setting and reflection. Portfolios will be reviewed at several points during a student's program to ensure that appropriate progress is being made. With the new certification requirements, portfolios take on added importance.

Due to the nature of the partnership, discussions of electronic portfolios—and how they relate to new state requirements for individual professional development plans as a means of advancing through the newly developed career ladder within new state regulations—take place in the MPA Implementation Team. This means that a natural feedback loop exists to connect the schools and the university as they both work to meet new state expectations. Because the Implementation Team meets weekly, communication is enhanced significantly regarding all aspects of the work, technology among them.

### **Focus on Technology**

Both former Chancellor Zimpher and Dean Thurman have been supportive of technology initiatives and have been active in seeking grants to build the human and technological infrastructure necessary to ensure that those who learn to teach at UWM bring to the classrooms they enter an understanding of technology's power to improve the learning opportunities of all children. Thurman, in fact, might be described as a technology enthusiast. He is concerned about the challenge of upgrading technology in the School of Education at a time of declining budgets, and stays abreast of the latest technological tools and their implications for his program. For example, at the time of the case study visit, Dean Thurman and a group of faculty were exploring the potential of handheld organizers with keyboard attachments for professional use, considering how tools like this might provide flexible, low-cost professional and instructional technology options for faculty.

UWM's urban teaching focus is reflected in, and supported by, the College of Education's use of technology. In 1999 the UWM's Technology and Urban Teacher Project was funded by the U.S. Department of Education's PT3 program, with a three-year, \$1.3-million implementation grant. The grant has been an important catalyst for a focus on instructional technology in the School of Education, in its work with the College of Letters and Science, and in the work with the MPS. With a final no-cost phase extending the project over the 2002–03 academic year, the challenge, according to Marleen Pugach, co-principle investigator of the grant, has been "to institutionalize the grant with hard money." In addition, UWM was awarded a \$25,000 grant for the 2002–03 year as part of a statewide, UW System PT3 catalyst grant to pilot the use of electronic portfolios. Prior to these grants, instructional technology was virtually nonexistent in the teacher education program.

The PT3 implementation grant made it possible to hire the School of Education's first instructional technology coordinator, D.J. Himes, who previously worked in K–12 schools as a teacher who modeled technology use, and also as a school network administrator. Originally funded by PT3, the college has continued to support this position with institutional funds since the PT3 grant ended, which is a significant indicator of technology support in a time in which faculty and staff hiring has been frozen due to budget cuts.

The UWM teacher education program requires student teachers to create instructional technology projects that enhance the curriculum they are teaching. Although some recent graduates interviewed for this case study described this as an “add-on” requirement, others felt differently. For example, at an orientation session for student teachers, a returning student teacher on the panel told incoming students, “If you do nothing else, do the technology project; every one of the principals I interviewed with asked me about that and, I was so glad I had that project in my portfolio!”

Learning about technology occurs in two required one-credit technology courses in a lab environment, in groups of 20–25. The technology courses themselves, taught by Himes, cover application software (e.g., HyperStudio, KidPix, Inspiration, spreadsheets, and databases), tools (digital cameras), and Web site explorations. These courses are carefully coordinated with the methods courses and field experiences in which students are enrolled during any given semester, and applications of technology are required within them. Student teachers and recent graduates interviewed for this case study had mixed reactions to the required courses. These included a second-grade teacher in her first year of teaching, a student currently completing her student teaching in the fourth grade, a recently certified graduate in his first semester of teaching fifth grade, a student in the special education primary program who will begin teaching in the fall and who completed the regular primary/middle program, a second-grade student teacher at Dover Elementary School, a student teacher in the fourth grade at Hartford University School, and a UWM graduate who began as a paraprofessional and is now fully certified as an elementary teacher.

Most felt the stand-alone, one-credit courses were too limited, too much of an overview, and not enough to give them a firm grounding in using technology in the classroom. Several, who appeared to be the more technologically sophisticated new teachers, wanted more depth, while the others agreed that it would be beneficial to add more technology training but “in small steps” in preparation for teaching, with more hands-on, targeted applications. Paraprofessionals interviewed during the case study school visits also felt the technology training went too fast for them. Without access to technology at home, and little support in the schools where they were already teaching, they often felt overwhelmed.

Students and graduates generally expressed a desire for information on how to use technology in a range of settings (e.g., to a whole group in a lab setting versus in a “technologically rich” classroom) and how to master the classroom-management skills needed for using technology in a variety of activities.

As found in the other case study sites, student teaching assignments are not necessarily made with technology-savvy teachers. Compounding the problem is the fact that decisions about

purchasing technology are completely decentralized in MPS and have been for several years, leaving principals basically on their own to make decisions to purchase hardware or to support human resources to manage networks and provide professional development. Therefore, the variability across schools is great, with no effort to raise the bar uniformly across schools or ensure that each school has technology-savvy teachers, teacher leaders, or principals. Further, until last year, several district barriers existed to the use of e-mail on the part of MPS teachers. Also, and paralleling what was found in other cases, supervising teachers are typically retired teachers who, by and large, are not trained with technology. The UWM graduates interviewed for the case study noted that once they were out of the university and teaching in the schools, they were on their own to solve their technology problems unless they had a personal relationship with the technology coordinator at UWM or another faculty member at the School of Education, or were in a school that was technology rich.

A pilot electronic portfolio project had been in effect for one semester at the time of the site visit, with a small number of students volunteering to participate. The project was designed in part to develop the content for teaching all students how to prepare electronic portfolios. Therefore, only a small number of students had developed electronic portfolios at the time of the visit. This pilot project provided initial experience and perspective on schoolwide adoption of portfolio software and its most important functions. Led by Dean Thurman, an effort is now underway to make decisions about the direction the entire school will take vis-a-vis electronic portfolios, in conjunction with the new state teacher education program regulations.

The Professional Support Portal Project, under development by MPS, is one effort to provide support for new teachers. The portal project is seen as a door-to-district resource. It was originally intended to be an extra source of support to supplement the face-to-face mentoring program, but budget cuts to the face-to-face mentoring programs mean the portal project is—at least temporarily—the only form of new teacher support. While this is unfortunate in terms of losing the important resource provided in personal, face-to-face mentoring, the online support system may offer, through technology, a link in terms of connecting new UWM graduates with their cohort peers and the School of Education faculty after graduation.

UWM faculty serve on the advisory committee for the portal and have provided significant input to the district regarding how the portal communicates what it means to teach in an urban context and what resources need to be available on the portal to address what it means to be a strong urban teacher. The portal was in a pilot phase during the 2002–03 year with limited availability and limited scope. Nevertheless, as a result of UWM’s involvement in the portal’s advisory committee, all UWM graduates new to the district were invited to participate in the pilot phase, which during 2002–03 included the use of a laptop. There was little discussion during the case visit of the portal project and its implications for supporting student teachers and recent graduates, but as the portal develops, UWM faculty have been asked to host chat rooms specifically on teaching in the urban context. Further, the portal has been addressed within the MPA Implementation Team as a means of opening up the dialogue concerning how it is framed and its potential use. And, through the Carnegie project, UWM will be developing electronic forums for the portal on the various academic content areas as a means for direct involvement of faculty in the College of Letters and Science and the Peck School of the Arts.

Modeling technology integration in methods courses and the arts and sciences—the “holy grail” for understanding the use of technology to support learning across the disciplines—is a goal yet to be fully achieved. Interviews with students reveal a wide variation among courses and professors. Some faculty use technology in their courses; others use very little. The use of technology for course materials and shared discussions is the most common application in university classes. Progress integrating technology projects in classes themselves has been greater in mathematics methods courses, and very good inroads are being made in literacy methods courses. Himes notes that it has been hard to impact faculty use of technology when there is a variety of part-time faculty and adjuncts teaching in the program. Newly hired faculty have been very responsive to integrating technology, and in the past year technology integration has increased substantially in literacy methods courses, as well as in the Introduction to Urban Teaching course. Unlike other institutions in these case studies, UWM’s School of Education has not made formal attempts to use the work of faculty “tech superstars” and model their work for others; rather, this is done informally, working with small groups of faculty. Another way to view this is that the instructional technology staff is scaffolding the technology development of new and interested faculty on an ongoing basis.

Several technology projects are described on the UWM School of Education (2003b) Web site for the 2001–02 academic year involving 17 faculty members in addition to those involved in PT3 projects. These range from a research project on the design and development of American Sign Language video-based objects and their impact on student learning to an investigation of the use of streamed video of best teaching practices in teaching secondary science for students with behavior and learning problems. Technology use among faculty for these projects is diffused across several program and projects, but they represent potential for increased modeling of technology use.

### **Technology and Urban Partnerships**

Due to the unevenness of technology resources across MPS schools, students often find they will be working in schools with limited technology resources. As an initial part of student teaching, students conduct a technology inventory of the schools in which they practice, meet technology leaders in the school, and make plans for how to augment what is available if necessary. The PT3 grant has tried to address this concern. Using a no-cost extension to the PT3 grant, the School of Education purchased five student teaching technology kits that may be checked out and brought into schools where students are student teaching, in order to provide technology-delivered projects. The kits contain an iBook<sup>®</sup> with an external floppy drive and internal wireless network card, a digital camera and digital video camera, and appropriate instructional software. These kits are additional to several digital cameras, video cameras, and other hardware and software resources already purchased by the grant for UWM student and faculty use. In schools that are technology poor, it is often UWM student teachers who are modeling the use of technology to enhance instruction and who are locating technology resources that formerly went unused in the building.

A large percentage of the original PT3 grant funds went directly to the three MPS partner schools in the project (Hartford University School for Urban Exploration, Frances Starns Discovery Learning Center, and Congress Extended Year-Round School). Each of these schools is a

fieldwork and student teaching site for UWM teacher preparation students, and they all received technology support and inservice training from School of Education staff. They also got grants of \$32,000 each year to support a half-time school-based technology consultant. This funding was leveraged by the partner schools in a number of ways, with each principal electing to use school funds to supplement the grant funding in order to make the position full time. With the conclusion of the PT3 grant, one of the three schools has kept the positions fully funded through their school budgeting. Others have arranged for part-time funding. UWM's partnership with these schools also led to their securing additional technology-related grants that were written by one of the co-principle investigators of the UWM PT3 grant for a UW System competition.

### **Three Schools, Three Different Kinds of Technology Partnerships**

The technology use observed in the partnership schools visited for this case study ranged from substantial to limited. These variations were confirmed in interviews with recent graduates and student teachers, who reported that each school's culture determines how often computers and other technologies are used, and the ways in which technology use is valued. Overall, the students interviewed report that word processing remains the most common use of technology across all schools.

*Hartford Avenue University School for Urban Explorations.* This school illustrates how technology can support a comprehensive reform agenda. Although located just across the street from the UWM campus, Hartford previously had a reputation for low academic performance and difficult management issues. Dr. Cynthia Ellwood, the current principal, has headed a comprehensive reform effort to change the nature of the school and the performance of its students.

A K–8 school, Hartford has 630 students, of whom 66 percent receive free or reduced-priced lunch. The racial composition is 72 percent African American, 15 percent Caucasian, with the remaining students representing a variety of nationalities, as well as some international students, children of university faculty. When Dr. Ellwood came to Hartford five years ago, she was the fourth principal in three years. There had been substantial turnover among students and faculty, and the school was targeted for central office takeover. Dr. Ellwood focused on enhancing university connections and forging bonds between staff and the parent community. Today, the UWM staff describes Hartford as one of the best schools in the city, attracting children from the community around the university as well as typical students from around the city who can select it on a space-available basis.

Dr. Ellwood ascribed much of the turnaround at Hartford to the partnership with UWM. “Life-changing for us” is the way she described the impact of the UWM technology partnership. She recalled that five years ago “the school was in the dark ages, with little consciousness of technology and how it could be used. Now we are at the other end of the continuum, very much on the forefront.” With the PT3 grant funds, she was able to pay half the salary of a technology coordinator and paid the other half through school funds. She noted that the technology coordinator originally hired by the grant

was a visionary in the way technology could be used to support learning. He wrote to teachers before he came and asked about what they want to do in their teaching—their goals and how he could help them. Before, teachers were not staying in computer room when they brought kids in; it was seen as an add-on. But [he] shared my conviction that technology should be a tool for academic learning. The staff identified their biggest staff-development need being technology training. He told them they'd get access to technology in their classrooms if they participated in his training. He got us Internet-compatible mobile laptops, and we saw immediate results: Kids were tripling the amount of research they were doing, teachers were assigning new kinds of activities, and we got a grant for a new iMac lab. (C. Ellwood, personal communication, n.d.)

The technology coordinator also worked with the science education department at UWM in securing a grant from the McDonald Foundation to put in wet labs, microscopes, and computers in the science room at Hartford. Although the original technology coordinator was there only a year (“hired away by a fancy private school,” according to Dr. Ellwood), technology enthusiasm remains high at Hartford. Through the additional grant with the university, Hartford received funds to purchase iBooks and high-level literacy software for students in Grades K–2. The school used this grant and school funds to purchase another four mobile carts, with 32 units on each floor. The grant provided some of the time for UWM’s technology staff to support their teachers informally, as well as formal staff-development programs for teachers in the summer and several afternoons during the school year.

In another university-Hartford technology connection, the fourth-grade class is working with graduate-level film students from UWM on a regular basis. The Hartford students researched the early days of the civil rights movement and discovered that there was actually a young woman who preceded Rosa Parks in integrating public facilities in the South. Her story is a powerful one the children told in their film, which won an award in a statewide film festival. Now a middle-aged woman, this “unsung pioneer” has visited Hartford regularly and become a part of the school community.

Most of the teachers at Hartford who are ethnically diverse are UWM graduates. The student teachers interviewed for this case study were enthusiastic about the dynamic uses of technology across the curriculum they found in their field experiences at Hartford. In turn, the principal values the UWM student teachers because they bring a clear social-justice perspective with them when they come to Hartford and have skills that go beyond their technology expertise. “Technology is important, but philosophy is more important,” Dr. Ellwood states.

*Francis Starms Discovery Learning Center.* The second PT3 partnership school visited as a part of the case study visit, Starms is one of 10 year-round schools in the district. The school has nine weeks of classes, then three weeks off, throughout the calendar year. At the time of the case study visit, classes were not in session, so the observation was limited to an interview with Principal Martha Wheeler-Fair. The year-round schedule creates a logistical challenge for the university partnerships and student teaching, since it does not match the university’s schedule, but the School of Education believes the unique features of Starms make it a good partner school.

Family involvement is the hallmark of the Starms program, although only half the students come from the neighborhood, with the other half bussed in from throughout the city. Rather than grade-level classes, Starms has “family teams” (with full special education inclusion) made up of 30 to 32 students in each multiage family team, staffed by two teachers and an education assistant. At the intermediate grades, there are 40 to 45 students in each family team with special education teachers and interns supplementing the work of the two teachers.

Title I staff-development funds and the PT3 grant have supported university connections with inservice training in technology use. Starms has four to six computers in each family-team setting. There is also a computer lab for each age group (Grades 1–4 and 5–6), and a video link enables teleconferences with the MPS Spanish Immersion School. Students use a writing program as part of the work with the full-time literacy coach; the position of literacy coach was instituted as a goal of the MPA’s work. Starms moved from using technology as a “special,” where teachers would drop off students in a lab, to using technology to support required project presentations at the end of units of study. The grant provided staff development and, in particular, funded the continued services of a part-time instructor who was formerly funded by an early-childhood technology grant, as well as a network support teacher. A technology club for students was launched as part of the PT3 activities, and students took an active role in teaching others about technology use. Technology projects were presented at regular family meetings of the entire school. However, with budget reductions, upgrading equipment to stay up to date is a current challenge.

The principal, Martha Wheeler-Fair, is responsible for two other schools in addition to Starms. She has a number of paraprofessionals on staff, education assistants from the community who are in the process of getting their certification. She has found that her greatest challenge has been keeping staff at Starms, which experiences a 20-percent to 25-percent annual turnover rate. Wheeler-Fair attributes the high turnover to the challenge of finding staff able to work effectively with teaming and multiage inclusion classes. Despite these challenges, last year when Starms was placed on the list of schools in need of improvement, and letters were sent home to parents informing them of this status, no one pulled their children out. According to Wheeler-Fair, parents offered to help however they could and said, “We’re not moving our kids.”

*Dover Elementary School.* A different picture of technology use was seen at a third school visited for the case study. Although not a PT3 partnership school, Dover is another school regularly used for field placements of UWM students.

Dover faces a different set of challenges. Once a school of 500 students, Dover’s enrollment in 2003 had decreased to 380 students. According to Principal Jaclyn Laber, this neighborhood school is losing students to several parochial schools located within a few blocks of Dover. With MPS public school funding now supporting students who choose to attend private schools, Dover has lost almost one fourth of its neighborhood children. The resulting \$200,000 funding lost by students attending other schools means that Dover can no longer support a science teacher, music teacher, physical education teacher, or a librarian. Dover has no technology specialist. Older computers, most of which were purchased up to nine years ago, are located in a top-floor media center/computer lab that receives little use. New computers for the lab had been ordered and

were slated to arrive shortly after the visit. While there is one computer per classroom, most have no Internet connection.

Dover is a direct-instruction school. This form of scripted instruction impacts technology use: Teachers do not seek out inquiry learning projects, and the principal believes there is little use for Internet research with young children. Because of the direct-instruction philosophy, teachers believe that there are limits to the ways that technology can be used to support their teaching, beyond some work in writing and skill drills. The use of technology in schools like Dover means that teacher preparation students there have a very different technology experience than they would in a technology-intensive, constructivist setting like Hartford. Student teachers at Dover often model what technology use can look like and stretch the use of local technology resources beyond what is normally done at the school.

Dover, and other direct-instruction schools, provide a special challenge for the School of Education. Direct instruction is becoming more popular in many urban school systems, MPS among them, and approximately 60 of the 120 elementary schools in the district are direct-instruction schools, with more coming on board each year due to pressure from the No Child Left Behind Act. This scripted approach to teaching reading fits well with the current testing and basic skills emphasis. Thus, despite the fact that the School of Education's comprehensive literacy teaching philosophy is in direct contrast to the didactic, direct-instruction teaching model, the School of Education does not ignore the fact that some of its graduates are likely to accept positions in direct-instruction schools if it is serious about meeting its commitment to serving the teaching needs of the local community. When it comes time for hiring new teachers or taking on student teachers, principals like Jaelyn Laber look for teacher candidates with some experience with direct instruction.

This is another conundrum the School of Education must face.

### **Concluding Comments**

UWM has maintained a long history of partnerships with MPS, despite changes in leadership and difficult financial times. The Milwaukee Partnership Academy, in particular, is an important resource for continuing the close connection between UWM and the MPS and for creating a communitywide responsibility for the quality of teaching and learning in Milwaukee's urban community. The partnership has now sustained a change in superintendents and in the chancellor at UWM. A review of the literature suggests that partnerships tend to maintain a major thrust for about a decade and then begin to drift apart naturally because of a number of factors, including leadership changes; different reform agendas; lack of resources to pay the high costs; faculty turnover or burnout; and fatigue from just keeping the thing going with meetings, meetings, and more meetings. It appears promising that the UWM-MPS partnership has the right ingredients to make the partnership continue to work and that the partners themselves are cognizant of the importance of institutionalizing this way of conducting the business of improving education. It is through the partnership that the role of technology will continue to be forged, with a reciprocal understanding of its role for both preservice and practicing teachers. The new Carnegie grant, in particular, may be the important glue that keeps the spotlight on partnerships and moves them forward.

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