Teacher Preparation Programs: Research and Promising Practices

By Lou Meadows and Kathleen Theodore

Briefing Paper

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SEDL houses the Texas Comprehensive Center (Texas CC) and the Southeast Comprehensive Center (SECC), which are part of a network of 16 regional comprehensive centers that are supported by five content centers, including the National Comprehensive Center for Teacher Quality. The comprehensive centers assists state and district educators in meeting the challenges of low-performing schools with the goal of helping those schools achieve significant and sustainable gains in student academic performance. Our school improvement strategies emphasize involvement of all levels of an education system in working toward high-performing schools.

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Introduction

The literature on teacher preparation programs in the United States is extensive. However, there is limited scientifically based research on what kind of program produces effective teachers; rather, the literature consists mostly of calls for change in teacher preparation programs. Almost all experts agree that major changes are needed in these programs, with the emphasis being to produce teachers who are effective in enhancing student learning.

This paper reports evidence-based research and offers suggestions based on studies that include theoretical work, qualitative analysis, statistical analysis, and randomized experience that could provide strong causal evidence of the effects of teacher preparation on student learning.

Summary

Most experts agree that major changes are needed in teacher preparation programs in the United States, however there is little scientifically based evidence regarding what kind of program produces effective teachers. Some innovative and promising practices are discussed, but more research is needed.

Key Points

- Relevant clinical experience is a critical part of a teacher preparation program.
- Programs must take advantage of existing technology and support its innovative use as a tool for teacher preparation and as a tool for teachers in the classroom.
- Multiple sources of data should be collected and analyzed to evaluate the effectiveness of preparation programs.

Procedures

The Texas Comprehensive Center staff conducted web-based and hand searches of resources for literature on teacher preparation programs to examine what evidence is available linking practice to outcomes and also to develop an inventory of promising practices. The search revealed an abundance of literature on teacher preparation programs spurred by recent national, state, and local emphasis on improving teacher quality.

Although much research literature was gathered, space and time requirements led to limiting the research to documents retrieved from EBSCO's Academic Search Elite database and ERIC, using the following terms:

- teacher preparation programs
- education
- innovative programs
- alternative approaches
- collaborative programs/approaches
- clinical experience (fieldwork, internship, pre-service, student teachers)
- technology
- admission criteria
- state evaluation systems
- historical perspectives

In addition, staff contacted and included information from the National Comprehensive Center on Teacher Quality and the Center on Innovation and Improvement.

Limitations

This briefing paper on teacher preparation programs includes the following limitations:

- Scientifically based research on what makes a teacher preparation program effective is limited.
- Most of the research reviewed involved theoretical work, not randomized control trials.

Decision makers should recognize that the selected information in this report is not inclusive of all available resources on the topic of teacher preparation programs. Due to the abbreviated nature of a briefing paper, it reflects what could be compiled within limited time and resource availability. Programs and processes discussed within this paper are intended to serve as examples only, and their inclusion does not in any way imply endorsement by SEDL or its comprehensive centers.

Review of the Research on Teacher Preparation Programs

History of Teacher Certification in the United States

In a 2001 report published by the Thomas B. Fordham Foundation, David Angus, a scholar of education history, looked at the practice of how state governments became the certification agents for teachers. His paper examined the practice of teacher certification during the following eras:

- Nineteenth century—Minimal education requirements were established for teachers, primarily by local communities. The predominant idea was that good teachers were born, not trained.
- Early twentieth century—Professional educators gained control over schools and licensing of teachers and established formal, university-based education requirements for educators.
- Post-World War II—Teachers' organizations and professors in other schools within universities took a larger role in preparation and certification of teachers.
- Last quarter of the twentieth century—The public rejected the ideas of teacher preparation by the education establishment and continues to challenge them today. Many state legislatures gained a prominent role by requiring teacher applicants to pass state tests of subject-matter knowledge for certification.
- Early twenty-first century—No Child Left Behind Act of 2001 ushered in unprecedented federal intervention in education and required states to take more active positions in teacher certification and teacher effectiveness.

Measuring Effectiveness of Teacher Preparation Programs

Emphasis on improving teacher quality and student achievement has translated into a call for accountability for the quality of teacher preparation programs. The U.S. Department of Education's *Our Future, Our Teachers: The Obama Administration's Plan for Teacher Education Reform and Improvement*, released in September 2011, outlined proposals for improving teacher preparation programs across the nation. Three focal elements were introduced, including K–12 student growth, employment outcomes, and customer satisfaction. In regard to student growth, the report states,

Building on the lessons of the Race to the Top states, Louisiana, North Carolina, Tennessee, and the New York City school district, states would be asked to report on the aggregate learning outcomes of K–12 students taught by graduates of each preparation program. In doing so, they should use multiple, valid measures of student achievement to reliably ascertain growth associated with graduates of preparation programs. (p. 14)

Research studies recommend that teacher candidates be assessed throughout their pre-service years to measure their development as teachers (Chung, 2008; Darling-Hammond, 2010; Lauer & Dean, 2004). Such assessment and evaluation not only hold teacher preparation programs accountable for training effective teachers, but can also help them improve their program's quality.

A study of the evaluation structures of four nationally recognized programs revealed that they had common data collection strategies, such as graduate and principal surveys, performance assessments, portfolios, focus groups, and informal feedback from PreK–12 teachers and principals (Lauer & Dean, 2004). In addition, the study found that the programs had offices that performed the various duties of the evaluation program, as well as formal committees and advisory groups to provide feedback on program components and help design and implement program improvements. They also held formal meetings of teacher education faculty to discuss the collection of data, conduct analyses of data, and determine how to use the data to improve the program. Clearly articulated goals; established partnerships with schools to provide feedback; and a strong, coherent curriculum aligned to goals helped to drive data collection and determinations about success of the programs (Lauer & Dean).

Informal evaluation processes can also provide valuable information on program effectiveness. This may include using data in a formative way to make decisions about program changes, measure candidates' knowledge and skills, and determine graduates' effectiveness in PreK–12 classrooms. A key feature for evaluating programs is communication and collaboration in every aspect of the system (Lauer & Dean, 2004).

Components of Effective Teacher Preparation Programs

The goal of providing high-quality and equitable educational experiences for all students is a major goal of the American education system. Although student learning is influenced by many factors, teachers and instruction are likely the most important influences. Research shows that not only do students benefit from high-quality instruction, but such benefits have cumulative effects for students. A study from the New Teacher Project revealed that students assigned to effective teachers for three years in a row tended to make especially large gains, while those assigned to three ineffective teachers in a row fell far behind (Weisberg, Sexton, Mulhern, & Keeling, 2009).

Multiple aspects of school reform depend on highly skilled teachers for their success. It is not surprising, therefore, that a major area of agreement among education policymakers, practitioners, and the American public is that improving teacher quality is one of the most promising strategies for improving public education outcomes (Darling-Hammond, 2010). This is especially true for groups of children who have historically been taught by the least qualified teachers. In order to improve student learning, emphasis has been placed on holding teacher preparation programs accountable for producing highly qualified teachers. Measuring success among teacher graduates depends not on what they know, but rather on how they put their knowledge into practice and how that affects student learning (National Council for the Accreditation of Teacher Education [NCATE], 2010).

Research on teacher preparation and its effectiveness is limited except in subject-knowledge expertise. However, some practices have shown promise. For example, McREL researchers examined four teacher education programs whose graduates demonstrated a positive impact on student learning (Lauer & Dean, 2004). Through interviews and document analyses, they identified several components that were common across the programs and related to teacher preparation for standards-based education:

- Courses are aligned with national and state content standards.
- Standards documents are part of course materials.
- Candidates must locate standards documents on the Internet and identify content standards in lesson plans.

- Candidates learn to develop lesson plans and assessments aligned to standards.
- Candidates learn to examine evidence of student learning and modify instructional practice based on needs revealed by evidence.
- Candidates learn to differentiate instruction to address all student needs.
- Program assesses candidates on both content and pedagogical knowledge; uses the results to monitor the effectiveness of candidates and the program itself.
- Education faculty collaborates with arts and sciences faculty and K–12 teachers and administrators to ensure that the program content is aligned with K–12 content standards.

In addition, in 2010 the National Research Council (NCR) reviewed reports from the National Academy of Education's Committee on Teacher Education and an AERA panel on teacher preparation. The council identified five broad areas as important features in teacher preparation programs:

- Program purpose
- Requirements for content knowledge
- Requirements for pedagogical and other professional knowledge
- Field and clinical experiences
- Faculty and staff qualifications

Role of Clinical Experience in Teacher Preparation

Student teaching and clinical experiences have long been viewed by educators as being very beneficial in teacher preparation. In recent years foundations and the federal government have sponsored initiatives promoting innovation in the clinical experience component of teacher preparation programs. This may include laboratory experiences and coursework that provide, for example, demonstration videos, analysis of case studies, and peer teaching, in addition to more traditional classroom observation and student teaching (Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student Learning, 2010). However, even with the emphasis on a national scale, clinical experience is still not implemented consistently among the preparation programs (Zeichner, 2010). While scientifically based research—using valid methods—is still lacking, some studies of current practices do exist. Two reviews of those studies are discussed below.

NRC's *Preparing Teachers: Building Evidence for Sound Policy* (2010), reported that most teacher educators

and students view clinical experiences as a valuable part of teacher training. According to the report, early research studies do not directly support the relationships between the way that field experiences were conducted and a teacher's effectiveness. However, the report went on to say that recent studies, such as Boyd et al. (2008), indicate that when teachers participate in field experiences that are related to future teaching positions and have professional oversight, the experience is of great benefit.

The second report reveals considerable promise and comes from the Blue Ribbon Panel (2010). Commissioned by National Council for Accreditation of Teacher Education (NCATE) to study how to prepare effective teachers, this panel comprised a diverse group of stakeholders including teachers, union representatives, leaders in higher education, state officials, and outspoken critics of the current education system. The panel released its recommendations in a publication titled, *Transforming Teacher Education Through Clinical Practice: A National Strategy to Prepare Effective Teachers*.

The Blue Ribbon Panel report (2010) discussed the gap between what schools need and how teachers are trained, after examining the status of components in current teacher preparation programs. They found that clinical practice does not have a coherent definition nationwide. Many states require student teaching; however, most do not have a guide for the experience, nor are there any accountability measures for these clinical experiences. Mentors are often used, but few states require training for a teacher to become a mentor. The panel felt that clinically based preparation and mentoring programs would be more effective if they were based on proven methods.

According to the report (Blue Ribbon Panel, 2010), ten key principles for the design of clinically based preparation should be followed to prepare new teachers to effect improvement in P–12 student achievement.

1. Focus on student learning. The focus for clinical experiences in teacher preparation programs must be student learning for all students in every grade. The experience should help prepare pre-service teachers to improve student learning in their chosen subject area. There should be an assessment component for the new teacher as well as for the clinically based program.

2. Integrate clinical preparation. The clinical experiences should be integrated into the various areas of the educational process, including courses, labs, and school classroom observations or practice.

3. Monitor components of training program and the pre-service teacher's performance and evaluate data. The pre-service teacher's skills must be developed in alignment with the Interstate Teacher Assessment and Support Consortium (InTasc) core teaching standards and Common Core Standards (or state standards). Evaluation of the program and the pre-service teacher must be based on multiple measures of data, including student work, assessments, and observations of pre-service teacher's skills. Programs must also be monitored and revised based on data.

4. Design programs to produce pre-service teachers who are highly skilled in content, innovation, and problem solving. Upon entering the profession beginning teachers must have the ability to differentiate lessons for student needs, interpret data, use various assessments, and solve problems. In addition, they need to be open to innovative ideas.

5. Train pre-service teachers to communicate in a professional environment. When new teachers enter the profession, they must know how to collaborate and be open to colleagues' feedback about their teaching skills that will enhance student learning.

6. Select mentors who are highly skilled and effective. Professionals who train pre-service teachers should hold certification and demonstrate that they are knowledgeable in differentiated instruction, assessments, and use of data. They should possess skills that would help pre-service teachers hone their own skills.

7. Select sites for clinical experiences carefully. Quality sites should be carefully chosen to ensure the experiences offered are structured for pre-service learning. This requires exemplary school and staff members, who should be compensated for this additional responsibility.

8. Offer advanced technology. The best and most current technology should be used in preparing teachers; it should be used with all aspects of the program as well as clinical experience.

9. Provide research and development components for collecting and using data to improve the program. Data should be collected and used to help measure the program's effectiveness and drive change for innovation and improvement.

10. Develop partnerships to enhance clinical preparation. All partners—school districts, preparation programs, policy makers, and other stakeholders—must work together to enhance clinically based teacher preparation programs.

Candidate Selection Criteria and Program Requirements

According to the National Research Council (2010), there are approximately 3.6 million public school elementary teachers in 90,000 public schools; more than 200,000 students complete a teacher preparation program each year. The NRC report indicates that little is known about the characteristics of teacher candidates—except that they are predominantly female and white—and the programs that prepare them for a career in teaching. Teacher candidates are prepared in many different kinds of programs, such as those in postsecondary institutions and alternative pathways; the majority of the students are prepared in postsecondary institutions.

What is more diverse is the selectivity of the programs, the quantity and content of the course requirements, and the length and timing of coursework. NCATE recommends that admissions criteria include a clearly defined set of standards and a minimum grade-point average requirement. Some preparation programs set high cutoff scores for the SAT or ACT, while others allow for lower admissions scores and grade-point averages. Some programs require information on qualities such as leadership, persistence, commitment, and facility with oral and written communications (NCATE, 2010).

Hill-Jackson and Lewis (2010) categorize selection criteria as quantitative or qualitative. Quantitative criteria are those based on minimum level of academic achievement (i.e., SAT/GRE, GPA, other academic qualifications). Qualitative criteria are based on specific end goals or specific qualities (e.g., attitudes, dispositions, experience). The authors state that the qualitative selection criteria are often defined by the market, such as when there is a need for teachers with skills in a specific language or who have a specific cultural background. Clemson's Call Me MISTER program <http://www.clemson.edu/hehd/departments/education/research-service/callmemister/> is one that uses such quality-based criteria. It provides support and tuition assistance for candidates from low-socioeconomic communities (Hill-Jackson & Lewis).

Faulk (2008) looked at the correlation between educator preparation program selection criteria

and success as teachers. He found no relationship between admission scores (GPA or ACT) and teachers' success (based on their principals' evaluations). However, in Faulk's study conducted at Utah State University, scores obtained through group assessment interviews of program applicants did correlate positively with teacher success (p < .048). This evaluation method is based on the business model of group interviews to gauge potential success of managerial candidates.

In terms of requirements for program completion, there is considerable variation in subject-matter preparation within and across states (National Research Council, 2010). Some teacher preparation programs require students to complete majors in the subject matter they will teach, whereas others offer a broad selections of subjects. Similarly, differences exist in the requirements for pedagogical and other professional knowledge. There are programs that consist of a generic methods class to prepare teachers for all grade levels and subject matters, while other programs provide subject-specific courses in both content and pedagogy. In addition, some programs include a plethora of professional preparation in areas such as history of educational foundations, multiculturalism and diversity, theories of learning, classroom management, special education, and reading (National Research Council).

Clinical experience requirements vary in both number of hours and timing. A review of the Secretary of Education's latest annual report, *Preparing and Credentialing the Nation's Teachers* (U.S. Department of Education, 2011), reveals that there is variation in the number of hours of clinical experience required by programs. Among the teacher preparation programs that reported data on supervised clinical experience, the average number of hours of supervised clinical experience required prior to student teaching was 172, with a range from 151 to 177; the average number of hours required for student teaching was 577, with a range from 514 to 901 (U.S. Department of Education). There is also considerable variation in the timing of the first field experience in a candidate's program (traditionally in the last year of an undergraduate program, but as early as the freshman year) and whether the clinical experience is tied to a specific course requirement or linked to others required later in the program (National Comprehensive Center for Teacher Quality, personal communication, May, 2012).

Alternative Teacher Certification Programs

Because of the pressure to increase the quality and quantity of teachers, new pathways for educating teachers have been created and supported by policies such as the No Child Left Behind Act. Alternative teacher education programs began in the late 1980s and early 1990s (Lauer & Dean, 2004). Nearly every state has alternative teacher certification programs; and some school districts have their own teacher preparation programs, often in partnerships with local universities (Humphrey, Wechsler, & Hough, 2008). Usually an alternative certification program allows qualified candidates to enter the classroom more quickly than traditional university-based programs.

There is considerable variation among alternative programs. Humphrey, Wechsler, and Hough (2008) conducted a case study on alternative certification programs and found that the following characteristics contributed to an effective program: placing candidates in school settings with strong leadership, creating a collegial atmosphere, and providing adequate resources. The programs also benefit from well-educated candidates or having a system in place to strengthen candidates' subject-matter expertise. In addition, it is advantageous for candidates to have had previous classroom experience. In their case study Humphrey et al. found that effective alternative programs tailor the construction and timing of coursework to candidates' backgrounds and experiences and examine challenges they might face in schools. Providing a trained mentor for each candidate can be a key factor in the success of an alternative certification program. Mentors must have the time and resources to "plan lessons with the candidates, share curriculum ideas, demonstrate lessons, and provide feedback after frequent classroom observations" (Humphrey et al., p. 38).

Although additional research is needed on alternative certification programs, this case study's findings allowed the researchers to draw several conclusions: effective programs must collect data on participants' development through multiple methods (assessments, portfolios of teacher assignments and student work, observations, and interviews); programs must assess each participant's teaching context and provide supports that are necessary; and programs must use collected data to tailor the training and supports to each candidate's need (Humphrey et al., 2008).

Innovative Approaches in Teacher Preparation Programs

In response to the demand for greater numbers and effective teachers—and in addition the alternative certification programs—many innovative approaches in teacher preparation programs have developed. Some innovative approaches are described below.

- The state of Arizona has developed partnerships between high schools, community colleges, and public universities to ensure that teachers are effective and prepared for challenges they will face in schools.

- Florida has a Florida Partnership on Family Involvement in Education that recruits families to present guest lectures to teacher candidates on family involvement and to interact with teacher candidates.

- The University of Michigan and Clark University (MA) are developing innovative approaches to assess candidate knowledge and practice by using rounds—a model used by clinical faculty in teaching hospitals—to analyze teacher candidates' practices and involve their peers in analysis and discussion about their practices.

- The Urban IMPACT Project grant partnership includes the University of Tennessee, Chattanooga and Knoxville campuses; the inner-city school systems of Hamilton and Knox Counties; the Tennessee Department of Education; and business leaders. This partnership works to develop the cultural-diversity knowledge and skills necessary for new teachers to succeed and remain in at-risk environments.

- In partnership with the three deans from California State University at Long Beach, the Long Beach School District has created a teacher development and preparation program that focuses on creating a seamless K–16 education system for students in Long Beach's at-risk areas.

- The state of Maryland aspires to prepare all teacher candidates in year-long internships in professional development schools. The Maryland Professional Development School Network connects Maryland colleges and universities with their local school system partners.

- Much like medical residency programs, teacher residency programs are established to allow teacher candidates to complete coursework while gaining experience. This approach has been particularly useful in preparing candidates to teach in at-risk schools. Some examples of teacher residency programs are the Academy for Urban School Leadership (AUSL) in Chicago, the Boston Teacher Residency, and the Boettcher Teachers Program in Denver.
  (Bain & Moje, 2010; Del Prete, 1997; Lasagna, 2009)

Implementing an innovative program and building support for it can often be challenging. In their paper, *Levers for Change*, Hassel, Walter, and Hayden (2002) discuss six "levers" that can be used to improve teacher preparation programs.

- Establishing a mission and goals can help focus everyone on improving teacher preparation.
- Using standards gives direction to and helps align the improvement work.
- Exerting effective leadership provides motivation and support and helps focus the work.
- Building relationships with local schools and businesses as well as other institutions of higher education provides opportunities for collaboration and access to additional resources.
- Providing support through available resources, including time, funds, personnel, and training, is critical to improving a preparation program.
- Collecting data/information regarding the program is important for guiding the improvement process from the beginning and throughout implementation and follow-up.

Role of Technology in Teacher Preparation

The history of technology in teacher preparation really begins with the advent of affordable computers for the general public. Educators across the nation quickly saw the importance of using computer technology in the classroom. However, many school systems and teacher preparation programs were slow to embrace this new phenomenon. Many reasons

were given for not using computers—frequently cited was the price of equipment. Another was lack of training for in-service teachers. Pre-service programs were even slower to accept this new educational tool, citing similar reasons. Noting the limited use of existing technology by both in-service and pre-service teachers, in 1999, Jolly, Davis, Strader, and Denton emphasized the importance of higher education leading the way in providing technology for schools of education and modeling its correct use.

Also in 1999 the Department of Education began its Preparing Tomorrow's Teachers to Use Technology (PT3) grant program, which addressed a growing challenge mentioned by Jolly et al. (1999): many elementary and secondary schools were "wired" to the Internet, but most teachers still felt uncomfortable using technology in their teaching. In the years since its inception, PT3 has awarded numerous grants to education consortia to help address this challenge. These grants include projects designed to transform teaching and learning through faculty development, course restructuring, certification policy changes, teacher preparation, and various technological applications.

Although the use of technology in teacher preparation has not recently received as much attention as it did in the past, many interested groups and agencies are now stressing new ways to incorporate technological advances into clinical experience and other aspects of teacher preparation.

Various programs are examining innovative ways of "integrating technologies into methods courses, linking learning settings, delivering courses, assessing students, and developing instructional materials mediated by technological advances" (National Comprehensive Center for Teacher Quality, personal communication, May, 2012). Innovation in technology is rewarded by an annual prize from The American Association of Colleges for Teacher Education (AACTE).

Most states set their own standards for teacher preparation, and technology skills are included within the standards. Because most prospective teachers have now used technology throughout their education experience, they feel relatively comfortable with their personal skills. With the emphasis on improving education in all arenas, there are numerous programs across the nation that focus on ensuring that pre-service students understand the value of technology to enhance student learning in the classroom.

Several examples of technological innovation in educator preparation programs were provided by the National Comprehensive Center for Teacher Quality (Personal communication, May, 2012). Hunter College at The City University of New York requires all pre-service teachers to have specific technology competencies which are categorized into five components: productivity, communication, research, media, and presentation. The competencies were based on recommendations from professional organizations such as the International Society for Technology in Education. A further requirement is for these skills to be embedded in the courses and programs at the appropriate grade level. Online tutorials are available to assist students in mastering the competencies. Information is available at http://soe-server2.hunter.cuny.edu/assessment/

The University of Central Florida won the 2012 AACTE Best Practice award (mentioned above) for innovative use of technology. Its TeachLivE (TLE) Lab <http://mclserver.eecs.ucf.edu/teachlive/index.php> provides opportunities for students to hone their teaching skills through a virtual teaching environment. This allows both pre-service and in-service teachers to experiment with new strategies, correct errors in routines, and develop content-area and pedagogical skills without a possible negative impact on real students (Johnson, 2012).

An additional program of note is the Integrating New Technologies Into the Methods of Education (InTime), which is funded through a PT3 grant. The program is led by the University of Northern Iowa, and participating institutions include Southwest Missouri State, Eastern Michigan, Longwood College, and Emporia State. Technology as Facilitator of Quality Education is the theoretical framework for the InTime model (Callahan & Switzer, 2001). It includes seven dimensions that help pre-service and in-service teachers identify the key places where technology tools and activities should be introduced and also evaluated to measure effectiveness. The InTime website (http://www.intime.uni.edu/) offers videos that demonstrate integration of technology into lessons at various grade levels; the videos were filmed in actual P-12 classrooms. It must be noted that this program was developed in 2000, but its resources are still considered to be of value (National Comprehensive Center for Teacher Quality, personal communication, May, 2012).

Promising Practices for Clinical Experience

The National Council for the Accreditation of Teacher Education (NCATE http://www.ncate.org/) has challenged educator preparation programs to make clinical experience a primary focus of teacher training, and many are responding to that challenge. According to the National Comprehensive Center for Teacher Quality (Personal communication, May, 2012), there is a trend to start clinical experiences early—some even during a student's freshman year; however, they are typically scheduled soon after a teacher candidate has been accepted into the preparation program. Another trend is toward increased hours for clinical experiences, sometimes in more than one school level (U.S. Department of Education, 2011).

A recent development noted by the National Comprehensive Center for Teacher Quality (Personal communication, May, 2012) is the use of the teacher residency model. These programs are usually implemented at the master's level, and the teacher residents participate in a guided apprenticeship for at least one year. The Urban Teacher Residency Model, in collaboration with three other residency programs—Academy for Urban School Leadership, Boettcher Teacher's Program, and Boston Teacher Residency—developed standards for six core elements of such programs. The standards can be accessed at http://www.utrunited.org/the-residency-model. The National Center for Education Evaluation

and Regional Assistance, part of the U.S. Department of Education's Institute of Education Sciences, is conducting a study running from 2010 to 2015 to evaluate the residency programs (http://ies.ed.gov/ncee/projects/evaluation/tq_residency.asp).

The Blue Ribbon Panel (2010) commissioned by NCATE cited several existing clinically based programs that have produced noticeable results. The two programs described below demonstrate two different approaches that have been successful with clinically based preparation: St. Cloud State University describes a co-teaching model and the Woodrow Wilson Teaching Fellowship program features stipends to students.

> St. Cloud State University
> Web site: www.stcloudstate.edu/coe/tqe

> The St. Cloud State University (SCSU) maintains an Office of Clinical Experiences that oversees the co-teaching program. Bacharach, Heck, and Dahlberg (2010) state that co-teaching has been used in special education for several decades, but it has only recently been implemented with student teachers. This model, which focuses on the development, implementation, and evaluation of student teaching, provides two teachers—a certified teacher and the teacher candidate—in the classroom for longer periods of time than traditional student teaching assignments. The program promotes collaboration and incorporates co-teaching pedagogy, as well as special grouping of students to enhance student learning.

> The U.S. Department of Education joined with the St. Cloud Area Schools from 2003–2008 with a $5 million Teacher Quality Enhancement partnership grant. More than 700 cooperating teachers and more than 2,000 teacher candidates have participated in this initiative. Research revealed that students in a co-taught classroom statistically outperform students taught by 1) a single teacher or 2) a supervised student teacher using a traditional, non-coteaching model (Bacharach et al., 2010).

> SCSU's co-teaching initiative has been awarded the Innovative Partnering and Collaboration Award from the Minnesota State Colleges and Universities; the Christa McAuliffe Award for Excellence in Teacher Education from the American Association of State Colleges and

Universities for the innovative use of co-teaching in student teaching; and the AACTE Best Practice Award in Support of Research on Teacher Education Quality and Accountability.

Woodrow Wilson Teaching Fellowship Program Web site: http://www.wwteachingfellows.org

The Woodrow Wilson Teaching Fellowship program has withstood the test of time since its inception over sixty years ago. Originally designed to prepare students to teach at the college level, the current program, underwritten by the Lilly Endowment, Annenberg Foundation, and the Carnegie Corporation, is aimed at ensuring that teachers training to teach at the high school level are prepared to meet the needs of students for the 21st century. The program is intended to draw STEM (science, technology, engineering, and math) professionals and college graduates to teaching careers in high-need schools and to elevate the status of teaching as a career. The fellowships have been described as "Rhodes scholarships" for teaching (Honawar, 2007).

One of the four goals of the Woodrow Wilson Teaching Fellowship program is to transform teacher education. It provides resources for partner universities to use in developing model programs to train teachers for math- and science-related teaching careers. Funding is provided to colleges that will redesign their teacher preparation programs with intensive clinical experiences along with discipline-specific pedagogy. It is hoped that the program will foster rigorous educator preparation standards nationwide (Woodrow Wilson National Fellowship Foundation, n.d.).

The Woodrow Wilson Teaching Fellowships provide $30,000 stipends to prospective teachers—who are willing to teach for 3 years in low-income schools in urban and rural communities—to complete a state-of-the-art master's teacher preparation program. The fellowships have prepared more that 700 math and science teachers from 14 colleges over a 3-year period, helping to alleviate the shortage of STEM teachers in participating states, which currently consist of Indiana, Michigan, and Ohio (Woodrow Wilson National Fellowship Foundation, n.d.).

The NRC (2010) report recommended future research on clinical experiences. It suggested that a program include theoretical work, qualitative analysis, statistical analysis, and randomized experiments that could provide evidence of the means by which field experiences affect teacher practices and, thus, student achievement. Among field experiences that could be studied are co-planning, co-teaching, scaffolded entry into practice, seminars with mentors, and mentors with experience in relevant content and grade level. The report also provided two examples for potential research study:

- Manipulating primary components of clinical experiences in randomized-control field trials to study the effects on teacher classroom practices and student achievement outcomes
- Examining whether teachers who work in low-performing schools benefit more from some field experiences than from others

Conclusion

A major theme across much of the literature reviewed is that most current teacher preparation programs must change their programs to produce teachers who can enhance student learning. Most of the experts agree that transforming teacher education will not be easy. According to NCATE (2010) programs should contain the following components:

- Teacher education programs must be continually evaluated for effectiveness.
- Institutions of higher education must recognize the value of research.
- Pre-service teachers must know how to use technology effectively to enhance student learning.
- Strategic partnerships must be formed between P–12 and higher education.
- Clinical preparation must be placed at the center of the program.

State Highlights

The states served by the Texas and Southeast Comprehensive Centers were invited to contribute information on efforts to improve teacher preparation programs in their state. The following highlight was provided.

South Carolina

How the SCDE Supports Teacher Preparation Programs in the State of South Carolina

The Division of School Effectiveness (DSE) is one of three service arms of the South Carolina Department of Education. The DSE has two offices that specifically reach out to and support teacher preparation in South Carolina while candidates are still in school. Other offices in DSE support teachers once they are in the field through continuing professional development and leadership training. The following is a brief description of the two offices that support teacher preparation programs while candidates are in school. A more complete list of all offices within the DSE as well as description of their functions may be found at http://ed.sc.gov/agency/se/ .

Office of Certification Recruitment and Preparation (OCRP)—The OCRP is one office that has three distinct functions. Two of those functions directly support teacher preparation programs: Certification and Preparation.

Certification works with educator preparation personnel to clear candidates for field and clinical placement in the classrooms. Once a candidate graduates, Certification assists candidates in receiving certification in a timely manner so that contracts may be signed and new careers may be launched.

Educator Preparation works directly with colleges of education and other providers to approve new programs, assist with continuing or initial accreditation, and complete annual Title II reports which assist teacher preparation candidates in the receipt of federal financial aid earmarked for teachers. Educator Preparation collaborates with colleges of education and teacher education programs to ensure that candidates have the knowledge, skills, and dispositions necessary to achieve state certification and become effective educators.

Office of Educator Evaluations (OEE)—The OEE develops and administers the statewide system for evaluating school principals, assistant principals, teachers, and certified professional support specialists. During candidate training this system is thoroughly embedded within each teacher preparation program. The purpose of this evaluation system is to examine the relationship between educator performance and student outcomes from the dual perspectives of accountability and improvement. The following two vital questions undergird the evaluation system: Is each individual educator working with students in a competent, caring, and disciplined manner, and how effectively do these educators collaborate to have a positive impact on student learning and success? By continuously refining our answers to these questions we can, in turn, provide vital information that will promote college and career readiness for all students.

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Staff from the Texas and Southeast CCs collaborate to prepare briefing papers for the departments of education in the states they serve. The briefing papers address topics related to implementing the mandates of the Elementary and Secondary Education Act (ESEA). Comprehensive center staff collect information about promising practices and research on these topics and summarize that information for state, district, and school educators to use in support of their work to meet student needs more effectively.

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