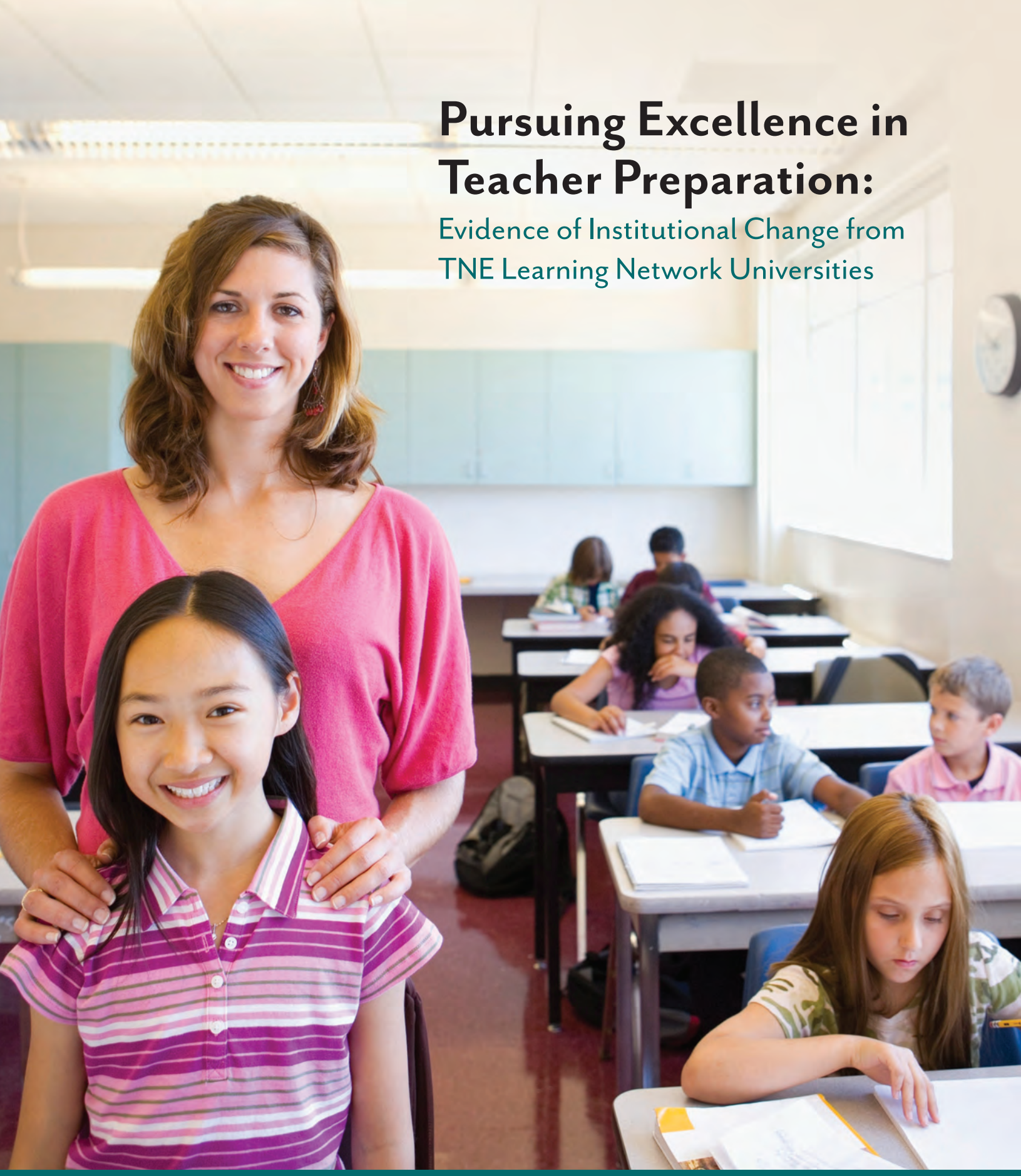
Pursuing Excellence in Teacher Preparation:

Evidence of Institutional Change from TNE Learning Network Universities



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Learning Network Teachers for a New Era

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Evidence of Institutional Change from TNE Learning Network Universities

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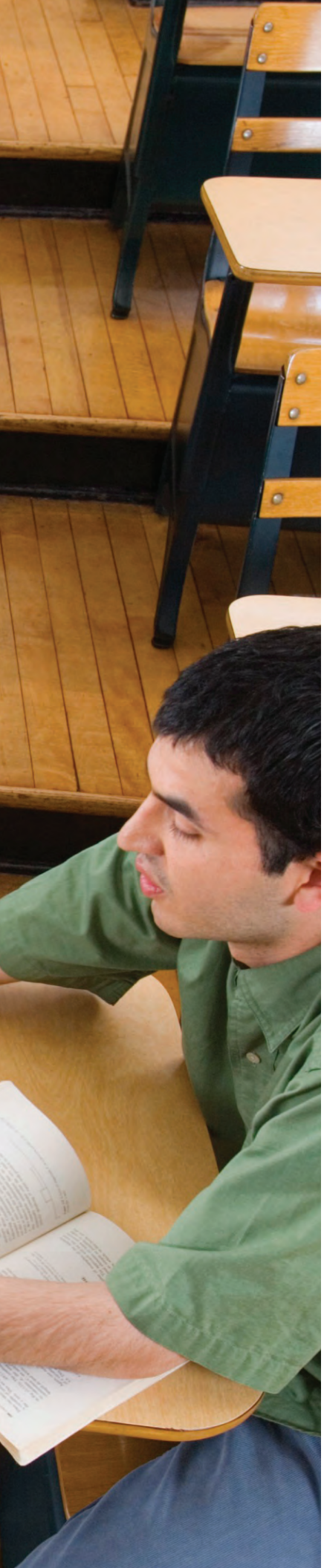
LEARNING NETWORK TEACHERS FOR A NEW ERA



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TEACHERS FOR A NEW ERA:

Three Design Principles

1. Decisions Driven by Evidence

All elements of the teacher education program are grounded on sound evidence, which includes measurements of the achievement of pupils taught by graduates of the program.

2. Engagement with the Arts and Sciences

The program engages disciplines of the arts and sciences.

3. Teaching as an Academically Taught Clinical Practice Profession

Teaching is an academically taught clinical profession, to include continuing professional support during the first two full years of teaching.

The purpose of this report is to document evidence of institutional change in teacher preparation among universities participating in the Teachers for a New Era (TNE) Learning Network. The report is based upon a cross-case analysis of individual case studies of nine universities, conducted by Academy for Educational Development (AED) researchers. The analysis searches out common themes across these universities around four research questions identified below. This report aims not to compare these teacher preparation programs, but rather to document parallels across their institutional experiences, highlight emerging questions and challenges, and, based upon these observations, suggest next steps in policy and programmatic practice.

BACKGROUND

No aspect of American education has seen more pressure to reform its practices than university-based teacher preparation.[1] The conviction that the quality of the classroom teacher is the primary predictor of student success has become the mantra of policymakers and shifted public attention with laser focus to the quality of teachers, in particular to their capacity to promote learning among their pupils. Inevitably, when evidence of teacher ineffectiveness surfaces, the focus turns toward those who have prepared the teachers. Over the past decade, those engaged in preparing teachers within the university setting have experienced intensifying and often critical scrutiny.

Since the publication of *A Nation at Risk* in 1983 and the subsequent wave of education reform reports in the 1980s and 1990s, the presidents and deans of a number of universities, as well as visionary faculty members, have sought themselves to improve their practices in preparing teachers. They have welcomed challenges, tough questions, and sound research, forged partnerships with K-12 districts, collaborated with colleagues in arts and sciences, and explored new assessment tools. Associations of educators, as well as government and private funders, have sought to encourage, refine, and disseminate new practices through national research, policy, and programmatic initiatives.

1 See American Educational Research Association. (2005). *Studying Teacher Education: The report of the AERA panel on research and teacher education.* (M. Cochran-Smith & K.M. Zeichner, Eds.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

One such initiative is Teachers for a New Era (TNE),[2] launched in 2001 by the Carnegie Corporation of New York (CCNY) with additional support from the Ford and Annenberg Foundations. The goal of TNE is to strengthen K-12 teaching by developing state-of-the-art teacher education programs at 11 selected colleges and universities through a focus on the three TNE "design principles": (a) grounding teacher education on sound evidence, including measurement of pupil learning; (b) engaging the arts and sciences disciplines; and (c) understanding teaching as an academically taught clinical practice profession.[3]

Four years later, in 2005, the TNE Learning Network was established with a grant from the Annenberg Foundation and additional support from CCNY. Its purpose is to encourage additional institutions of higher education to apply the TNE design principles to the reform of teacher education and to engage with others who have similar interests and intention. (See Appendix A for a list of the 30 institutions selected through a competitive invitational process to belong to the TNE Learning Network.) The initial objective of the Learning Network was to develop an infrastructure (meetings, grants, and professional development) to promote interaction among these institutions that would further engage them in transforming teacher education. In 2006 and 2007 the Learning Network also sponsored mini-grant competitions with awards of $10,000 or less for projects that addressed one or more of the design principles and aimed to strengthen teacher education.

RESEARCH METHODOLOGY

The genesis of this study was a shift that occurred in the TNE Learning Network's third year, initiated by the Annenberg Foundation, toward more explicit analysis and documentation of institutional change in teacher preparation occurring among the Learning Network institutions. In response to the Annenberg Foundation's decision, AED prepared a plan for documenting such change. Several substantial challenges to constructing a sound plan were immediately apparent:

- The timing of the shift toward documentation occurred late enough in the Annenberg grant that it was not possible to conduct multiple site visits to individual institutions to observe change occurring over time.
- It was not practical to conduct case studies of 30 institutions, so a site selection process would be necessary.
- The complexity of institutional change and multiplicity of factors involved required that the case studies focus on a single element of change rather than attempt to document the entire teacher education enterprise at each university.

2 The 11 institutions participating in the TNE initiative are Bank Street College of Education; Boston College; California State University, Northridge; Florida A&M University; Michigan State University; Stanford University; University of Connecticut; University of Texas at El Paso; University of Virginia; University of Washington; and University of Wisconsin, Milwaukee. Most are completing the 5-7 year process of institutional change under TNE.
3 Carnegie Corporation of New York. (2001). Teachers for a New Era: A national initiative to improve the quality of teaching.

These challenges informed the final documentation design. The research team determined to arrange site visits to a sample of Learning Network universities, to write case studies documenting each program, and to prepare a cross-case study that would address four major research questions intended to explore the degree to which institutional change in teacher preparation that reflected the TNE principles was or was not occurring.

Research Questions

The AED team identified four broad research questions:

(1) Is there evidence of institutional change along the lines of the TNE design principles in the preparation of teachers at these institutions?
(2) What are the primary categories of change being undertaken on each campus?
(3) What are the indicators of these institutional changes?
(4) What aspects of the TNE Learning Network, if any, are reported to have triggered or enhanced the occurrence of change or supported its continuation?

For the purposes of the documentation, institutional change was defined to mean change more fundamental than individual action steps such as meetings across colleges or adjustments to curricula or degree requirements. Institutional change occurs when there is a transformation of practice that shifts a teacher education program's organizational structure, culture, external relationships, or ways of assessing the outcomes of its work. Such change is often based on research evidence, involves sustained partnerships with school districts and personnel, establishes cross-college and cross-departmental pathways for work and communication, increases the quality and length of time that candidates spend in school settings, and assesses its teacher candidates on their effectiveness in the classroom. Institutional change is a mission-driven effort to sharpen the teacher education program's focus on the effectiveness of its graduates in helping pupils learn.

Focus for the Documentation

University-based teacher preparation is a complex enterprise with many elements and many players, and this is especially salient for universities attempting fundamental change. To provide a manageable focus for the case studies, AED asked the TNE Learning Network universities to select one program objective by which they would wish to document their progress. Workshops were offered at the 2007 Learning Network meeting in Denver, Colorado. Every Learning Network team was asked to send a representative to a workshop, the purpose of which was to provide a process and tools for identifying a program objective and indicators of change that might serve as markers for their progress toward the program objective. Teams were asked to select objectives that (1) reflected an important aspect of teacher preparation at their institution, (2) addressed one or more of the TNE principles, and (3) logically connected to pupil success. They were asked to submit to AED, by January 2008, a "measuring progress" statement, which would summarize the objective, indicators, and link to student success.

Institutional change occurs when there is a transformation of practice that shifts a teacher education program's organizational structure, culture, external relationships, or ways of assessing the outcomes of its work.

The intention was that the program objectives would provide the focus for the case studies that AED prepared to document institutional change. It was also thought that this exercise in defining markers of progress toward institutional change would enable the institutions themselves to track their changes in practice.

Site Selection

Based on their "measuring progress" statements, AED identified nine of the 30 universities in the Learning Network as sites for the case studies. (Two additional universities were invited but declined.) Sixteen universities did not submit statements, and three submitted statements too limited in scope to reflect institutional change. The sites selected were among the more active in the Learning Network and included most of those that received mini-grants in 2006 and 2007. The nine sites are: Arizona State University, Indiana State University, Jackson State University, Montclair State University, New York University, University of Dayton, University of North Carolina Greensboro, Western Kentucky University, and Western Oregon University.

Site Visits

AED research teams conducted site visits to the nine universities between June 2008 and December 2008. During the two-day visits, researchers interviewed individuals who play important roles in each university's teacher preparation program, including faculty and administrators of schools of education, arts and sciences faculty and administrators, provosts, senior administrators of school systems, teacher candidates, and school principals, mentors, and teachers. These interviews, along with documentation provided by the sites or identified by the AED researchers, provided the basis for the case studies.

The case studies represented a snapshot in time of work underway at each university. The passage of two years since the site visits means that this report will not reflect changes since 2008. The economic downturn may also have had an impact on the capacity of these universities to sustain the momentum of change. Nevertheless, the findings of this study offer an important window onto the categories of change in teacher preparation that show the most promise, different approaches to each, and information of value independent of the circumstances at any one campus. Anecdotal evidence also suggests that in many cases these universities are finding ways to sustain at least the core elements of the more fundamental changes upon which this study reports.

Dissemination of Findings

This report will be published in print and made available online.

RESEARCH QUESTION 1:

Is there evidence of institutional change along the lines of the TNE design principles in the preparation of teachers at these institutions?

At all nine universities, the research team found substantial evidence of institutional change in progress that embodied one or more of the TNE design principles. Of the program objectives selected by the nine universities, four addressed Principle A (grounding teacher education on sound evidence), none addressed Principle B (engagement of arts and sciences), and five addressed Principle C (understanding teaching as an academically taught clinical practice profession). Two universities chose more than one objective, but the case studies focused on one per site.

Of the five clinical practice objectives, three emphasized induction of new teachers, and two emphasized clinical experiences for teacher candidates. Of the four evidence-based objectives, one proposed creating a database to track retention and impact of graduates on K-12 learning, and the other three sought to develop a process and/or instrument for assessing teacher candidate knowledge and teaching effectiveness.

Indicators of institutional change included:

- New policies and programs that reflected the design principles
- New organizational structures and/or staffing arrangements
- New partnerships/collaborations both on campus and off campus
- New models or graphical representations
- New teacher preparation pathways
- New sources of data fed back into the program to inform improvement and re-visioning
- Leadership and staff commitment to continual improvement based on evidence

In some cases, these strands of change were initiated before the Learning Network was created—evidence of such change was part of the rationale for selecting the 30 institutions in the first place—but additional elements of change appear to have become integrated into teacher education at these universities in the past several years in a variety of ways, including commitment from faculty, administrators, schools, and teacher candidates; appropriate staffing and fiscal support; and commitment from the leadership of both the university and off-campus key players in the teacher education enterprise. Especially compelling indicators of change are new practices sufficiently integrated into standard procedure to have become the foundation for new initiatives and directions.

Of the five clinical practice objectives, three emphasized induction of new teachers, and two emphasized clinical experiences for teacher candidates.

Under Research Question II, this study examines the specific changes underway at each campus that were related to their program objective and documented in the case studies.

RESEARCH QUESTION II:

What are the primary categories of change being undertaken on each campus?

It is important to repeat that each case study focused on a single program objective selected by that university. As a result, the case studies documented changes underway that related to the program objective, and ignored other, important changes in teacher preparation simply because they were tangential to the program objective. It would be erroneous to conclude that a university did not have innovative work underway in one of the six categories of change described below, for example, or elsewhere, because this report does not highlight it. These omissions reflect the structure of the case studies on which this report is based.

Originally the AED research team intended to organize the answers to Research Question II according to the TNE design principles. After completing the case study analysis, it seemed more legitimate to allow those findings to define the categories of institutional change used to organize this report. The research team identified six major categories of institutional change:

- Clinical experiences for teacher candidates
- Rethinking coursework
- Induction
- Engagement of arts and sciences
- School partnerships
- Culture of evidence

What follows is a broad description of each category with detailed examples drawn from the case studies. It is important to underscore that although this report examines each category separately, in fact these practices are integrated elements of institutional change.

Clinical Practice

Radical restructuring of the clinical practice elements of the teacher preparation sequence is a core feature of several teacher preparation programs in this study. Teacher candidates are introduced to field experience earlier in their programs, and the number of days they devote to field experience is greatly increased. Of equal importance, these universities are wrestling with the *quality* of that experience: its location, the candidate's role, supervision and mentoring of the candidate, and the outcomes that the teacher education faculty and

administrators anticipate will emerge from clinical experiences. In most cases, these programs are also looking for ways to ensure that the field experiences are academically based, in other words, substantially supported by the academic resources of the university and its faculty, including arts and sciences faculty.

Indiana State University (ISU). Pursuit of a new model of clinical field experience at ISU was prompted by the faculty's recognition that the "parachute in and out" method of clinical experience for teacher candidates was ineffective, not only for pre-service teacher candidates but also for public school students. The College of Education's (COE) departments of Elementary, Early, and Special Education (EESE) and Curriculum, Instruction, and Media Technology (CIMT, which houses the pedagogical component of secondary teacher preparation) determined to pilot new models of clinical placement. These would better prepare teacher candidates by offering *immersion*, not simply observation, in school environments prior to the student teaching semester, longer and more intensive than previous clinical experiences preceding student teaching.

The elementary and secondary clinical pilots were designed in connection with Project PRE (Partnering to Reform Education: An All-University/High Needs School Partnership), the guiding force behind teacher education reform at ISU since its receipt of a Title II Teacher Quality Enhancement grant in 2003. It is in the context of Project PRE's collaborative focus on clinical experience and pupil learning that the clinical pilots were developed. Project PRE's purpose is to bring together the content knowledge represented by faculty in the College of Arts and Sciences and the three professional colleges of business, health and human performance, and technology, with the pedagogical knowledge represented by faculty in COE, coupled with the clinical knowledge represented by faculty in ISU's 20 professional development schools.

The elementary clinical pilot program, called TOTAL (Teachers of Tomorrow Advancing Learning), consists of an intensive clinical immersion experience in the semester prior to student teaching, coupled with content methods courses in math, science, social studies, and reading. In the last eight weeks of the semester, TOTAL teacher candidates are in schools every day. During this time, teacher candidates participate in the full range of building activities, including teaching, assessment, administrative activities, and professional development. In the classroom, TOTAL interns observe and assist supervising teachers before gradually moving into small-group instruction and, finally, assuming responsibility for teaching some lessons at the end of the semester in preparation for their student teaching. The TOTAL internship semester differs from student teaching in that the master teacher is always present, effectively resulting in a co-teaching arrangement between the intern and their supervising teacher.

In addition to receiving guidance from supervising teachers, TOTAL interns are in regular contact with university faculty during required seminars and in the field. TOTAL interns are also required to participate in a blog, intended to promote reflexive practice and professional collegiality, through which they share problems with one another and with university faculty. Although feedback concerning TOTAL from teacher candidates and their supervising teachers has been positive, EESE is working to make evidence collection more systematic, including a new evaluation form for interns and for student teachers.

The secondary clinical pilot program, called the "Immersion Semester," escalates the level of candidate engagement in field experience during their sixth or seventh undergraduate semester, when College of Arts and Sciences and COE faculty members team to create an extended block of time for candidates to be placed with a coaching teacher in their content area at a local high school. Candidates spend three hours a day for eight weeks paired with a master teacher. CIMT's goal is that, during the immersion semester, pre-service candidates will be exposed to real experiences in a whole-school environment that previously would have been simulated. As in the TOTAL program, university supervisors meet with teacher candidates onsite and at the university.

Montclair State University (MSU). In recent years, MSU's teacher preparation program has embedded field experience into every course prior to the professional sequence (i.e., student teaching), and increased the number of hours in the professional sequence to give candidates more time in the field. All undergraduate teacher candidates are required to take field experience courses, typically in the last two semesters of their program. Candidates complete these field experiences in school districts that are MSU Network for Educational Renewal (MSUNER) partners, and MSU strives whenever possible to place cohorts of teacher education students in schools where there are a number of their clinical faculty members. In many MSUNER schools, clinical faculty meet regularly as a group with student teachers to discuss important issues of teaching, learning, and mentoring.

In addition to receiving guidance from supervising teachers, TOTAL interns are in regular contact with university faculty during required seminars and in the field.

MSU's most intensive efforts to improve clinical experiences are concentrated in the PIE-Q (Partnership for Instructional Excellence and Quality) schools in Newark, with the expectation that they will eventually scale up these efforts to the rest of the MSUNER partnership. The pre-service support offered by MSU aims to address the "culture shock" that new teachers can experience in school environments, a disequilibrium that may be compounded when pre-service teacher candidates are placed in an urban school, a type of environment with which many of MSU's students are unfamiliar. Efforts to improve support for pre-service teachers emphasize increasing and intensifying mentoring during field experiences, coupled with on-site courses for teacher candidates in partner schools, and urban schools in particular.

Pre-service teachers may apply for acceptance to the university's Urban Teaching Academy (UTA), a specialized strand in the teacher education program designed to prepare and support graduate and undergraduate education candidates interested in teaching in urban schools. Students enrolled in the UTA are required to take a specific set of courses determined to correlate best with preparing urban educators as well as to participate in a community-based internship. Students take UTA classes and are placed in the field as a cohort to provide collegial support.

All of MSU's undergraduate teacher education applicants "shadow" effective teachers and conduct 10 hours of community service in urban PIE-Q schools during the required course, "Public Purposes of Education in a Democracy." The course gives public school students an opportunity to see college students in their schools, while at the same time exposing MSU students to high-functioning urban schools. In addition, MSU's "Elementary Art Methods" course is held in 4th grade general and ESL classrooms in a PIE-Q school. These efforts all are designed to help teacher candidates past the egocentricity of their initial reaction to the school environment, and refocus on why they are there, that is, to produce learning in their pupils.

University of Dayton (UD). One aspect of service to community that has particularly contributed to UD's mission is the Marianist commitment to people who live in poverty and on the margins of society, reflected in the UD teacher preparation program's commitment to social justice and urban education. Particular emphasis is placed on providing teacher candidates with opportunities to work with urban pupils in settings ranging from the early college high school located on the university campus, to carefully selected classrooms in the Dayton Public Schools, and urban parochial schools in Dayton and San Antonio, Texas. UD's teacher preparation program also offers candidates the option of applying to its Urban Teacher Academy, which provides candidates with specialized classes to help them understand and succeed in urban schools, and pairs them with a trained mentor for a two-year field placement in an urban classroom.

Since 2006, the Dayton Early College Academy (DECA) has served as an initial placement site for students in UD's junior year gateway course for the adolescence-to-young-adult (AYA) teacher education program, "Child and Adolescent Development." The course focuses on three strands: development of critical observation skills; conducting analysis based on observations; and exploration of students in poverty. Part of the course's purpose is to teach candidates to use ongoing formative assessment to design and differentiate instruction for individual pupils. AYA students spend 20 hours of observation at DECA, 15 in class and five at after-school study tables. The five hours during which they work with pupils at the study tables enables UD candidates to begin learning how to talk with and get to know individual students.

All of MSU's undergraduate teacher education applicants "shadow" effective teachers and conduct 10 hours of community service in urban schools.

UD teacher candidates are primarily white, middle class females from suburbia with limited exposure to poverty and urban settings. In interviews conducted by faculty at the start of the semester, most contrast their backgrounds with their perceptions of urban life. Only three of 56 candidates had anything positive to say about urban schools. By the end of the semester, the faculty instructor documented a substantial shift in attitudes; only two teacher candidates still focused on differences. In short, UD data suggest that the early placements at DECA shift teacher candidates' negative perceptions of urban schools and excite them about the contributions they could make to pupil learning.

Rethinking Coursework

When teacher education departments decide to increase the hours that teacher candidates spend in schools, and improve the quality of their clinical experiences, coursework will inevitably change as well. At the most basic level, the hours available for standard in-classroom college courses are likely to diminish. For example, candidates in the TOTAL clinical pilot at ISU, described in the previous section, attended all their methods courses on Monday for the first eight weeks of the semester, an arrangement which required substantial reorganization of syllabi and course scheduling. Students enrolled in MSU's UTA are required to take a specific set of courses as well as participate in a community-based experience.

Of course, university administrators' and faculty's increasing exposure to school personnel and classrooms may also reveal weaknesses in the preparation of candidates in reading, math, and in their major fields of concentration. The goal of improving the quality of candidate experiences in the schools may also drive changes not only in course content and pedagogy but even in course location and staffing, as universities hold courses in schools and faculty co-teach with school teachers.

University of Dayton (UD). All first year students at UD are expected to participate in a learning-living community (LLC) offered through a campus residence hall. The LLCs, which focus on themes ranging from Writing and the Arts to Sustainability, Energy, and the Environment, are designed to provide opportunities for students to learn with the people with whom they live. All students in an LLC take at least one course with other community members and participate in a range of activities related to the LLC theme.

The Curiosity in the Classroom LLC is designed specifically for prospective teachers, with emphasis on connecting science instruction at the university level with the science candidates will ultimately be teaching.

The Curiosity in the Classroom LLC is designed specifically for prospective teachers, with emphasis on connecting science instruction at the university level with the science candidates will ultimately be teaching. Members of this LLC are enrolled in special sections of introductory teacher education courses as well as geology for teachers and another science course and lab that focus on the physical universe. Faculty in the science courses are expected to model best practices in teaching, including inquiry-based learning. Through an

explicit emphasis on how to foster curiosity in K-8 pupils, this LLC provides opportunities for students to experience science lessons taught by current grade school teachers, take field trips to science museums and centers, and observe strategies for teaching science to children.

New York University (NYU). In a recent development, some NYU coursework is co-taught by teachers and school staff in partner schools. The first teacher education course taken by freshmen and first-semester master's students, "Inquiries into Teaching and Learning," is taught in partner schools on the Lower East Side; 21 sections of the course were taught in the fall semester of 2008. The course is co-taught by public school teachers who are appointed as NYU adjunct faculty. Another course, "The Social Responsibility of Teachers," which focuses on issues like drug and alcohol education, child abuse identification, and school violence prevention, brings together social workers and school counselors to talk to aspiring teachers about real school situations. These courses are intended to expose NYU teacher candidates to an urban school environment at an early stage in their preparation for teaching and "melt away the fear" some may initially feel on entering such an environment.

Western Oregon University (WOU). Data collected from Teacher Work Samples (TWS) have triggered a number of course and program revisions at WOU and at least one comprehensive overhaul of teacher education programs in the late 1990s. Many of the more recent coursework revisions have reflected changes to state statutes and regulations and/or development of subject-specific TWS. For example, Oregon added literacy integration to TWS requirements in 2004, and WOU faculty developed a continuum of literacy integration in TWS as well as an assessment rubric and scoring guide. Subject- specific TWS—and related changes to teacher education coursework—were developed, to a large extent, as a result of faculty recognition of the limitations of generic TWS. The faculty member who teaches science content methods noted that she saw the need for science and math TWS "after years of reading generic TWS." She also noted that introduction of science TWS led to changes in her methods instruction, one of which focused on the importance of maintaining the language of the profession.

Western Kentucky University (WKU). Five science departments served on a task force established under the 2007 Learning Network mini-grant, which supported the redesign of academic courses to prepare elementary education teacher candidates to more effectively address Kentucky's K-5 core content standards in science and social studies. The Task Force for Science Content Course Revision included three school teachers as well as science faculty members. Having teachers on the task force was helpful both for their knowledge and for the credibility it gave the task force with the schools, then in the midst of an effort to incorporate science into reading and math. The task force oversaw pre- and post-tests of the content knowledge of new teachers—all of whom were WKU graduates—in math and science, and the

results caught them off-guard. "They knew nothing they should have," observed a senior member of the science college. The task force identified three domain deficiencies in K-5 math (number properties and operations; measurement; and geometric elements, terms, and objects) and three domain deficiencies in K-5 science (structure and transformation of matter; motion and forces of matter; and solar system components, motions, and interactions). The result was the revamping of six WKU courses required of all elementary candidates, three in math and three in science.

University of North Carolina Greensboro (UNCG). Since 2008, the state has required all public and private institutions to "re-vision" their professional education programs to meet new standards for teachers and school executives. The North Carolina Board of Education explicitly emphasized content, assessments, and K-12 partnerships. Colleges and universities are required to develop "power standards" for each specialty licensure area (e.g., math, science, or English) that reflect expected candidate learning outcomes and align with both the North Carolina K-12 Standard Course of Study and the standards of appropriate national professional associations.

The re-visioning process at UNCG began with a series of cross-university faculty retreats with school district partners that explored changes in curricula, assessments, field placements, and program sequence and requirements. A re-visioning committee was established for each program, with members drawn from education, arts and sciences, and K-12 schools. The committees' work included changes in courses and sequences, creation of integrated or interdisciplinary courses, development of electronic assessments, and identification of strategies for coordinating upper-level content courses with student teaching. In addition to the state standards to which the re-visioned programs must be aligned, data sources included surveys of students, faculty, and cooperating teachers. These data helped pinpoint the need for specific program changes such as greater emphasis on math for elementary education students. And as faculty from education, arts and sciences, and K-12 schools worked together to revise course curricula and program sequences, consensus also emerged on the need to expand field placements in other programs to the 1,000-hour level currently offered in the elementary education program.

Data helped pinpoint the need for specific program changes such as greater emphasis on math for elementary education students.

Induction

Many of the nine universities have rethought their engagement in the induction of new teachers, pursuing more substantive roles and responsibilities. Some envisioned three years of induction as the ideal, although none had yet achieved that. Five took advantage of the New Teacher Center's 2007 "Induction Institute," funded by CCNY and offered to TNE and Learning Network universities, which was intended to improve the quality of the mentoring offered to new teachers.

Jackson State University (JSU). The "New Teacher Induction Program" envisioned by JSU is conceived as a program that would provide, through the assignment of trained mentors, three years of structured support for pre-service and novice teachers in the Jackson Public Schools (JPS). During the first phase of the program, mentors are retired K-12 teachers who have received training. At the time of the AED site visit in November 2008, JPS had 24 mentors in place, with the goal of reaching 50 mentors by the end of the semester. That year there were 141 first year teachers in the district. Although the concept of the induction program is that both teacher candidates and new teachers would have mentors, one challenge is to locate and train enough mentors to fill this need. JPS has placed priority on providing mentors to first and second year teachers, while the university is concerned that their preservice candidates need more support than the JSU clinical supervisor is able to provide. Ultimately the plan is for every new teacher to have two mentors: a JSU professor in their content area and a K-12 teacher. JSU's dean of the College of Education and Human Development (COEHD) emphasized the importance of faculty gaining experience in K-12 settings and viewed it as an element of faculty service.

A 46-member collaborative team (half from JPS, half from JSU) worked in six committees throughout the year to develop the program and ensure ownership of the program among key people and entities: Mentor Professional Development, Collaboration and Communication, Formative Assessment, Professional Teaching Standards, Data Collection and Analysis, and Arts and Science. All the committees included both JPS and JSU members, although most were chaired by JSU faculty. Of the JSU team members, slightly fewer than half were faculty members from outside the COEHD.

JSU was among the TNE and Learning Network institutions to receive a grant in 2007 from CCNY to participate in the New Teacher Center (NTC) professional development and training initiative. A collaborative team representing JPS and JSU traveled to the Induction Institute led by NTC in Chicago in May 2007. Professional development sessions were provided by NTC trainers in Jackson on March 4-5 and June 16-17, 2008. School system and university representatives reported finding the training as well as the materials productive and rewarding. JPS staff revised some of their own materials in response to the NTC training.

Montclair State University (MSU). MSU's vision of induction is of "a coherent and seamless continuum of support from pre-service through induction years and beyond." MSU's plans to expand its induction program place equal importance on preparing teacher candidates for the reality of teaching in urban schools and supporting novice teachers as they enter and strive to succeed in these schools. By law, every beginning New Jersey teacher is assigned a "support team" to provide guidance during the first year of teaching. First year teachers pay a fee, deducted from their paychecks, to fund the services of this support team. MSU's decision to pilot specialized mentoring and induction work in the Newark Public Schools through PIE-Q reflects a deliberate and conscious orientation toward urban school renewal.

Although New Jersey mandates that every first year teacher be paired with an experienced mentor teacher and requires mentoring and induction plans from districts, the state neither funds nor delineates any specific mentor training. In Newark, the district Office of Professional Development began holding required training sessions for mentor teachers, led by "resource teacher coordinators," in the 2007-2008 school year. All of these resource teacher coordinators, as well as individual mentors from the PIE-Q schools, attended NTC training. MSU's mentor training program follows NTC guidelines in its use of the "Phases of First Year Teaching" model, NTC observations and scripts protocols, and reliance on the standards-based approach. The standards-based approach has become increasingly visible in New Jersey, which adopted new professional standards for teachers and administrators in 2003 as part of new licensing requirements. Use of the NTC model highlighted the importance of standards and allowed MSU to build a common language around standards with partner districts.

MSU's induction model attends to the stages of development for novice teachers, differentiating support in keeping with candidate and teacher needs at different stages. Administrators and veteran teachers in PIE-Q schools have made efforts, influenced by the NTC training and instruments, to extend official and unofficial support to second-year teachers and to teachers in their third through fifth years of teaching, recognizing that teachers in each of these stages have different needs. For example, one PIE-Q elementary school principal performed a needs assessment of first, second, and third year teachers as well as classroom veterans and, through the PIE-Q partnership and with the help of teachers, developed a matrix of the different kinds of support each group needs. In response, experienced teachers have implemented a new teacher support program held once a month before classes for beginning teachers and teachers new to the school, which addresses new teachers' concerns as they arise, often concerning classroom management or school policies and procedures. First year teachers at this school are also assigned an unofficial "buddy" in addition to the official state-mandated mentor.

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University of North Carolina Greensboro (UNCG). The Wachovia Mentoring Network (Wachovia Network) was established in spring 2006 to recruit, prepare, and support a network of 150 educational mentors in the 16 school districts in the Piedmont Triad region. It had three goals: (1) increase retention of both novice and mentor teachers; (2) provide quality professional development for mentor teachers; and (3) increase pupil achievement in the classrooms of novice teachers. Although not explicitly reflected in its goals, the Wachovia Network played a significant role in building UNCG's relationships with K-12 schools and identifying exemplary K-12 teachers to serve as professional partners in teacher education. In fall 2008, the Wachovia Network included 137 mentors from 10 districts and a full-time coordinator housed at UNCG.

The creation of the Wachovia Network allowed UNCG and its district partners to come closer to realizing the North Carolina Board of Education's goal for mentoring of novice teachers: that every first and second year teacher have a full-release mentor with a ratio of one mentor to 15 novices. (The state has not provided financial support to realize this goal.) For example, before the Wachovia Network, the Guilford County Schools had two mentors whose focus was evaluative rather than supportive. Three years later, the district had full-time induction coaches who worked in the schools with 35-40 novice teachers and were no longer viewed as evaluators, but rather as trusted supporters.

UNCG's longstanding relationship with NTC is widely credited for the initial success of the Wachovia Network. NTC provided initial mentor training as well as consultations with individual districts on the development of induction programs. In doing so, NTC helped the Wachovia Network jumpstart activities on two immediate and inter-related priorities: district planning and mentor training. Mentors selected by partner districts participated in a range of professional development activities, including a week-long Teacher Mentoring Institute during their first summer. Periodic follow-up meetings were held at the district level during the school year, and additional institutes were held at UNCG during school years and subsequent summers. An online community and listserv supplemented face-to-face communications among mentors and provided further connections to UNCG faculty. Partnership funds from the state were used to complement the Wachovia investment by covering the costs associated with faculty conferences and stipends for institute participants.

Western Kentucky University (WKU). Envisioning a comprehensive induction program, WKU's goal was to develop and implement a new mentoring model for all new teachers in two partner districts by the fall of 2008. Implicit in this vision was the assumption that it would require partnerships beyond WKU's College of Education and Behavioral Sciences and its faculty. On the university side partners included the Ogden College of Science and Engineering and the Potter College of Arts and Letters. The school district partners were Bowling Green Independent Schools and the Warren County Schools. The Mentoring Leadership Team, created to guide the consortium, included two teachers and a curriculum coordinator from each school district, three WKU teacher educators, and four WKU faculty members from Ogden and Potter Colleges.

By comprehensive, the leadership team meant that everyone who played a role in assisting new teachers in these school districts—including teacher educators, arts and sciences faculty, master resource teachers, and school principals—should be engaged and trained. The decision to pursue a new model of induction reflected general dissatisfaction on the part of both the schools and the university with the mentoring offered through the Kentucky Teacher Internship Program (KTIP), which required all new teachers in the Commonwealth

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to complete a one-year internship. The training the state provided to KTIP mentors emphasized instruction rather than relationship-building, and both school districts found that the evaluator role superseded the mentor role. The university's concern was not only for new teachers, but also for the 400-450 student teachers WKU placed each year. WKU sought to place student teachers with the best teachers, but recognized that teaching excellence does not guarantee skill as a mentor.

The Mentoring Leadership Team believed the quality of the new induction program depended on ensuring that its design and implementation reflected research-based concepts, structures, and processes. This goal was one factor in WKU's decision to bring NTC into its planning. WKU sent a team to the Chicago NTC Institute and subsequently submitted a successful application for a second phase of customized support. Two NTC trainings took place at Warren County's central district office in the fall of 2007 and spring of 2008, and Bowling Green's training took place in the summer of 2008. A second round of training was scheduled for fall 2008, but because the expense of the NTC training would no longer be covered by the grant, WKU negotiated with NTC to provide their materials in order to insert the mentoring element into the informational sessions offered by school districts to new teachers each fall. At the time of the AED site visit, both school districts were adjusting their programs and policies to match the NTC model of induction and mentoring. Central office administrators, principals, and teachers were positive about the emphasis on mentoring as a trusting relationship and the tools for structuring that relationship.

Engagement of Arts & Sciences in Teacher Preparation

None of the nine universities selected the engagement of arts and sciences in teacher preparation as a primary objective for the purposes of these case studies in their "measuring progress" statements. In practice, however, the commitment of departments and entire colleges representing the arts and sciences to teacher preparation, and collaborative ventures between these entities and departments of teacher preparation, were significant features, in many cases critical features, of the changes underway in teacher preparation at these universities.

Indiana State University (ISU). One notable feature of ISU's teacher preparation program has been that content methods courses were taught outside of the College of Education (COE) by faculty in the College of Arts and Sciences (CAS) and in the professional colleges of Business, Health and Human Performance, and Technology. While this meant that teacher preparation was inherently a cross-college endeavor, the colleges, particularly COE and CAS, began in recent years to engage one another with deeper commitment on teacher education. Enhanced collaboration was tied to Project PRE, which counted as principal investigators an associate dean of COE, an associate dean of CAS, and a representative from a local school corporation. The collaborative work promoted by the 2003 grant, however, proved successful

in part because changes already underway encouraged receptiveness to cross-college collaboration.

Perhaps chief among these changes was a shift in leadership of COE, of CAS, and in the provost's office, in what one administrator described as a moment of "serendipity" leading to a change in the culture of the university. According to its dean, within CAS there was a growing cadre of faculty members with interest in teacher education yet no official role in teacher education, reflecting both new hiring practices and attitudinal shifts among tenured arts and sciences faculty. According to one math faculty member, the faculty hires occurred partly because of ISU's reputation for collaboration.

CAS also had implemented new institutional structures signaling the college's commitment to teacher preparation, such as the 2006 formation of the Teacher Education Advisory Council (TEAC), a permanent advisory panel consisting entirely of content methods faculty from CAS. Discussions in this group focus on program redesign, clinical pilots, and other teacher education activities. TEAC strengthened relationships not only between COE and CAS, but also among CAS faculty members. TEAC has also proved invaluable for coordinating program changes under Project PRE, which required cross-college planning because content methods courses for teacher candidates were taught outside of COE. Stronger relationships allowed CAS faculty to build on COE's relationships with schools in securing clinical placements. In the past only COE faculty served as liaisons, but beginning in 2004, faculty from outside of COE also served as PDS liaisons.

Western Kentucky University (WKU). WKU's Ogden College of Science and Engineering has had an active commitment to teacher preparation and collaborative partnerships. The leadership of Ogden College recognized the shortage of prospective math and science teachers in the state, the lack of awareness among young Kentuckians about employment prospects in science, as well as the great potential that applied research in science and engineering has for transforming the economic life of the region. All these factors drove their commitment to improving teacher preparation. According to college leaders, they made applied research and hiring for K-12 experience and commitment their priorities. As one Ogden administrator observed, "The pipeline of students is the issue."

Ogden College faculty members held leadership roles in both the Learning Network mini-grants that the WKU College of Education and Behavioral Sciences received. With the 2006 Learning Network mini-grant, they piloted an online mentoring community to facilitate improved performance of new teachers, with particular focus on 22 second year teachers in K-5 science/mathematics instruction. The rationale for mentoring was to help teachers incorporate into their teaching what they had learned at WKU in math and science courses. The math and science faculty who taught the summer courses were to be the primary

According to college leaders, they made applied research and hiring for K-12 experience and commitment their priorities.

mentors. Among the findings of the grant was "a much greater awareness of the challenge of preparing elementary teachers with the pedagogical content knowledge in mathematics and science to address state content standards with their students." This recognition led to course redesign and the second mini-grant.

Five departments from Ogden College served on the task force established under the 2007 mini-grant, which supported the redesign of academic content courses to prepare elementary education teacher candidates to more effectively address Kentucky's K-5 core content standards in science and social studies. One result of the task force's findings was that Ogden faculty members became involved in planning and implementing an intensive master's degree program of 30 semester hours for elementary and middle school teachers, introduced in the fall of 2007.

Montclair State University (MSU). MSU's Center of Pedagogy (CoP), the first in the nation, was established in 1995 and administers academic, outreach, and grant-related programs for initial teacher education. The coordinating and oversight body for all aspects of teacher education at MSU, CoP is a coalition of faculty members and administrators from the arts and sciences, education, and the public schools. (Arts and science faculty at Montclair actually represent three distinct colleges: the College of the Arts, College of Humanities and Social Science, and College of Science and Mathematics.) Each of the three partner bodies are equally involved in the ongoing work of teacher education, as policies and practices are established by collaborative groups with equal representation from all parts of what is known as the "Tripartite." The CoP also coordinates the Teacher Education Policy Committee, which is the oversight body for policy and curriculum for undergraduate and graduate certification programs.

More than 100 MSU arts and sciences professors have taken part in the CoP Leadership Associates Program over the last 10 years. Adapted from the national Leadership Associates Program of the Institute for Educational Inquiry, this program consists of an intensive summer seminar for 25 Tripartite members from each of the three constituent groups focused on public education in a democracy and issues such as social justice and equity. Leadership Associates continue to meet during the subsequent academic year and undertake inquiry projects.

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Arizona State University (ASU). From the outset of the Learning Network, ASU has sought ways to realize the second TNE principle, the engagement of the arts and sciences. ASU's four campuses, all housing education faculty and teacher preparation activity as well as other disciplines, complicate cross-disciplinary efforts.[4] The cross-campus "ASU-TNE

4 ASU has four campuses (Downtown, Polytechnic, Tempe, and West), but the Downtown and West campuses were under the same administration at the time of the site visit. As of spring 2009, all four campuses were reorganized within the same college and under a single administrative structure and dean.

Learning Network Scholarship of Teaching" conference held in March 2007, organized by ASU education faculty, focused particularly on arts and sciences engagement and featured speakers from the TNE program at the University of Wisconsin, Milwaukee who discussed their work with faculty design teams. The purpose of the conference was to focus on collaboration around the TNE principles, to interest arts and sciences faculty at ASU more deeply in teacher preparation and, through discussion of the design team concept, to show how meaningful such engagement can be.

Among the speakers at the conference was ASU's new provost, who brought to the meeting her concern that ASU's education schools were not responding adequately to the governor's request for a substantial and rapid increase in the number of science and math teachers graduated from ASU. Affirming her support for the TNE concept of cross-disciplinary initiatives, the provost soon thereafter instituted a cross-campus STEM Task Force with the charge of ensuring that the university graduate more highly qualified teachers in math and science. Their first task, which they accomplished in one semester, was to create dual bachelors' degrees in education and a STEM field (i.e., math, physics, biology, and chemistry), which enabled these teacher candidates to become certified. The provost also created a new division of undergraduate mathematics, under the direction of a respected researcher, who involved math faculty in conversations about how to teach math in ways that engage young students. The university also appointed a professor of mathematics education to serve as the associate senior vice provost for STEM education, one of whose responsibilities is to work across campuses and disciplinary units to recruit, prepare, and retain teachers from among ASU students majoring in STEM content areas.

University of North Carolina Greensboro (UNCG). The Teachers Academy serves as the administrative and governance unit for all professional education programs offered at UNCG. The vision for the Teachers Academy is that of an "invisible university" that admits all students interested in teaching, regardless of their majors. Established in the late 1990s to create an umbrella across all schools and colleges involved in teacher preparation, the Teachers Academy provides a governance structure that strengthens the university-wide approach to the education of prospective teachers and other school personnel. The Teachers Academy brings together faculty from across the campus for interdisciplinary communication, planning, and problem solving. Since it is not an academic unit with formal lines of authority, the Teachers Academy relies on collaboration and cooperation to accomplish its mission.

Within the Teachers Academy, the Council of Program Coordinators (CPC) bears responsibility for the quality of UNCG's licensure programs. The CPC is the policy-setting body that approves any changes to professional education programs. Each professional education program is represented on the CPC, which has more than 40 members, including a significant number of arts and sciences faculty members who are designated as program

coordinators for secondary education in their respective disciplines. Ownership or housing of secondary education programs at UNCG is idiosyncratic, with some located in education and others located in arts and sciences departments. For example, secondary English education is housed within the English department in the College of Arts and Sciences, while secondary social studies is housed in the department of curriculum and instruction in the School of Education. A smaller executive committee guides the work of the CPC by setting agendas, developing work plans, and drafting policy recommendations.

School Partnerships

For those universities that selected clinical practice or induction as their primary objective, the quality and depth of their partnerships with schools was obviously a primary factor in their ability to pursue and achieve these goals. Some brought years of experience with partnerships that were carefully structured and managed; for others, partnership efforts were newer and more tentative.

Montclair State University (MSU). Established in 1987, Montclair State University Network for Educational Renewal (MSUNER) is the organizing vehicle for collaboration between the university and more than 25 school districts. The Network promotes the simultaneous renewal of the schools and the education of educators. Each of the MSUNER partner districts pays annual dues, matched by MSU, to finance the partnership's administration and other activities. Each district appoints a district coordinator (usually a teacher) who receives an honorarium from the Network to serve as a liaison between the district and the Network. MSUNER's policy-making body is the Executive Committee, which consists of central office representatives from each district, university representatives, and the MSUNER director (a university staff member).

Districts agree to participate in the partnership for a minimum of two years and to give priority to MSU students for placement in clinical assignments. MSU coordinates partnership activities, provides space and funds for MSUNER professional development programs, and enables faculty members to work in member schools through a scholarship program and discounted consultancy rates. MSU hosts the annual MSUNER Summer Conference for teachers and administrators, which features mini-courses, research presentations, and technology demonstrations. Relationships between district staff at different schools is one important outcome of these meetings; MSUNER's director describes it as a "sign of success" when partner districts begin to look to each other for common resources and explore new directions together.

The university also facilitates grant writing and disseminates information about external funding sources for MSUNER, a feature of the partnership that has allowed many teachers

and administrators from member districts unique access to opportunities. Each MSUNER district is further entitled to 10 hours of MSU faculty consultation. Six of the MSUNER districts provide professional development school settings, offering professional development for novice and experienced teachers as well as learning opportunities for MSU teacher candidates. MSUNER staff hope to move toward what its director calls "teacher preparing schools," where student teachers enter as a cohort and the responsibility for preparing future teachers is understood by all in the school as their role.

In 2004, MSU, Newark Public Schools (NPS), and the Newark Teachers Union (NTU) launched a new partnership. This collaboration, the Partnership for Instructional Excellence and Quality (PIE-Q), consists of a network of seven schools consciously selected as high-performing urban schools, reflecting the university's belief that its student teachers are best served by apprenticing in high-performing schools. PIE-Q's seven schools function as "testing labs" for new policies and programs that MSU may eventually expand to the rest of NPS. These new programs involve intensive school-university collaboration on strategies to improve teacher preparation, district recruitment and hiring practices, and teacher retention, all in an effort to create a developmental continuum of teachers and leaders for NPS. PIE-Q schools also participate in MSUNER's professional development. The PIE-Q Leadership Council (a union representative, school administrators and teacher leaders, MSU administrators, faculty and staff) meets monthly to plan partnership activities.

Western Kentucky University (WKU). WKU works primarily with Bowling Green Independent School District and Warren County School District. These districts together employ 100 new teachers each year, including many WKU graduates, since 70 percent of WKU's graduating candidates are employed by schools within 100 miles of the campus.

Warren County District representatives, discussing the strengths of their relationship with WKU, pointed to a number of factors, of which the first is communication around a shared sense of mission: "We both want to produce the best possible students." Secondly, they noted that people from WKU are open to criticism, and responsive to issues and challenges. Thirdly, they credit WKU with truly wanting to know what is happening in the schools. For example, the dean of College of Education and Behavioral Science (CEBS) attends important school district functions, including board meetings and professional development events. CEBS has also asked Warren County representatives to serve on faculty and administrative hiring committees as well as on the task forces established through the Learning Network mini-grants.

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One example of collaboration between Warren County school district and WKU began when state assessment results indicated that Warren County elementary school teachers did not

have an adequate grasp either of math concepts or of how to teach math to children. The district brought in an external audit team to assess math instruction. Their findings "made us mad and humble," one administrator noted. The district contacted the dean of CEBS, who promptly set up a roundtable meeting that included WKU's math department chair, other faculty members, and public school teachers. The university also gave a sixth grade pretest to elementary teacher candidates, whose results were very poor. The dean shared this report with Warren County's superintendent, and began making changes in the required math coursework for elementary teacher candidates.

WKU also collaborated with Warren County and other districts on grant proposals. For example, the $2.4 million SKYTeach grant, to improve teacher education in math and science, reflected partnerships with 10 of the 31 school districts in the Green River Educational Consortium. The director of WKU's Center for Gifted Studies approached Warren County's superintendent about collaborating on a Javits Gifted and Talented Students Education Act grant, and the partnership that resulted was one of seven nationwide to receive a grant, in November 2008. This five-year, $2 million grant for Project GEMS (Gifted Education in Math and Science) has served children from low-income and minority backgrounds by providing services to students gifted in math and science enrolled in four elementary schools where more than half the students qualify for free or reduced cost meals. Previously, WKU had worked closely with Warren County to develop a math and sciences academy. WKU's art department collaborated on a proposal to the National Endowment for the Arts to bring WKU faculty to elementary schools to teach teachers how to integrate arts into math and science.

Jackson State University (JSU). The university has an evolving relationship with the Jackson Public Schools (JPS), which is the primary place of employment for teacher candidates graduating from JSU. The school district enrolls 31,000 students in Mississippi's second largest and only urban school district. Although the university and the school district had previously worked cooperatively, their collaborative partnership moved to a more complex level with the establishment of the Mississippi Learning Institute (MLI) in 2001, a multi-year effort intended to change literacy instruction and outcomes in both the public schools and the university. MLI was organized and administered through the collaborative efforts of four partners: JSU, JPS, the Mississippi State Department of Education, and the Barksdale Reading Institute, which provided funding and guidance.

MLI forged closer ties between the university and the school system—both of which, by engaging in MLI, acknowledged major responsibility for the formal teaching and learning process in the community. To direct MLI, a collaborative structure consisting of an executive team and a growth team was established. This structure ultimately became the leadership

team for the new induction program as well, enabling the initiative to build upon the collaborative history that JSU and JPS had developed through MLI.

Early on in the induction initiative, JPS hired a new superintendent. Conversations between the superintendent and the dean of JSU's College of Education and Human Development were underway at the time of AED's November 2008 site visit. The superintendent was very interested in a "grow your own teachers" program, a concept that would fit with JSU's history of providing teachers to the school district, and with the university's recent decision to decentralize its recruiting, providing the dean with a potential source of funds for a new collaborative initiative around this concept.

Indiana State University (ISU). Beginning in the early 1990s, ISU established formal partnering agreements with five Indiana school districts, four in west central Indiana near the campus and one in Indianapolis. Twenty elementary, middle, and high schools in these districts compose the ISU Professional Development Schools Network, many of them serving high percentages of students living in poverty. Communication between ISU and partner schools is maintained by faculty liaisons to each of the professional development schools. These liaisons are typically onsite in schools once a week, engaging in such tasks as attending faculty meetings and collaborating on school improvement plans. Another communication link is the clinical faculty associate, a public school teacher brought on as a full-time adjunct faculty member at ISU for one year. The clinical faculty associate serves as a liaison between the schools and the university and also takes a lead role in planning and implementing training sessions for supervising teachers of TOTAL interns and student teachers.

ISU faculty and district staff alike express pride in their collaboration, citing open lines of communication as key to their success. Representatives of local schools emphasized that ISU faculty actively solicited their input as equals on the kinds of assistance their schools needed, and responded appropriately. Requests from partner school district staff encouraged ISU to retool professional development in order to align with state initiatives and curricular goals and respond to the needs of in-service teachers. This fresh look at professional development was also in response to the state's elimination of incentives for in-service teachers to obtain terminal degrees. One example of this new approach to professional development is Project PRE's sponsorship of a summer teacher academy that offers teachers the opportunity to attend workshops conducted by university faculty, including faculty from the College of Arts and Sciences.

Districts also leveraged their partnership with ISU to pursue opportunities such as national conferences and grant competitions. Vigo County School Corporation learned of the U.S. Department of Education's Smaller Learning Communities Grant from ISU faculty

and competed successfully for three rounds of funding totaling nearly $2.9 million. The university also provides other substantial resources to their PDS partners, including $900 annual block grants to each site, 13 semester hours of fee waivers per site to support faculty development, and a pool of $6,000 in grants for collaborative inquiry.

The university's partnerships with local school districts were instrumental in promoting change in the clinical experience that teacher candidates acquire at ISU, and school staff continue to be involved at every level of planning and implementation of the pilot clinical teaching experience programs: the redesign team that developed host teacher training for the TOTAL program was composed of K-12 teachers from two local schools and content methods faculty from ISU. Public school staff also serve as trainers for those supervising elementary and secondary teachers. Representatives of the Vigo County School Corporation described the clinical field programs as "very exciting," and expressed appreciation for the fact that their staff had been part of the planning, noting that such involvement allowed for ownership and "buy-in" on the part of district staff.

New York University (NYU). NYU is committed to working closely with New York City (NYC) schools along a number of different avenues, including sending its students into public schools as teaching, health, and counseling interns, and dedicating much of its federal work-study funding to paying 1,000 NYU students as tutors in one of the nation's largest America Reads programs. The vision for a partnership network of local schools began with the founding of University Neighborhood High School in the nearby Lower East Side in 1999, with the assistance of NYU and the NYC Department of Education (DOE). Every year 20 to 30 NYU students serve as tutors and mentors at the high school, and many have gone on to teach there.

Since the school's founding, NYU's partnering work with NYC schools has expanded and intensified, evidenced by the Partnership for Teacher Excellence (PTE). Launched in 2005, the PTE is a network of about 20 partner schools located in three of the city's poorest neighborhoods. The PTE is funded largely by grants from the Carroll and Milton Petrie Foundation and the Teacher Quality Enhancement Project of the U. S. Department of Education. Working with the NYC DOE and superintendents, NYU selected partner schools based on teacher shortage areas like science and math. For that reason most partner schools are secondary schools, but a few elementary schools are "quasi-partner schools" in that they work closely with NYU faculty.

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NYU maintains a memorandum of understanding (MOU) with each of the schools that formalizes expectations of the partnership so that the relationship can continue even with staff turnover. The MOU establishes a relationship of mutual self-interest that offers enhanced opportunities for teachers and students at partner schools, including NYU tuition credits for partner-school teachers, and unique access to urban schools for NYU student

teachers and researchers. Social capital and responsiveness to school needs have been vital to establishing and building on relationships with partner schools, such that NYU has been able to win over even skeptical school administrators over time.

Communication between NYU and partner schools is maintained by two full-time partner school liaisons, designated liaisons at each partner school (usually assistant principals or faculty), and NYU faculty liaisons for each school. With liaisons both in schools and on NYU's campus, the partners are able to bring their mutual needs and interests to light. Results from a December 2007 survey of host school liaisons, NYU student teachers, and university liaisons indicated 100 percent satisfaction on the part of partner schools with school-university communication, the time-to-benefit ratio of being a partner school, and their NYU liaison. The role of the two partner school liaisons, NYU staff members who split time between partner schools and NYU, was singled out as particularly vital to identifying the needs of partner schools and NYU faculty and matching those needs to appropriate resources.

Rather than scattered placement, NYU faculty now strive for concentrated and strategic placements of student teachers and pre-student teacher interns in "whole school mentoring environments" where they are expected to participate in daily school activities both in and out of the classroom. The new placement model benefits schools and student teachers alike: partner schools see placements as social capital, while in most areas, surveyed student teachers gave more positive ratings to cooperating teachers in host schools than non-host schools. And, in an unforeseen outcome of PTE, the partnership has become something of a pipeline to employment for NYU graduates. Although the partnership has faced challenges, including transitions in school leadership and uneven implementation across partner schools, in the few years since its founding, participants believe that PTE has already changed the university's relationship with the schools.

University of North Carolina Greensboro (UNCG). UNCG works closely with 16 school districts in the Piedmont Triad, a 12-county region in north central North Carolina that is home to more than 1.5 million people, 11 baccalaureate institutions, and 9 community colleges, but the university's strongest ties are to the Guilford County Schools (GCS). Many of its partnership activities operated under the aegis of the University-School Teacher Education Partnership (USTEP), housed within the UNCG Teachers Academy. Launched at member institutions by the UNC system in the late 1990s, USTEP supports continuous improvement of both public schools+ and their faculties and university-based professional education programs and their faculties. Although USTEP is not a formal body, it receives funding from the NC legislature to promote partnership activities, and relatively few restrictions are placed on use of these funds. Current USTEP initiatives include: annual summer leadership institutes for Triad teachers; the Preparing Outstanding Science Teachers program, which uses a train-the-trainer model to strengthen science instruction

in the middle grades; and NC Quest, an NSF-funded initiative that engages chemistry and biology as well as education faculty to work with local schools on curriculum and professional development.

In addition to sustaining the partnerships created as part of the Wachovia Mentoring Network, UNCG embarked on an ambitious effort to rebuild its professional development school network. More than a decade ago, UNCG revised its elementary education program to require 1,000 hours of fieldwork and adopted a cohort model that grouped approximately 25 candidates in a single professional development school for a two-year series of clinical experiences ranging from observations and tutoring through student teaching. One result of these revisions was a well-developed, but haphazardly constructed, professional development school network consisting primarily of high need elementary and middle schools in Guilford County. The nature of UNCG's relationship with some of these schools later changed as a result of staff and administrative turnover, district concerns (and later policy revisions) related to placement of students with non-tenured teachers, and principals' requests for more defined roles in clinical fieldwork. These changes required UNCG and school and district administrators to "return to the drawing board" and revisit what it meant to be a professional development school.

Other partnerships with individual schools or districts are numerous and less formal, often built around personal relationships or specific projects. Nonetheless, they have contributed to building more effective collaboration between UNCG and the K-12 schools where students are placed for clinical experiences. For example, the elementary education coordinator convened two study groups for on-site teacher educators (i.e., cooperating teachers) at one PDS that subsequently sparked interest in other schools. She also described a process by which pupils identified as needing extra academic support are tutored by math and reading methods students from UNCG. In addition to supplementing the instruction provided to the pupils in regular classrooms, the tutoring sessions created opportunities for UNCG students to use assessments to identify pupils' needs.

GCS faculty and administrators are generally positive in their assessments of UNCG's efforts to collaborate. "One strength of UNCG is that university personnel, including the coordinating professor for student teachers, are on campus regularly, accessible, and willing to talk with school personnel about any issue," observed one GCS administrator. She also noted that GCS teachers served as adjunct UNCG professors and that many UNCG faculty members come to the schools.

Culture of Evidence

When we apply the phrase "culture of evidence" to departments of teacher preparation, we refer to a pervading commitment among those responsible for educating teachers that their

work be driven by and continually re-examined and improved on the basis of sound evidence about the performance of their candidates and the impact of these candidates on the pupils they teach. Of the three TNE principles, the first, "grounding teacher education on sound evidence," remains both the most fundamental and apparently the most confounding aspect of the envisioned reform.

In practice, those who have sought to instill a culture of evidence into an established department of teacher preparation have found it to be both extremely challenging and work that requires years. It is not simply the daunting task of changing organizational culture, but also the technical difficulties of creating and implementing sound assessment tools—such as observation protocols, other forms of candidate assessment, and pupil learning studies—as well as the range of complexities, such as small Ns, multiple overlapping interventions, and varieties of pupil assessments that compound the challenges of assessment in the real world circumstances of schools and universities.

Four of the nine Learning Network universities selected for case studies chose program objectives that reflected the first TNE principle, but many of those who did not nevertheless built substantial evidence plans into their work. WKU, for example, initiated a data management system that stores and analyzes data concerning the qualifications and performance of its teacher candidates in the 1990s. WKU's education leadership observe that they can now document that collecting and analyzing evidence about the performance of their teacher graduates has led to significant program improvements. On the other hand, their plan to collect direct evidence that mentoring new teachers had a positive impact on P-12 pupil scores on the CATS (Commonwealth Accountability Testing System) was undermined by several factors.

Arizona State University (ASU). ASU engaged in a statewide effort to create an assessment model and database that would enable Arizona's universities to track their graduates, analyzing their retention in the profession and effectiveness as teachers, in particular their impact on K-12 pupil learning. The effort was denoted as a "Presidential Initiative," reflecting the commitment of ASU's president, underscored by the allocation of $275,000 over three years to pilot the model and data collection. The Arizona Community Foundation also awarded $75,000 per year for three years, with the understanding that it would involve all of the state's three regents universities—Northern Arizona University and University of Arizona as well as ASU.

Four of the nine Learning Network universities selected for case studies chose program objectives that reflected the first TNE principle.

Subsequently named the Teacher Preparation Research and Evaluation Project (TPREP), the initiative is governed by a collaborative that includes, in addition to the three campuses, the Arizona Education Association, the Arizona Department of Education, the Arizona K-12

Center, and the Governor's P-20 Committee. It is led by a TPREP Steering Committee with more than 30 members, and a TPREP Working Group.

The purpose of the model is formative assessment: providing continual feedback to teacher education programs, teachers, schools, and policymakers. Although currently under the auspices of the regents universities, TPREP will ultimately incorporate all teacher preparation institutions in Arizona, including community colleges and private institutions. The model is intended to enable universities to assess the impact of teacher preparation programs, with the assumption that improving teaching will ultimately improve K-12 learning. However, the architects of the plan note that to fully develop a model to connect teacher preparation to pupil learning, Arizona would need to have in place a statewide longitudinal data system for P-20, which is not yet the case.

The technical platform for the project is the Integrated Data to Enhance Arizona's Learning (IDEAL), the result of a partnership between ASU and the Arizona Department of Education. All working certified teachers can log on to IDEAL; slightly fewer than half had at the time of the AED site visit. About 75 percent of those who have logged on are active. Accessing IDEAL offers resources such as online contact with peers, instructional tips, and access to libraries, media, and informational material. As of fall 2008, every teacher candidate enrolled in any of ASU's colleges of teacher education was assigned an IDEAL ID number. These numbers stay with the candidates beyond graduation into their employment in the field of teaching, enabling TPREP to track them into schools.

At the time of the site visit, the TPREP Working Group and Steering Committee held meetings to review the pilot exit survey results, which asked graduates to offer their "input regarding your satisfaction with your teacher preparation program and your ability to function effectively as a future teacher." The exit survey raised spirited discussion, primarily around whether to use the data to compare ASU programs, rather than allowing each to use the data independently, and methodological questions concerning self-report exit surveys. Plans were to administer the revised exit survey to all three universities in fall 2008, and pilot an entrance survey at ASU in 2009.

University of Dayton (UD). The conceptual framework for UD's comprehensive assessment system focused on four guiding outcomes expected of all graduates of the School of Education and Allied Professions: embracing diversity for the promotion of social justice, facilitating the development of scholarly practitioners, building community, and engaging in critical reflection. The teacher preparation program expanded and refined its assessment system, first established in 2002, through course-embedded assignments and observations of field experience across UD's four-year teacher education programs. Specific assignments, rubrics, and data collection were aligned with these outcomes to provide faculty and

administrators in the School of Education with sound evidence on which to base decisions about individual candidates and program improvements. At the time of the 2008 AED site visit there were five benchmark assignments common across all of UD's teacher preparation programs: (1) a portfolio, with one entry per outcome domain; 2) a case study; 3) lesson plan one; 4) lesson plan two; and 5) the final portfolio, for which candidates collected evidence throughout their four years of undergraduate study.

Beginning in 2007, UD began to shift to a system in which school-based clinical educators assumed primary responsibility for candidate assessment. Under the previous clinical practice model, UD student teachers were assessed by both university faculty and clinical educators. Part of the rationale for this shift was the School of Education's confidence in the quality of their school-based clinical educators. Clinical educators conduct five Pathwise® assessments of all pre-service education candidates during their 15-week student teaching placements. Pathwise® is a formative assessment that consists of four domains that parallel the Praxis III: organizing content knowledge for student learning, creating an environment for student learning, teaching for student learning, and teacher professionalism. During discussions about the data, clinical educators who had been conducting the assessments over a period of time shared that they are more likely to be more rigorous on the assessments since they have assumed a different level of responsibility in the assessment process.

UD also initiated changes in summative assessment in content areas. Changes in the content of UD methods courses were intended to ensure that candidates understood content standards before going out to teach. The changes typically reflected the pertinent National Council for Accreditation of Teacher Education (NCATE) Specialized Professional Association standards as well as Ohio state content standards. The changes in course content provided an impetus for adjustment in summative assessment.

Indiana State University (ISU). One important aspect of the design of ISU's elementary and secondary clinical experience pilots was that both included a focus on quantitative assessment of pupil learning. As one element of the redesigned clinical placements, teacher candidates were asked to administer pre- and post-tests, bracketing the unit that they were responsible for teaching, to one high-achieving and one low-achieving pupil. Whether post-test scores of pupils were higher or lower, teacher candidates were required to demonstrate in their field experience "Unit Reports" that they based their subsequent decisions about lessons on the evidence of pupil learning captured through these pre- and post-tests. Using data to inform the clinical practice of teacher candidates and teachers was also the focal point of the 2007 Learning Network mini-grant to ISU, which focused on measurement of pupil learning, interpretation of quantitative assessment data, and the utility of data to inform clinical practice across the curriculum. The Quantitative Literacy mini-grant had four

goals: 1) integrate numeracy and quantitative literacy across all CAS secondary education programs; 2) promote quantitative literacy among all CAS teacher candidates; 3) facilitate effective use of mathematics content across the secondary curriculum; and 4) increase the ability of teacher candidates to measure pupil learning in a clinical environment.

Capitalizing on ongoing collaboration between COE mathematics educators and the CAS Center for Mathematics Education, faculty from both colleges partnered to design a curriculum and a series of training activities for content methods faculty that would infuse quantitative literacy into pre-service teacher training. Although some content methods faculty resisted the use of "math" in their courses, the grant investigators encouraged them instead to think of it as the use of pre- and post-tests and teaching to expected outcomes. The "Teaching III" course, taken by all secondary teacher education candidates in the semester prior to student teaching, encourages teacher candidates to maintain a similar orientation to quantitative literacy in their own field experiences.

To measure the effects of these efforts, grant researchers developed a pre- and post-spreadsheet to reflect changes in candidates' ability to demonstrate continual assessment of pupil learning in their unit reports, as evaluated against a nineteen-item, three-point scale rubric. To establish a baseline group, older reports were re-graded using the same rubric. The post-test group showed significant improvements over the baseline group in grading, assessment development, and appropriate use of pre- and post-assessment. Researchers saw comparisons of pupil grades in the newer reports to a much greater extent than in the old ones, indicating that candidates trained in "Teaching III" were much more reflective than their predecessors. Unit reports from the post-test group also showed that candidates were thinking more deeply about why their pupils' scores did or did not improve. Future directions in quantitative literacy were also suggested by the study's results: based on their unit reports, it appeared that few candidates thought about validity, i.e., how the questions they asked mapped onto what their students should be learning.

Western Oregon University (WOU). Conceptual development of what has come to be known as the Teacher Work Sample Methodology (TWSM) began almost 40 years ago at WOU as a way of connecting teaching and learning. Developed as both a pedagogical device and an assessment tool, the Teacher Work Sample (TWS) is essentially a package of materials developed by a teacher education student to demonstrate teaching proficiency, including evidence of pupil learning. TWSM subsequently emerged as the centerpiece of WOU's teacher education programs, the focus of more than three decades of research at WOU, a licensing requirement for Oregon teachers, and a strategy adopted by teacher education programs across the country to assess teacher candidates' abilities to foster learning gains in K-12 pupils. At WOU, TWSM provided both the conceptual framework and the research base for developing a culture of evidence.

Developed as both a pedagogical device and an assessment tool, the Teacher Work Sample is a package of materials developed by teacher education students to demonstrate teaching proficiency.

Initial work on the precursors to TWS began shortly after Del Schalock joined the Center for the Study of Teaching at Oregon College of Education (now the Teaching Research Institute [TRI] at WOU) in 1960 and embarked on a research path that led through competency-based teacher education, performance-based certification, and ultimately to the TWSM. Along the way, WOU faculty and TRI staff collected, analyzed, and reported data from 1,000 student teachers and 12,000 K-12 pupils. A recursive cycle of analysis, curricular and program changes, and data collection took root as faculty used emerging evidence as a basis for further refinement of the TWSM.

The dean of WOU's school of education reports that WOU has developed a renewed emphasis on moving beyond the first stages of a culture of evidence, which she describes as "connecting everything back to data and using data to make decisions." When WOU became involved in the Learning Network, the university was focused on creating a structure around evidence and decision-making. She reported that WOU has moved to a second stage that entails "trying to figure out which data are most useful." Her goal was to place greater emphasis on the data most useful for assessments and program improvement—and abandon those that do not help to differentiate among candidates. For example, WOU eliminated its portfolio requirement for teacher education candidates because many of the requirements were duplicated through TWSM.

In addition to thinking more strategically about data, WOU introduced a new generation of faculty to the research possibilities resulting from TWSM and created a new relational database to support its evolving culture of evidence. As one faculty member observed, "work samples are rich repositories," but WOU has just begun to aggregate P-12 pupil learning data. The database to be designed would ensure that data were entered in a common and consistent format to allow faculty and researchers to look across outcomes of teacher candidates. In addition, the database would allow WOU to move from "brute force method of analysis," in which faculty members review multiple TWS to identify common themes, to more sophisticated analyses. The WOU Evaluation and Training Committee has explored several options, including in-depth examinations of the impact of formal training and/or blind versus non-blind scoring on inter-rater reliability of TWS.

New York University (NYU). In 2006 NYU received a Learning Network mini-grant to pilot a process for assessing student teacher proficiency from multiple perspectives. The framework and observation protocol to be used for assessing student teachers, drawing from Charlotte Danielson's Enhancing Professional Practice: A Framework for Teaching (1996), was known as the Domain-Referenced Student Teacher Observation Scale (DRSTOS), with revisions leading to the DRSTOS-R (Revised). The framework was to be used as a summative assessment of both teaching skill and—in concert with other data sources like GPA, rank, transcript data, and SAT or GRE scores—content knowledge.

DRSTOS was introduced with the intent that it become the common assessment measure used across the teacher education program, to address the problem that, despite some commonalities within disciplines, to a great extent individual supervisors "did their own thing." DRSTOS-R consists of 21 items assessing student teachers' professional practice across four domains, measured on a four-point scale: planning and preparation; classroom environment; instruction; and professional responsibilities.

Although DRSTOS-R was not universally employed by paid university student teacher supervisors at the time of the AED site visit, those who did use it were required to attend a one-day training session. In the training they were asked to independently rate training videos, providing evidence in the form of specific examples, and achieve a standard of inter-rater agreement as assessed by NYU research staff from the Center for Research on Teaching and Learning (CRTL). Mini-grant funding financed small incentive payments to supervisors to attend the DRSTOS-R training. CRTL and the Steinhardt School of Culture, Education, and Human Development's Office of Clinical Studies, which coordinates clinical placements, were exploring ways to sustain and scale up the training without the support of external funding at the time of the visit.

CRTL piloted the multiple perspectives concept proposed in the mini-grant application, but found that cooperating teachers systematically rated training videos lower than university raters, perhaps because their assessments reflected New York City's standardized curriculum and methodologies. NYU attempted to address the disjunction by using videos featuring New York City teachers, but ultimately did not require cooperating teachers to use DRSTOS-R. For some secondary student teachers, university supervisors requested that cooperating teachers use DRSTOS-R and found their ratings fairer in practice than in training. DRSTOS-R was becoming the "backbone" of the observation process for secondary student teachers. This was less true in the early childhood and elementary tracks, but some DRSTOS-R elements were included on the observation sheets for early childhood teacher candidates to ensure agreement on important elements if and when all of NYU's teacher education programs moved to DRSTOS-R assessment.

The Office of Clinical Studies and CRTL encountered challenges in implementing and sustaining DRSTOS-R. One issue was high turnover among student teacher supervisors because most were retired and many leave the area. CRTL therefore focused DRSTOS-R training and subsequent data collection on the supervisors working with the largest number of student teachers. Another challenge had been early resistance from some faculty. The

delicate process of building faculty buy-in with DRSTOS-R was helped along by clinical faculty and by several senior tenured faculty members.

CRTL began building an evidence base for the validity and reliability of DRSTOS-R in fall 2004. As of spring 2008, the DRSTOS-R database included 610 student teacher assessments. The assessment evidence was used to identify areas of relative need for improvement in Steinhardt teacher preparation programs. The goal of achieving assessment of 100 percent of NYU's student teachers with DRSTOS-R was unlikely to be achieved unless training in and use of the instrument was required at the time of hiring for all supervisors, but in the words of CRTL's director, "We may be getting close to that." Predictive validity was called the "holy grail" of DRSTOS-R, and CRTL staff hoped eventually to match data on student teachers assessed with DRSTOS-R against pupil achievement data.

RESEARCH QUESTION III:

What are the indicators of these institutional changes?

In the statements that the nine universities submitted in January 2008, they were asked to specify an "indicator of change in the institution, program, or faculty" that would demonstrate that they were on the road to achieving their chosen program objective. The universities were also asked to describe the logical connection between their objective, indicator, and student success.

Indicators

The sites chose a considerable variety of indicators, reflecting their different objectives and pathways for reaching those objectives. Most, although not all, were concrete steps whose achievement could readily be assessed. For clinical experiences, for example, universities chose indicators including:

- Pilot clinical experiences by a date certain
- Revise aspects of undergraduate curriculum by a date certain
- Establish supervision of clinical field experiences by education and arts and sciences faculty teams
- Establish faculty learning communities that emphasize problem-based learning
- Establish professional development opportunities

For implementing a new induction effort:

- NTC training held by a date certain
- Follow-up NTC training scheduled for a date certain
- Design and implement a new induction model for first year teachers by a specific academic year
- Pilot test underway of masters program
- Regularly scheduled university-school district meetings
- Systems of accountability and communication in place to facilitate collaboration
- Retreat for exemplary teachers by date certain
- System in place for credentialing exemplary teachers
- Less teacher attrition and more teacher satisfaction compared to school district schools not among the project sites

For creation of a new assessment tool:

- Validation study of new assessment underway
- Supervisors trained in use of assessment
- Cohort of student teachers assessed and data analyzed
- Task force review of data
- Use of data for program improvement

Most of these steps are promising action steps or activities: events such as retreats and collaborative meetings, professional development programs and trainings. Others more clearly represent programmatic change: implementation of a new induction model, revision of curriculum, or pilot test of a masters program. A few imply impact: reduced teacher attrition, data used for program improvement.

The universities achieved most of the indicators, roughly on schedule. Their progress toward these indicators (and their willingness and their capacity to establish indicators) was an important indication of their ability to undertake well-planned institutional change. Their progress reinforces the notion that systematically establishing indicators or benchmarks for a new initiative is helpful to planning and implementation, and raises the question as to whether certain indicators should be set by any university undertaking specific types of change. This may be more obvious with some initiatives—creating, testing, and validating a new assessment instrument, for example—but no less valuable for others, such as recasting the clinical experience offered teacher candidates.

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Student Success

Some sites interpreted "student success" to refer to their teacher candidates, while others interpreted it to mean the pupils taught by their candidates or graduates.

Candidates. The four sites that focused on the success or improvement of their candidates indicated three different ways of assessing candidates: quantitative measures of professional identity development; candidate capacity to teach K-12 students as measured by pupil performance instruments; and standards-focused teacher preparation. The authors of the ISU statement noted their intent to quantitatively "monitor student change related to professional identity development throughout the course of the [field experience] semester." The authors of the JSU statement offered a vision of their "teacher candidates proficiently completing the teacher preparation program…Our graduates will remain in the profession to produce successful students (K-12) who experience continuous growth as measured by performance instruments. The logical connection is that competent, effective teachers are more capable of increasing student learning…" UNCG anticipated that improving collaboration between the university and school districts would mean more system support and training for both teachers in the system and candidates in training, which should yield long-term increases in pupil performance. Lastly, NYU focused on the belief that the "sheer size" of its teacher education program had caused it "over many years to lose centrality of focus in terms of standards," and the Learning Network assistance had enabled the department to "correct this problem" and "create movement toward coherence in standards." (NYU was developing DRSTOS-R, a candidate assessment tool intended to meet rigorous standards across the department.)

Pupils. Four institutions sought to make explicit connections between their candidates and the academic performance of pupils they taught. The UD's specific objective was to redesign its clinical practice assessment instrument to provide "sound evidence of (1) candidate content knowledge and (2) measurement of pupil learning gains." Recognizing the growing body of research that demonstrated the connections between enhanced candidate content knowledge and pupil learning, Dayton also attempted to build use of assessment data and pupil learning gains into faculty conversations about program improvement and curriculum revisions.

Similarly, WOU sought "to improve the ability of both secondary and primary teachers to demonstrate improved knowledge, planning skills, and the ability to effectively impact student learning in the areas of science and math." Focusing on recent changes to Oregon's high school diploma requirements that increased accountability for pupil learning by all teachers, the authors of the WOU statement described plans to institutionalize "use of additional science and math guidelines, curriculum resources, observation protocols, prompts, and scoring criteria drawn from the National Science Teachers Association and the National Council of Teachers of Mathematics to enhance the teacher work sample methodology required of candidates." In addition, WOU described efforts to compare work samples from student teachers who had math or science specific guidelines with those who did not.

MSU focused on the goal of obtaining data that would indicate a link between student achievement and the presence of student teachers in the PIE-Q schools. Using state test results, they were able to show improved performance on standardized tests in classrooms at two schools where MSU student teachers had taught. MSU staff readily acknowledge that they cannot document causal relationships between these positive results and the presence of MSU student teachers or other interventions in these classrooms.

WKU based its induction initiative on the hypothesis that increased P-12 student success would result from improving teacher performance through mentoring focused on instructional tools conducive to higher levels of pupil learning. Their intention was to systematically collect work sample data on new teachers as well as the state assessment (Commonwealth Accountability Testing System) scores of pupils taught by WKU's graduates in Warren County schools. They were unable to use the state assessment scores, however, because the county avoids assigning new teachers to classrooms whose pupils are scheduled for the state assessment that year.

RESEARCH QUESTION IV:

What aspects of the Learning Network, if any, are reported to have triggered or enhanced the occurrence of change or supported its continuation?

It is one thing to confirm evidence of institutional change; it is quite another to credit the Learning Network with having propelled or shaped that change. In the first place, the 30 Learning Network universities were engaged in transformation of their teacher education programs before the Learning Network was created; part of the rationale for their selection was their reputation for continual improvement. Secondly, because the decision to document institutional change at these institutions was reached mid-way through the Learning Network's existence, the primary avenue for documenting its impact was to ask participants about their experience of the Network, considered retrospectively.

Within these considerable limitations, however, the evidence of the case studies is that most Learning Network institutions experienced membership in the Learning Network as having a positive value in furthering their work in improving preparation of teachers. Those interviewed identified several aspects of the Learning Network as useful.

Membership

Universities that became members of the Learning Network were invited to join by the CCNY and the Annenberg Foundation after an internal review by foundation staff and other experts in teacher education. Recommendation for membership therefore implied a standard of excellence and, in many cases, enhanced the institutions' existing national reputations for excellence in teacher preparation. According to deans at UD and at WKU, selection for the Learning Network added credibility to the institutions' reform efforts. This highly visible recognition of the quality of their teacher preparation programs was also cited by leaders at ISU, WOU, and UNCG as a primary benefit of membership in the Learning Network. Leaders at MSU noted that involvement in national movements like the Learning Network raised the teacher preparation program's profile internally at the university as well as externally, enhancing the stature of the program in the eyes of the university's upper administration and tending to promote its interests.

Also noted were instances where the opportunity to join the Learning Network, and pursuit of the three design principles, coincided with a shift in vision or direction in teacher preparation. JSU's dean of Education and Human Development had recently assumed the deanship and "leapt" at the opportunity to explore decision making based on data, partnerships with schools and arts and sciences faculty, and generally to enter what he viewed as "the new wave of education." The director of the Teachers Academy at UNCG cited the "incredible timing" that aligned UNCG's participation in the Learning Network with a state-mandated re-visioning process. The dean of the College of Teacher Education and Leadership at ASU's West Campus noted that the Learning Network "made people realize that teacher prep is a serious endeavor and that changes need to be made, and that you have to have data." She also credits the Learning Network with having triggered the provost's renewed commitment to teacher preparation: the support "affirmed what she was already thinking."

Annual Meetings

Although many meetings occur each year in higher education on the topic of university-based teacher preparation, elements of the Learning Network annual meetings appeared to be valuable for the teams that attended. Among the benefits cited in interviews were:

- Interaction and exchange with colleagues
- Coherent vision of reform
- Learning how other universities were pursuing the TNE principles
- Insight into changes in teacher preparation across the United States
- Learning about resources at other institutions
- Visibility for teacher education within the university and beyond

According to deans at UD and WKU, selection for the Learning Network added credibility to the institutions' reform efforts.

Representatives from all of the nine institutions painted the annual meetings as valuable forums for exchanging ideas, engaging with like-minded colleagues, and learning about innovative practices around the country. UD leadership described the meetings as facilitating collaboration and peer-to-peer learning with like-minded institutions. These opportunities for collaboration proved a source of fresh perspectives to participants and also, according to leadership at ASU, a well of "infectious energy."

Teams from participating universities also appreciated the Learning Network's focus on the three design principles. NYU leadership appreciated the fact that the principles provided them with a coherent "vision" of reform that encompassed efforts already underway at the institution, including emphasis on the role of research and the role of arts and sciences, and a justification for deep investment in clinical schools. The leadership of the College of Education and Behavioral Science at WKU was convinced that their progress towards developing a "culture of evidence" was linked to their participation in the Learning Network, because it ensured that they would be associated with others attempting to realize the first TNE principle. At ISU, too, participation in the annual meetings provided affirmation that reform efforts were on the right track. According to the Dean of the School of Graduate Studies there, "we came away from the meeting convinced that we were doing it."

Annual Learning Network meetings helped raise visibility for reform efforts in teacher preparation at the universities themselves and more broadly beyond the campus. JSU faculty noted the importance of upper-level administrators communicating the value of teacher preparation reform work. UD also sent teams of high-level administrators to the annual Learning Network meetings. Likewise at ASU, whose provost was a speaker at the third annual meeting, the Learning Network meetings enhanced teacher preparation's visibility within the institution. Leadership at NYU also believed that bringing schools of education together was an important vehicle for keeping teacher education on the national agenda.

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In some cases, conversations begun at the annual meetings provided crucial impetus for subsequent programmatic changes at institutions. In one example, the Dean of the College of Arts and Sciences at ISU noted that the Philadelphia meeting became a "turning point," prompting ISU to begin work on long-term sustainability of improvements begun under the Teacher Quality Enhancement grant-funded Project PRE. The sessions on induction at the Denver meeting were crucial for JSU, leading directly to their decision to partner with Jackson City Schools on a new induction effort and apply for the New Teacher Center professional development opportunity funded through CCNY. At MSU, the Learning Network meetings helped Montclair faculty to establish or reestablish professional relationships with colleagues from other universities in the region, including Bank Street College of Education, Columbia Teachers College, NYU, and Brooklyn College. With the realization that others in

the region were struggling with similar issues, MSU hosted a regional meeting focused on assessment and involvement of the arts and sciences in teacher preparation.

Beyond specific programmatic changes, the annual meetings also encouraged new or stronger cross-campus working relationships at many of the participating institutions. Leadership at WKU noted that the experience of creating and interacting in cross-disciplinary teams for the annual meetings opened the door to collaboration at home involving new players around new purposes. Arts and sciences deans and faculty there noted that the experience "helped me see things from a different perspective." The director of teacher education at UNCG credited the Learning Network meetings with stimulating a closer working relationship with the associate dean of arts and sciences, who attended two of the meetings and subsequently became a key player in the re-visioning process. This was especially critical because some of UNCG's secondary education programs are housed in arts and sciences departments. WOU also sent teams that included both education and arts and sciences faculty to the annual Learning Network meetings and used the opportunity to participate in these meetings as a way of engaging a wider circle of people in efforts to transform teacher education.

Mini-Grants

Leadership at many of the institutions that had received $10,000 mini-grants in two rounds of competition in 2006 and 2007 described the benefits of these small but targeted grants. Among the benefits participants cited were:

- Support for collaborative work
- Incentive for participants
- Personnel support
- Leverage for other funding
- Results that provided evidence leading to next steps

With each of two grants, WKU engaged partners—including university administrators, faculty, and K-12 teachers— in task forces that helped expose weaknesses in the academic content preparation of their elementary teacher candidates and led to the revamping of coursework basic to the math and science preparation of elementary teachers. The mini-grants also provided the impetus for the decision to pursue a comprehensive induction program. Western Kentucky's Dean of the College of Education and Behavioral Science observed "I'm totally convinced that without the mini-grants we wouldn't have leveraged what we did. I'm thankful for that opportunity."

NYU also received two mini-grants, one to support research into the reliability and validity of DRSTOS, and the second to support critical inquiry groups in social studies education. CRTL used grant money to provide small incentive stipends to student teacher supervisors

who attended the DRSTOS training, and social studies critical inquiry groups were able to purchase books and refreshments for meetings, fostering camaraderie among the group. NYU faculty found the small grants specific and useful, with the critical inquiry group advisor indicating that they felt "hugely supported" by the grant.

ISU's 2007 mini-grant allowed the university to pursue quantitative literacy across the curriculum and, importantly, to begin documenting the effects of those efforts. Mini-grant funding supported the time and labor of a statistician to analyze and report on the project outcomes. The grant also allowed the research team to capitalize on and expand cross-college relationships that had been established through Project PRE and TEAC. According to a principal investigator on the grant, the project would not have succeeded without collaboration across content areas.

WOU received a mini-grant in 2006 to focus on two goals related to the application of TWSM: to produce two volumes of empirical evidence and case studies on TWSM; and to develop, pilot, and test subject-specific TWS requirements. The grant was acknowledged as helping WOU move forward with development of subject-specific TWS, in part because it provided release time for a few key faculty members. One faculty member associated with the project noted that "getting a shared history on paper is necessary for us to continue to endorse the values on which our teacher preparation programs are designed."

UD's mini-grant provided support for efforts to improve both candidate and program assessments and refine field observation instruments. A major thrust of this work was to develop an assessment that provides evidence of the extent to which Dayton students promote diversity and social justice through their work in classrooms. According to the director of teacher education, the work supported by the mini-grant built on Dayton's longstanding efforts to "help our candidates use ongoing formative assessment to design and differentiate instruction." With joint leadership from education and history faculty, Dayton also developed a new observation instrument piloted by student teachers at two local high schools during the 2007-08 school year.

The New Teacher Center Induction Institute

In February 2007, NTC, based at the University of California, Santa Cruz, invited TNE and Learning Network universities to participate in a CCNY-funded "Induction Institute," and subsequently to apply for more extensive assistance from NTC, specifically an assessment visit to be followed by professional development. Five of the nine institutions

participated in this professional development opportunity. Participants in interviews cited benefits including:

- Quality of materials
- Concept of the new teacher developmental cycle
- Quality of on-site training sessions

WKU participants in NTC trainings found that the training and associated materials enhanced the capacity of the university and the school districts to provide new teacher induction, and held promise to take new teacher induction "to a new level." The cost of obtaining materials for subsequent training was problematic.

A cross-section of NYU teacher-educators (faculty, student teacher supervisors, and cooperating teachers) participated in the first two professional development trainings in the NTC sequence. While the NTC work was generally well-received, NYU found that NTC was not prepared to tailor their workshops to the New York City context, and therefore opted not to pursue a third training.

The NTC training came at an opportune time for MSU and its partner schools to build upon and expand existing activities because the CoP had already focused on induction. In fact, the dean of MSU's College of Education and Human Services described it as "the most valuable" piece of their involvement in the Learning Network. MSU opted not to continue working with NTC facilitators after initial training sessions, but they continue to use NTC instruments.

UNCG's collaboration with the NTC through the Wachovia Network predated its invitation to join the Learning Network. As a result, UNCG was uniquely positioned to take full advantage of the additional support funded by the CCNY grant to develop a sustained relationship with the NTC. UNCG offered a local NTC summer institute that provided training in observation systems, feedback to novice teachers, and other related topics as well as customized NTC consultation with individual districts. These consultations focused on building consensus on the district's vision for induction and/or expansion of induction. NTC trainers also worked intensively with Wachovia Network mentors. Both UNCG and district personnel were quick to point to the value of NTC involvement.

Despite the potential benefits, several sites noted that the materials were too costly to obtain after the initial training, and two expressed concerns about a mismatch of the trainer and their community.

OTHER FACTORS CONTRIBUTING TO INSTITUTIONAL CHANGE

Other factors contributed to the occurrence of institutional change in teacher preparation at these universities. Some of the more notable include:

- University commitment to teacher preparation
- Leadership by the university president, provost, or deans
- National recognition of the university's teacher preparation program
- Collaborative working style
- Commitment to research-based practice
- Major multi-year grants
- State-level policy changes
- Capacity for sustainability

Many of these factors represent aspects of the university's culture or history; others have to do with external forces or events acting upon the teacher education enterprise. There is evidence that, at most of the universities examined in this report, institutional change was influenced by several of these factors.

University commitment to teacher preparation

On all nine of the campuses documented in this report, there is substantial evidence of university commitment at the upper levels to teacher preparation. Most have a long history of preparing teachers, many as normal schools. JSU, for example, the leading U.S. producer of African Americans earning undergraduate degrees in education, has prepared teachers to serve Mississippi's children for more than 130 years. WKU's mission statement articulates its commitment to teacher preparation, echoed by deans and faculty members from the sciences, arts, and humanities as well as education who recognize teacher preparation as their "bread and butter." The leadership of the UD supported the dean of education's vision of the university's engagement with DECA despite early controversy. Senior administrators of WKU, ISU, and UNCG provided funds either for a new building or a major renovation to house their colleges of education, under construction or in the planning stage at the time of the site visits. The active engagement of arts and sciences faculty at UNCG in both the education of prospective teachers and the governance of teacher education programs is another strong indicator of university commitment. Hiring and senior appointments also reflected university commitment: JSU and WKU made faculty hires with substantial K-12 experience, and ISU and WKU hired provosts who were previously education deans.

Leadership by the university president, provost, or deans

Some universities had presidents, provosts, deans, or other top leadership who took a proactive role in seeking positive change in teacher preparation. The president of NYU, for example, through his relationship with the New York City Schools Commissioner, played a direct role in establishing the Partnership for Teacher Education, whose success hinged on

high-level leadership involvement at both organizations. The provost of ASU constituted a STEM Task Force to promote the graduation of more teachers in math and science, charging them specifically to create dual BA degrees in math, physics, biology, and chemistry.

Education deans, often those with considerable tenure, also played pivotal roles in forging institutional change in teacher preparation, gaining recognition and stature within their universities but often at the state and national level as well. For example, MSU's dean of the College of Education and Human Services served on or chaired several New Jersey state committees including the Teaching Standards Committee and the Higher Education Commission task force. WKU's CEBS dean served on the boards of AACTE (the American Association of Colleges for Teacher Education) and the Kentucky EPSB (Education Professional Standards Board). JSU's Dean of the College of Education and Human Development has also worked at the state level, including the Mississippi Blue Ribbon Commission engaged in the redesign of state teacher education standards. Many universities in this study had leaders who participated in reform organizations as the National Network for Educational Renewal, the National Commission on Teaching and America's Future, and the Renaissance Group. Such deans often brought a mission-centered vision conducive to reform.

National recognition of the university's teacher preparation program

The universities in this study have all received national recognition for their teacher education programs. For example, although UNCG is neither the flagship of the UNC system nor the largest producer of teachers in the system, its teacher education programs have consistently attracted national recognition and funding. MSU's national reputation for teacher preparation has been underscored by numerous awards. WOU is recognized for forty years of commitment to TWSM and the presence of an affiliated research body.

Receiving a major grant that extends over several years has the potential for transformational impact. Since the receipt of a $3.9 million Title II Teacher Quality Enhancement Grant in 2003, teacher education reform at ISU has been guided by Project PRE (Partnering to Reform Education: An All-University/High Needs School Partnership), which participants believe helped strengthen relationships among the faculty in education; arts, sciences, and professional schools; and K-12. WKU won a $2.4 million SKYTeach grant in 2007 from Exxon Mobil.

Collaborative working style

All nine universities have demonstrated their commitment to collaborative work, through significant school partnerships as well as alliances with other entities. ASU engaged in a collaboration with Arizona's other two regent universities, the University of Arizona and Northern Arizona University, to develop the Teacher Preparation Research and Evaluation Project (TPREP). UNCG is a member of the Guilford County Teacher Education Alliance,

which promoted collaboration among the six universities in the county that offer teacher preparation programs, including both public and private institutions and two Historically Black Colleges and Universities, North Carolina A&T University and Bennett College. The collaborative stance of WKU extends to external partners such as Bowling Green Housing Authority, which has a special program to improve the reading skills of children who live in housing authority properties.

Commitment to research-based practice

Although every university in this study had a commitment to research-based practice, institutionalizing such commitment is often a challenge. NYU's Center for Research on Teaching and Learning (CRTL), tasked with coordinating, designing, and implementing research and evaluation to inform and enhance teacher preparation, and the Research Alliance, a new independent nonpartisan research consortium on the city's schools to be housed at NYU, evidenced a growing commitment to research-based practice at NYU. WKU began its "quest for accountability" for the performance of its candidates in the late 1990s by initiating a data management system that would store and analyze candidate qualification and performance data. ASU's TPREP was a presidential initiative to create an assessment model and database to track the impact of teacher preparation graduates on K-12 pupil learning, as well as their retention in the profession.

State-level policy changes

State policies—or their absence—have a significant impact on practice at university-based teacher preparation programs. The shift in Indiana from course-based to performance-based licensure had a profound impact on teacher preparation and assessment of teacher candidates at ISU. Ohio's emphasis on linking pupil performance to teachers was an important factor for UD. The fact that TWSM became a requirement for teacher licensure in Oregon in 1997 was an extremely significant policy shift for WOU.

Capacity for sustainability

At the end of the road traveled by every worthwhile reform is the question of its sustainability. Will the changes become integrated into the teacher education program, or will practices and policies return to the previous status quo? In practical terms, the hallmarks of sustainability include a reform's becoming part of the university's formal organizational or policy structure, allocated permanent staffing, and a permanent place in the budget rather than dependence upon soft money.

Sustainability, for example, was built into MSU's partnering with school districts, because the MSUNER is a dues-paying organization. MSU encouraged its partners to see external grants as seed money, with sustainability requiring budget support, an orientation shared by the CoP itself. Through the Research Alliance for New York City Schools, NYU sought to enhance its collaboration with other metropolitan universities, as well as with the New York City Department of Education. ISU put into place structural and curricular changes to ensure sustainability of recent reforms, including the Teacher Education Council, which maintains broad governance authority over curriculum at the university level. ISU's newly created Center for Collaboration and Innovation in Teacher Education, based on a Center of Pedagogy model, will continue the professional development begun under Project PRE.

CONCLUSION

It is evident that fundamental reform initiatives are underway at all nine universities, initiatives designed to produce institutional change that reflects the TNE design principles and holds promise for sustainability. And although the invitations to membership in the TNE Learning Network were extended to these universities predicated in part on their previous achievements and commitment to reform, the Learning Network investment appears to have provided most with opportunities that enabled them to build upon and expand their reform of teacher preparation.

Summary of Key Findings

Looking across the case studies, the cross-case identified six major categories of change underway at the nine universities:

- **Clinical practice** restructuring that introduces teacher candidates to field experience earlier, increases time devoted to field experience, and seeks ways to enhance the quality of that experience, including its location, the candidate's role, supervision and mentoring of the candidate, what the candidate should learn, and the evaluation and assessment of the experience;
- **Rethinking of coursework** to address weaknesses revealed in candidate content preparation, to balance program shifts caused by increased field experience, and to respond to a shift in program mission or vision;
- **Induction** that represents dramatic rethinking of the university role in the induction of new teachers, proposing two to three years of structured support for new teachers through the assignment of trained mentors and/or the training of everyone involved in working with new teachers;
- **Engagement of arts and sciences** in teacher preparation that includes collaborative ventures between the arts and sciences and education, as well as examples of arts, science, and professional departments committed to teacher preparation both independently and collaboratively;
- **School partnerships,** their quality and depth, were a primary factor in the effectiveness of universities engaging in clinical practice and induction reforms, and varied greatly in their structure and management; and
- **Culture of evidence** reflecting the commitment among those responsible for educating teachers that their work be continually re-examined in the light of sound evidence about candidate performance, especially the impact of these candidates on the pupils they teach.

The cross-case examined these elements separately, but in practice these elements are integrated aspects of the work underway.

The case studies document that many of the Learning Network institutions experienced their participation in the Learning Network as having a significant and positive value in furthering their efforts to improve the preparation of teachers. Those interviewed identified several aspects as useful:

- Membership
- Annual meetings
- Mini-grants
- Technical assistance from the New Teacher Center through the CCNY grant

Lastly, it is important to recognize that other factors contributed to the occurrence of institutional change in teacher preparation at these universities:

- University commitment to teacher preparation
- Leadership by the university president, provost, or deans
- National recognition of the university's teacher preparation program
- Collaborative working style
- Commitment to research-based practice
- State-level policy changes
- Capacity for sustainability

Common Programmatic and Policy Challenges

The findings of the case studies also reveal emerging issues and questions, some of which lead to next steps for the Learning Network, or invite attention from cross-sector working groups, funders, policymakers, or providers of external technical assistance.

Programmatic Issues

A number of issues emerge from this study that are of critical importance to university-based preparation programs attempting reforms based on the TNE principles, including:

- The goal of assessing teacher candidate and graduate impact on pupils remains very challenging for teacher preparation programs. Even those profoundly committed to this goal encounter repeated technical and bureaucratic roadblocks. What are practical and valid approaches to this goal, even for programs with modest resources?
- All the universities that received support to work with the New Teacher Center through the 2007 CCNY grant found the training, technical assistance, and materials provided over the course of one year of value in furthering their plans for induction. What could be learned from this initiative about the usefulness of ongoing external technical assistance? What are the most beneficial vehicles for technical assistance? In addition to induction, what are the programmatic areas where universities would find external support helpful?

- Sustainability is an issue that threads its way through these cases: how to sustain school partnerships through turnover in school leadership; how to ensure that university supervisors remain well and consistently trained in mentoring and assessment tools despite retirements and relocations; how to underwrite data collection, analysis, and reporting in the absence of external funding. What do we know about capacity building around sustainability?
- The contribution that strong university-school partnerships can make to the preparation of teachers is evident in these pages, as is the existence of very productive partnerships that have addressed some of the more difficult partnership issues. Looking across these partnerships, is there a body of lessons learned that could usefully be synthesized and broadly shared?
- The case studies indicate that the TNE Learning Network, a relatively modest initiative in terms of its level of funding, nevertheless had a meaningful impact on reform of teacher education through regular covenings, small grants, and limited technical assistance. Are there implications for funders seeking to leverage change through grant-making, in terms of activities, scope, or focus of funding? Are there implications for those interested in pursuing cross-institutional work in teacher education reform?

Policy Areas

The findings of this study also identify a number of critical policy areas that support or impinge upon excellence in university-based teacher preparation, which could be addressed by universities, schools and districts, state governments, and even in some cases the federal government.

University. Innovative policy making has done much to reward and encourage work on behalf of teacher education by faculty and administrative staff at some universities. Are there venues within which these policies could be constructively publicized and further steps identified and promoted?

- Universities have instituted tenure and promotion policies intended to reward research and service activities in teacher preparation and/or engagement in P-12 schools. Are these policies having their intended outcomes? Are there other approaches to the same issues?
- Hiring practices that seek P-12 experience in new faculty members, in arts and sciences as well as education, were evident at several of these universities. What is the impact of this practice on universities and departments? On partnerships between universities and schools?

- A number of universities have also experimented with the establishment of permanent clinical faculty positions, bridging the divide between schools and university faculty. How have these arrangements been structured, and which elements appear to be most conducive to positive results for schools, for university departments, and for the clinical faculty member?
- Shared governance for teacher preparation across colleges exists at a number of universities, which have experimented with a variety of organizational structures to serve as vehicles for collaboration. What do we know about the effectiveness of these structures, in terms of engaging the appropriate staff members in meaningful ways? How could the continual challenges be addressed?
- Among these universities are those where the commitment to evidence-based practice has come from the provost or president's office. Is there any impact evident from this commitment, and what might be ways to promote the value of this stance to the leadership of other universities?

Districts. The policy choices that school districts make have the effect of either opening doors to partnerships with universities, or making these impossible. Issues include:

- The university role in induction will depend to a great deal on the openness of the district to the presence of university faculty, staff, and training. What are the incentives that encourage a school to open its doors to a university?
- District hiring practices may make it impossible for candidates to find appropriate placements. Some districts postpone their hiring to the beginning of the school year, with the result that candidates with options accept employment elsewhere. How have universities worked with districts to forge arrangements that have better outcomes for the schools, candidates, and university programs?

State. Policymakers in state legislatures and governments make laws and issue regulations that have serious impact on university-based teacher preparation and school districts, at times without understanding the likely impact. The decision by some deans of education to become involved in policy making at the state level is at once a public service and a self-protective stance against such outcomes.

- University-based programs in different locations struggle with state induction policies that mandate programs but provide no funding, that define universities out of the process, and in other ways discourage effective programs and partnerships. How can these issues best be addressed by universities, individually or collectively?

- Teacher education program standards established by states may define required elements of teacher preparation programs, such as clinical experience or mandated assessments, for example, either pushing for constructive change in university-based programs or having the opposite effect. Are there examples of excellent university-state relationships around such policymaking?
- Teacher certification requirements may also hinder or drive constructive change in university-based teacher education programs. How should these issues be addressed?
- Those states that maintain data bases on pupil achievement and teacher employment rarely provide access to university researchers or others interested in matching teacher and pupil data with the goal of improving teacher preparation. Who has made progress on this front, and what is the current wisdom on even attempting such initiatives?
- State policy can provide incentives for school-university partnerships in induction and in teacher preparation. Are there examples of state policies that are effective in offering such incentives?

Where the TNE Learning Network began was with the overarching purpose of spreading the word about the TNE design principles beyond the 11 institutions that received major grants from CCNY, and it partner foundations, to transform their teacher preparation programs based on those principles. The concept was to see whether an investment—relatively modest if measured against the TNE grants—in such activities as annual convenings, small grants, and limited technical assistance for a group of 30 universities, already recognized for excellence and interest in reform, would have the effect of pushing the 30 universities in the direction of adopting the principles for their own work as well.

The documentation in the cross-case study suggests that the Learning Network did have the hoped for impact on at least some of its members, providing a vision for those in search of one, affirming directions in which others were already working, providing seed money to leverage additional resources, and creating venues in which ideas could be shared, relationships initiated, and directions affirmed. The original proposal for the Learning Network suggested that "if the Learning Network proves valuable to the Network Partners and the TNE sites…it will be possible to sustain its essential features—mutual learning among reform minded teacher education institutions—beyond the initial grant period." The question remains whether the Learning Network's work is done, or whether any of the programmatic issues or policy areas emerging from the cross-case suggest future directions.

Appendices

APPENDIX A

TNE Learning Network Member Institutions

Alverno College (Milwaukee, Wisconsin)
Arizona State University (Phoenix, Arizona)
CUNY Brooklyn College (New York, New York)
East Carolina University (Greenville, North Carolina)
Georgia State University (Atlanta, Georgia)
Indiana State University (Terre Haute, Indiana)
Jackson State University (Jackson, Mississippi)
Johns Hopkins University (Baltimore, Maryland)
Montclair State University (Montclair, New Jersey)
New York University (New York, New York)
North Carolina A&T University (Greensboro, North Carolina)
Southeastern Louisiana University (Hammond, Louisiana)
Teachers College, Columbia University (New York, New York)
Texas A&M University (College Station, Texas)
University of California, Los Angeles (Los Angeles, California)
University of California, Santa Cruz (Santa Cruz, California)
University of Central Florida (Orlando, Florida)
University of Cincinnati (Cincinnati, Ohio)
University of Colorado, Denver (Denver, Colorado)
University of Dayton (Dayton, Ohio)
University of Illinois at Chicago (Chicago, Illinois)
University of North Carolina, Greensboro (Greensboro, North Carolina)
University of Northern Iowa (Cedar Falls, Iowa)
University of Pittsburgh (Pittsburgh, Pennsylvania)
University of Southern Maine (Portland, Maine)
University of Tennessee at Chattanooga (Chattanooga, Tennessee)
Vanderbilt University (Nashville, Tennessee)
West Virginia University (Morgantown, West Virginia)
Western Kentucky University (Bowling Green, Kentucky)
Western Oregon University (Monmouth, Oregon)

APPENDIX B

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