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American Association of
State Colleges and Universities



Developing Evidence & Gathering Data

About Teacher Education
Program Quality

This monograph grew out of a meeting sponsored by AASCU, the Center for Teaching Quality, and the Carnegie Corporation of New York that was held at the Carnegie Corporation offices in New York in December 2005. That meeting, prompted by AASCU's project on the issue of evidence of effectiveness in teacher education, focused on the issue of data. Teacher preparation institutions confront enormous challenges in trying to gather evidence of effectiveness, as much of the data is not easily accessible. The meeting was an effort to identify sources of high quality data and describe what appear to be best practices in emerging state data systems. The conference concluded that a monograph on these issues would be helpful to individual campuses and states as the discussion of evidence of effectiveness proceeds.

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Foreword

University-based teacher programs and all of their components, including the content disciplines, are undergoing an unprecedented degree of scrutiny and challenge. Critics have always challenged teacher preparation programs, but for many years those critics were primarily in the university, especially in traditional liberal arts disciplines. Today, the entire concept of university-based teacher preparation is being questioned, mostly by external critics. University-based teacher educators must provide credible and persuasive evidence of the effectiveness of their preparation programs or risk losing their work to a host of existing and emerging competitors.

However, profound methodological problems occur when linking individual teacher actions with subsequent pupil performance: substantial intervening variables; questions about appropriate measures of student learning; issues around the lack of test standardization between schools and districts; and problems in the mechanics of tracking candidates and accessing data. Alternate measures of student learning, (whole school scores, or proxies for student learning, such as teacher behavior), only add to the attribution complexity.

One of the recent challenges to university-based teacher education has been created by state-mandated testing, both of pedagogical and content knowledge. As those test results become known, critics charge that too many university teacher education students do not know enough content and pedagogy. Another challenge has been created by those who view university-based teacher education as a monopoly and who are committed to supporting multiple alternative routes. These forces support alternatives such as Teach for America and other programs. Another challenge results from the imposition of the requirements for the No Child Left Behind Act and the pressure for schools to prove annual yearly progress of P-12 student learning. In many states, principals and others are supporting more

relaxed state standards for teacher certification to ensure that they can find candidates deemed “highly qualified.”

Whatever the source, university-based teacher education programs increasingly find themselves besieged by critics. These challenges question the fundamental assumption that teacher education and preparation belong in the university. For many colleges, schools, and programs, the attacks are frequent and persistent. They are not likely to disappear any time soon.

Teacher preparation programs are being asked to prove they do a good job in preparing teachers for the nation’s schools at a time when P-12 education becomes even more critical for the nation’s future in the rapidly changing global economy. Yet individual institutions find it hard to mount a significant response for two reasons. First, they wonder why there are attacks at all. Many believe that their teacher education graduates are well prepared and enthusiastically hired, at least to judge by the response of the schools that hire their graduates. Their test scores are solid. So instead of fighting back, they’re often left wondering what the concern is all about, or perhaps think that the critics are addressing others. Second, even if they are convinced that the critics need a response, they are not sure what data would be both adequate and useful in demonstrating their effectiveness. Too often university teacher education stands silent as the challenges grow. University-based teacher education is under a strong and multi-sided attack and unless university-based teacher education can prove its effectiveness, it may no longer exist in the future.

If today’s educational accountability movement is nothing else, it is a reflection of public doubt that diplomas, certificates, transcripts and other records of educational attainment can be trusted. While those in the field of education are right to be wary of some doubters’ motives, they must simultaneously find ways to take the offensive in the matter and by so doing, gradually restore public confidence in higher education institutions.

This monograph describes both the need and the opportunity to harness the technology of the information age sufficiently to gather, codify and analyze significant amounts of data that can close the evidence gap between university attestations of their graduates’ competencies and the public’s confidence in those claims. This opportunity is increasingly revealed in an

arena of profound public importance, the preparation of future teachers. An endeavor of longstanding importance to AASCU institutions, closing the evidence gap on the preparation of quality teachers, is now underway in several states. To mention a few emerging examples, projects underway in California, Ohio, Virginia and Louisiana are particularly noteworthy.

In Ohio, the preface to a recently published description of the project described the significance of the effort.

“All those responsible for the preparation of teachers agree that having a highly qualified teacher in every classroom is essential to student academic achievement. . . . What researchers and practitioners are having difficulty agreeing on are the essential characteristics of the teachers who create value-added learning and the ways in which professional development experiences need to be structured in order to foster and develop those critical teacher characteristics.”

—Lasley, Siedentop and Yinger, 2006

When Mark Twain wrote in *The Adventures of Huckleberry Finn*, “hain’t we got all the fools in town on our side?—and hain’t that a big enough majority in any town?” he was describing the propensity within the human condition for reliance on untested assumptions. The tendency among educators to assume that successful completion of specific courses, fields of study, academic majors or degrees yields in each graduate the desired or needed array of knowledge, skills and attributes for post-graduate success is a contemporary version of Huck’s assumption. If not reversed, this presumptive response appears more likely to qualify us for membership in Twain’s ascribed majority than to dissuade the doubters.

Whether the college graduate’s major is accounting, psychology, computer science, engineering, biology, art, music or any field of your choice, the general public today, acting through elected state legislatures as well as appointed and elected members to a variety of local and state agencies, is asking for evidence of competency beyond that historically attributed to course grades, transcripts, certificates and diplomas. Acting through these agents, the public seeks evidence beyond these traditional ones that graduates possess the knowledge, skills and attributes proclaimed by the

degree granting program/institution and needed by the larger society. It is perhaps generous to say that higher education has been slow to provide that evidence and equally slow to collaboratively forge public consensus on its nature.

Perhaps in no arena is the issue of public trust in higher education more openly debated than the arena of teacher education. Results of that debate thus far include the general disappearance of degrees in “education” in favor of degrees in content areas, i.e., science, math, history, English, etc. In addition, numerous national initiatives to make the preparation of future teachers a university wide endeavor and not the exclusive province of departments, colleges or schools of education also have been undertaken. Oversimplified, implicit in most of these reforms is allegiance to one of two underlying assumptions that Huck Finn fans would appreciate.

One camp of these true believers subscribes to the notion that the perceived problems in public schools, such as low student achievement, school violence, lack of discipline, inadequate preparation in the basics, are predominantly the result of socio-economic variables that define student achievement so pervasively as to negate the well intended effects of professional teacher education emphasizing educational methods, theories or philosophies. Proponents of this camp tend to emphasize the importance of the teacher’s intellectual attributes, knowledge of the subject matter and an underlying belief that it is ultimately student vs. teacher variables that determine the extent of student learning. This group argues that if the teacher is bright and steeped in subject matter expertise, the lack of student learning cannot possibly be related to teacher effects.

The other camp argues conversely that professional teacher education is critical, that intellect and subject matter knowledge are important to be sure, but ultimately insufficient by themselves. This camp believes that individual teachers make significant differences in student learning and they do so in spite of socio-economic indicators. Holding strong views about teaching as a profession requiring in-depth study of teaching and learning, this camp sees the teacher as an instrument of student learning only when provided adequate professional preparation for and induction into, the profession of teaching.

To return to the afore-referenced Ohio publication for a moment, the debate is indeed as those authors described in the article preface. While there is much agreement on the importance of having qualified teachers in the classroom, there is a significant lack of consensus on the essential characteristics of effective teachers and the ways in which preparatory experiences need to be structured in order to foster and develop them. And, in the absence of compelling evidence in support of either camp above, proponents of both are inclined to assume Huck Finn's every fool in town posture if for no other reason than the available company in each camp!

This continuing stalemate is unhealthy for the nation and increasingly, unnecessary. Universities, school districts, and state agencies have come together in several states to close the evidence gap for determining the essential characteristics of effective teachers and the ways in which preparatory experiences need to be structured in order to foster and develop them. The question of validating the components of preparing effective teachers should be extended to the preparation of other critically important professionals. Indeed, the question is appropriate to any/all university graduates, i.e., what is the evidence that graduates of any given program possess the knowledge, skills and attributes proclaimed by the degree granting university and needed by the larger society in which the graduate now seeks employment or service?

Rather than doubt the importance of that question, what evidence exists that future engineers, business leaders, physicians, scientists, politicians, lawyers, nurses, professors, entrepreneurs, artists, entertainers, authors, composers, ad infinitum, are having the desired and/or proclaimed impact on the persons, agencies, groups, organizations and societal needs the university assumes or intends? If it is critical to address this question for future teachers, is it ultimately any less critical for these other fields of endeavor?

AASCU institutions graduate not only a significant majority of the nation's teachers, but also a significant percentage of its future leaders in all walks of life. Educational leaders can potentially make a difference in the impact of the institution's graduates on the many serious challenges confronting society today.

For many years teacher education administrators have focused on inputs, illustrated best by the almost exclusive attention in accreditation to input measures: quality of faculty, nature of the curriculum, adequacy of the budget, and the like. Administrators were, to be sure, concerned that they produced good teachers. But the focus on outcomes was not there. And the definition of good teachers was limited, usually defined as teachers who principals said were good or fit in well.

But in this new age of accountability, a focus on inputs is simply inadequate. The key measure of success for teacher education programs today must be how well they produce teachers who can demonstrate that they can produce learning gains in P-12 pupils.

The critical problem is the focus on individual institutions when the real unit of measure is appropriately the state. Institutions receive program approval from the state. They prepare candidates for state licensure. The state has the broadest view of needs and shortages of teachers for specific schools or disciplines. The state has access to all kinds of data unavailable to individual institutions, such as pupil learning performances on state-mandated tests. States also have access to employment data about where graduates go. States have retirement system information about how long teachers remain in teaching. In other words, to look at institutions in isolation from their states is simply to ignore critical context and data sources.

Ultimately the state is the entity with the greatest stake in pupil learning outcomes, in terms of workforce preparation, citizenship, and community welfare. For those reasons, teacher preparation cannot be viewed in a narrow frame of a single institution. Institutions must be set in the broader context of the state. While the federal government exercises increasing influence, particularly through No Child Left Behind, it is still the state that provides the greatest amount of financial support and regulation.

Particularly critical to the advancement of teacher education will be the development of robust data systems that can offer information about critical questions of teacher quality: how many teachers enter and leave the system each year, how long is the average working life of a teacher, what gaps exist between the ethnic and gender makeup of students and

the teachers who teach them, what shortages exist in specific disciplines, in certain grade levels, or in certain buildings, and perhaps most important, what teachers are able to increase learning achievement in their students, and by extension, what teacher preparation programs are most successful in preparing a cadre of teachers that can produce high levels of achievement by pupils?

The work of individual institutions is not to be ignored, but institutions cannot operate in isolation; they must work in a collaborative, coordinated way with other institutions and the state to create a comprehensive system of accountability that will increase teacher quality.

This monograph describes the journey AASCU undertook to discover these insights and understandings. AASCU depended on the kindness of strangers, both the Carnegie Corporation of New York for its generous support, and for talented and thoughtful individuals along the way: Jeanne Burns, Bill Reaves, Gary Peer, David Wright, and Francine Tompkins, to name but a few.

An AASCU Perspective

AASCU member institutions award half of all bachelor's degrees in education. The association's focus on teacher education is to help its members develop students into quality teachers through a university-based teacher preparation program, grounded in disciplinary knowledge and research, that is committed to the following principles: students must know the subject matter they wish to teach; students must understand the context in which teaching and learning take place; students must understand and effectively use good teaching practices; and students must have sustained opportunities to teach children in classroom settings. Two programs that address this through evidence-based preparation are the Christa McAuliffe Award for Excellence in Teacher Education and the AASCU survey.

The Christa McAuliffe Award

AASCU's Christa McAuliffe Award for Excellence in Teacher Education Award has been presented to 14 AASCU institutions since 2002. The award highlights institutions' efforts to hold themselves accountable for the teachers they graduate by linking teacher practice to pupil outcomes. The Christa McAuliffe Award for Excellence in Teacher Education was designed not only to recognize outstanding programs that have taken on these challenges, but also to provide concrete ideas and suggestions to help other institutions improve their teacher education programs.

Institutions were able to create exemplary programs that responded to both the needs of their P-12 partners and also to systematically assess their own program effectiveness. They did this in a variety of contexts—urban and rural, as well as pre-service and professional development for in-service teachers. The award winners serve as models for other teacher preparation programs as they strive to address both the external demands to produce

more data and evidence of their students' impact and their own need to continuously review and assess their programs.

The Christa McAuliffe Award competition has uncovered the work of a number of AASCU institutions that are pioneering new ways to measure and assess teacher education program effectiveness. However, a major problem is that the work underway on some campuses on evaluation is not known on other campuses. Policymakers and legislators certainly don't seem to know about these efforts either. But even if other teacher education programs were aware of these efforts and decided to duplicate an approach, they would still only be replicating someone else's design for a single approach. Essentially, in the present circumstances, each institution has to create its own entire evaluation system from scratch, a slow and cumbersome process.

The AASCU Survey

Teacher education in the United States continues to be assailed by critics as lacking substance, rigor, and responsiveness. A rising chorus from many different quarters demands that university-based teacher education programs prove their effectiveness. State legislators wonder if university-based teacher education is worth the money being invested. Hiring officials and parents wonder about the competence of recent teacher candidates. Advocates of alternative programs imply that quality programs can be delivered in less time for less money. And state officials implement new strategies such as the American Board for Certification of Teacher Excellence Passport to Certification test to assess teachers' capabilities. The demand is always the same: Produce evidence to prove that teachers effectively increase student learning.

Linking teacher practice to pupil outcomes has proven particularly challenging for teacher educators. Profound methodological problems occur when linking individual teacher actions with subsequent pupil performance, including substantial intervening variables, questions about appropriate measures of student learning, issues regarding the lack of test standardization between schools and districts, and problems in the mechanics of tracking candidates and accessing data. Alternate

measures of student learning, such as whole school scores, or proxies for student learning, such as teacher behavior, only add to the attribution complexity. Feeling the mounting pressure to demonstrate the effectiveness of teacher preparation programs with solid evidence of pupil learning, university administrators and teacher educators are responding to growing expectations.

To discover how institutions were responding to this issue, AASCU leaders developed a project to discover what all AASCU campuses were doing to provide credible and persuasive evidence of the effectiveness of their programs to schools, parents, policy makers, and the public. This project was based on two premises. First, that teacher education accountability was important and legitimate; public institutions have a public obligation to be accountable. Second, the project was based on the premise that robust evidence systems must be in place to achieve educational outcomes, to guide program improvement, and to assure and protect the public.

However, AASCU was skeptical about whether any of the current approaches to collecting data had the power to provide such robust evidence. Given current limitations on design and data collection, there was concern about the capacity of most teacher education programs and states to provide evidence about the impact of their programs. Although some states are developing data systems that will be capable of tracking the achievement of individual students and teacher education program graduates, not all states have the ability to gather and share such data. It is imperative that teacher educators not wait until these more elegant systems are developed before focusing on gathering data to demonstrate, in credible, persuasive, and useful ways, the impact of teacher education programs.

AASCU leaders developed a survey that asked how institutions assess the content knowledge, the classroom performance, and the P-12 student learning of their program graduates; how programs track the retention of graduates; what data collection and analysis procedures are used; what mandates institutions are under to collect and report information; and what issues exist in relation to accessing data.

Results indicate that institutions are besieged by demands for data and frustrated by the amount of time and energy they are devoting to the

collection process. The wide array of data required by different groups makes it difficult for programs to build data systems that are useful for program development, teacher quality improvement, and the development of public trust.

The survey revealed that institutions are using similar measures and instruments to collect effectiveness data, such as work samples and surveys. They are responding to mandates from their respective state education departments and from national accrediting agencies that they be accountable for the learning of both teacher candidates and the P-12 students they teach. They are aware of the need to demonstrate this accountability, but many are still conceptualizing what accountability means and what constitutes evidence of accountability, particularly for P-12 student learning. Many institutions are in the planning stages or involved in piloting systems to collect performance data. Others appear to be revising methods they had used previously to conform to new expectations. Although some have difficulty accessing the data they need, others are able to access information, often with assistance from their states or their university systems.

Most individual institutions are struggling to respond to outside mandates for evidence of program effectiveness in isolation from other institutions. They do not appear to be able to organize and interpret the data in ways that would provide an effective response to outside mandates. Different data requirements and differing definitions for all of the formal reporting requirements of state, federal, and national accreditation make analysis extremely difficult for many respondents. Nor is it clear that there are structures in place to use the data to inform ongoing change. Lack of data management systems, lack of access to data, and lack of a consistent methodology to gather and analyze data were often cited as impediments.

The AASCU survey indicated that state colleges and universities across the nation are collecting voluminous amounts of data. AASCU member institutions compile data about a multitude of program variables: they collect data from prospective students; they survey, observe, assess, and test students during program enrollment; and they require students to submit portfolios and various forms of information as prerequisites for credential recommendations. Responses suggest that data collection is idiosyncratic

to individual institutions. Some institutions measure individual teachers; others measure schools or grades. Some institutions use standardized tests; others use observational strategies.

Most of the student achievement data collected, even for evidence of program success, focus on only narrowly defined outcomes, usually on math and language arts skills. Missing are measures of teaching and learning in a variety of academic subjects not tested by standardized tests. The No Child Left Behind Act of 2001 requires annual testing in mathematics and reading and will soon require testing in science. As a result, gathering student achievement data to demonstrate program effectiveness in other subject areas is difficult. But beyond content, also missing are measures of outcomes such as democratic skills, measures of social skills, and measures of self-esteem or confidence as a learner. There is little discussion of programs gathering evidence on a broader set of important indicators, such as preparing students to be active, involved participants in a democracy; preparing students to have access to knowledge and critical thinking within the disciplines; preparing students to lead rich and rewarding personal lives and to be responsible and responsive community members; and preparing students to assume their highest possible place in the economy.

A number of institutions reported difficulties related to accessing data. In some areas, confidentiality agreements and state privacy laws limit access to pupil data. But beyond these obvious limits, many computer systems are old, databases are formatted in incompatible ways or unable to link to other systems, and a host of other technical issues make the practical problem of sharing data, even if releasable, virtually impossible.

It is clear that evidence of the effectiveness of programs will not be possible unless there are collaborative efforts between universities and the school districts that own the data and have a natural interest in learning about the effectiveness of candidates coming to them.

Beyond the local partnerships, however, AASCU believes that data systems must also be developed at the state level. Some states are moving ahead with interesting approaches; it is clear that the most advanced state at this point is Louisiana, whose five-year development effort is moving toward a

comprehensive, articulated system that should provide a rich set of data for both program improvement and public assurance.

“. . . the great promise of assessment is its deployment in the service of instruction, its capacity to inform the judgment of faculty and students regarding how they can best advance the quality of learning. So the challenge before us is to develop systems of assessment and accountability in which the internal uses of assessment for instruction—and the external uses of assessment for accountability and transparency—are carefully weighed.”

—Shulman, L. *Change Magazine*, January/February 2007

Best Practices in the States

The following state-level examples from California, Louisiana, Ohio and Virginia illustrate a variety of approaches that address the issues identified in the national survey. They describe collaborations among state departments of education, universities and university systems, teacher preparation programs, and state and local school districts focused on the development of systems to gather data to improve teaching and learning.

Although each of the state efforts is unique, there are clear commonalities among them: (1) they are all structured as partnerships; (2) they propose to gather data to inform teacher preparation and promote improvement in P-12 student performance; and (3) they are supported by funds dedicated to studying the preparation and effectiveness of teachers. Extensive descriptions of these examples are available in Appendix A.

California

The California State University (CSU) Board of Trustees launched systemwide efforts to improve teacher preparation in a policy titled *CSU's Commitment to Prepare High Quality Teachers* in 1999. In 2001 each CSU campus participated in the first Systemwide Evaluation of Teacher Education Programs, an ongoing evaluation that provides data about the quality of the programs each year.

To implement the evaluation, CSU developed a Mosaic of Teacher Preparation Outcomes. In the mosaic, each tile represents a complex set of results that should be viewed as interconnected with each other. If the results of preparation are measured and assessed, the evidence will contribute to a comprehensive, accurate understanding of accomplishments as well as identify areas of concern.

The evaluation consists of six interrelated sets of outcomes that together provide a detailed picture of program quality and effectiveness.

Outcome One focuses on the intrinsic qualities of each program as reported by graduates when they finish the program. As candidates complete their teacher preparation programs, they are invited to participate in an exit survey. The survey contains a set of base questions, and campus administrators have the opportunity to add questions and access data in real time.

Outcome Two is the effectiveness of a program in terms of the level of each graduate's preparation as reported by the graduates during their first few years of K-12 classroom teaching. To compile evidence about the effectiveness of all CSU credential programs, the graduate survey attempts to include all of the programs' graduates one and three years after they complete their preparation.

Outcome Three is the effectiveness of a program as reported by the job-supervisors of graduates during their first years of teaching. CSU invites the school-site supervisors of teaching graduates to answer evaluation questions. Unlike most follow-up studies of this type, this survey provides each supervisor with the name of the first-year teacher who is guided and assisted by that supervisor, and whose preparation is to be assessed by the supervisor.

Outcome Four is the program's impact on teaching competence as reflected in an assessment that is a technically sound measure of teaching performance. Beginning in 2008-09, each candidate for a teaching credential will have to pass a teaching performance assessment in order to be recommended for a teaching credential. As a result, CSU and other teacher preparation institutions in California are gearing up to implement assessments that are more uniform, valid and reliable.

Outcome Five examines the retention of CSU graduates in teaching. The CSU has two studies in progress focused on teacher persistence in the profession. The first is a large-scale analysis of retention and attrition patterns among California's K-12 public school teachers. The second is an

analysis of state data on employment patterns among graduates of CSU teacher preparation programs.

Outcome Six examines the effects of teacher preparation on the learning gains of K-12 pupils who are taught by CSU graduates. CSU has formed partnerships with seven large school districts to provide pupil data linked to data about teachers, schools, and CSU programs. Using a value-added approach, the evaluation will sort out the impact of: (a) different levels of preparation among teachers; (b) substantively different methods of learning to teach; and (c) the demographic qualities and socio-economic conditions of schools.

Where It Is Now?

These outcomes are examined or are scheduled to be examined as part of the Systemwide Evaluation. CSU has fully implemented the surveys and the first retention study. Teacher performance assessment and K-12 student learning gains, along with the second retention study, will be incorporated into the evaluation beginning in 2007-08.

Louisiana

A Blue Ribbon Commission was developed by the Governor, Board of Elementary and Secondary Education, and Board of Regents in 1999 to identify strategies to effectively recruit, prepare, retain, and support teachers in Louisiana. The Commission was composed of state leaders, higher education representatives, K-12 representatives, business leaders, and parents. The Commission created a report with four major recommendations and 60 individual actions to improve student achievement. A grant from the U.S. Department of Education was awarded to implement activities from 2000–2005 and create a systemic state teacher quality initiative.

There were four major objectives for the initiative:

- coordinate new and existing partnerships between state agencies, universities, and districts to work together for improved teacher quality and student achievement;

- improve recruitment of qualified and certified teachers, particularly in teacher shortage areas;
- prepare teachers who possess in-depth content knowledge and effective teaching skills; and
- create environments and conditions that support and retain highly effective preservice teachers, new teachers, experienced teachers, and principals.

To address these objectives, the stakeholders created partnerships and policies to change the state's certification structure, created a new alternate certification structure, required all new teachers to undergo ongoing professional development, and mandated changes pertaining to the redesign of teacher preparation programs and the implementation of a new Teacher Preparation Accountability System.

Through the partnerships and policies, all public and private universities in Louisiana are measured by four levels of teacher preparation effectiveness:

Effectiveness of Planning

All universities were required to redesign their teacher preparation programs to address the new certification requirements for teachers. Each university formed teams composed of College of Education faculty, College of Arts/Sciences faculty, and PK-12 school faculty to redesign the curriculum. All teams had to align their teacher preparation programs with PK-12 state/national content standards, PK-12 state/national teacher standards, PRAXIS expectations, and NCATE expectations. External evaluators were hired to evaluate all redesigned teacher preparation programs to ensure quality across campuses.

Effectiveness of Implementation

All universities were required to develop a comprehensive assessment system to examine the ongoing performance of their candidates while participating in the teacher preparation programs. All universities were required to be accredited by the National Council for Accreditation of Teacher Education (NCATE).

Effectiveness of Impact

A new Teacher Preparation Accountability System that generated a Teacher Preparation Performance Score for each institution was implemented in 2002. An Institutional Performance Index and a Quantity Index were calculated by the state to determine each Teacher Preparation Performance Score. Indicators for the Institutional Performance Index were passage rates of university program completers on the PRAXIS examinations and survey ratings of first year teachers pertaining to the effectiveness of universities in preparing new teachers to address the state's standards for teachers.

Effectiveness of Growth in Student Learning

A Value Added Teacher Preparation Program Model was developed and pilot-tested that predicts increases in academic achievement of students based on demographic variables and previous achievement, assesses actual increases in student achievement from one year to the next year, and identifies teacher preparation effectiveness values for each teacher preparation program based upon the increases in achievement of students taught by each university's new teachers.

Where Is It now?

All university system presidents are required to report to the state legislature annually on the progress of improving the quality of teachers. All universities are now using the Professional Accountability Support System as a comprehensive system to assess their candidates. During 2004–2005, the Teacher Preparation Performance Scores were rated as exemplary at 14 out of 19 universities, an increase from two universities at the initial rating. During 2005–2006, the model is being piloted using grades four–nine achievement data from students in 68 school districts. In addition, qualitative researchers are investigating factors that may impact the teacher preparation effectiveness values generated by the Value-Added Teacher Preparation Assessment Model.

Ohio

A unique statewide initiative, launched in 2003, is the Teacher Quality Partnership (TQP), a comprehensive, longitudinal study of the preparation,

in-school support and effectiveness of Ohio teachers. As a research consortium of Ohio's 50 colleges and universities providing teacher preparation programs, the partnership is identifying how the preparation and development of new teachers affect their success in the classroom as measured by the academic performance of their students.

The partnership began through the impetus of two commissions (the Commission for Student Success and the Commission on Teaching Success) convened by Ohio Governor Taft. Among the recommendations of both commissions was the need to collect better data about new and practicing teacher performance and concomitant influence on student achievement. As a direct result of the commissions' conclusions, with support from the Ohio Board of Regents, the Ohio Department of Education, as well as private corporations, all of Ohio's colleges and universities joined together to create the Ohio Partnership of Accountability (now called the Ohio Teacher Quality Partnership).

The Ohio TQP research has four main aims:

- to determine and document how variables of teacher attributes, teacher preparation, induction experiences, and professional development relate to student learning;
- to identify the salient features of differently configured teacher education programs and to determine how they affect teacher development longitudinally along the continuum of teacher preparation;
- to identify how teachers' work relates to features of teacher preparation programs and student achievement as measured by value-added modeling, to assess novice teacher performance through value-added modeling, and to then track strengths and weaknesses back to the initial preparation programs; and
- to understand the unique elements of effective teaching for experienced teachers who are clearly adding value in terms of student achievement and to compare the achievement level of teachers licensed through both alternative and traditional pathways.

TQP is conducting five interrelated studies: (1) a five-year study that follows students preparing to become K-12 mathematics and English/

language arts teachers; (2) a novice teacher study focusing on student learning for new teacher education graduates as measured by value-added modeling, as well as other measures of student achievement; (3) an alternative licensure study examining how teachers licensed through alternative as opposed to traditional pathways perform in terms of affecting K-12 student achievement; (4) an experienced teacher study examining the classroom practices, the school climate and leadership, and the support received to determine if differences might be identified in the classrooms of high-value-added teachers; and (5) a study to examine the interaction between and among identified variables to better predict models of teacher development through the first three years of teaching, using structural equation modeling.

Where Is It Now?

The design phase of TQP is complete and implementation of all strands is underway. The Classroom Assessment Scoring System (CLASS), developed at the University of Virginia by Robert Pianta, is being used to observe Ohio's novice teachers (one–three years) and experienced teachers (eight–20 years). Survey data is currently reported back to institutions.

Virginia

With funding from the U.S. Department of Education, the Virginia Department of Education (VDOE), the State Council of Higher Education for Virginia (SCHEV), and the Virginia Association of Colleges for Teacher Education (VACTE) have embarked upon a collaborative effort to develop a comprehensive data system that will expand the capacity of Virginia's college and university teacher education programs. The project, VITAL—Virginia Improves Teaching and Learning—(formerly known as the Teacher Education and Licensure [TEAL] System II), is a new longitudinal data system designed to provide key information to educators and policymakers who are responsible for preparation, licensure, employment, retention, and support of successful pre-K-12 teachers in the Commonwealth. VITAL serves as a major vehicle for improving teacher education programs; accountability and accreditation processes; informing policy and funding decisions; and furthering understanding of teacher development and effectiveness.

A 15-member steering committee oversees and advises all phases of the project. Members of the committee include VACTE representatives from two- and four-year public and private institutions, representatives from private industry, SCHEV, VDOE, and the Virginia Community College System.

VITAL is a comprehensive system designed to include all candidates in teacher preparation programs in Virginia, including those enrolled in nontraditional or alternative routes, such as the Virginia Career Switcher Alternative Route to Licensure Program. All practicing teachers in the Commonwealth also will be asked to participate in VITAL, providing important information about teacher development throughout their careers. Many school administrators will contribute to VITAL by evaluating outcomes of teacher preparation and partnership programs and describing mentorship programs in their divisions.

The VITAL system will:

- Track newly admitted teacher education program students longitudinally through completion of their programs, through required testing and application for licensure in Virginia, and through employment in a Virginia public school.
- Survey all teacher education graduates and their public school employers regarding the quality of the teacher preparation they received.
- Track the college and university courses and degrees that teachers take as part of their professional development activities.

The VITAL project will be conducted in the following four phases. The data will eventually be connected to other state databases:

Phase One

Teacher Pipeline Application, a Web-based data entry and management tool that provides basic reports, includes students enrolled in all/any types of teacher education programs, and integrates with SCHEV's existing data warehouse. The initial data procedures of this part of VITAL have been constructed and tested, and have been favorably reviewed by the steering committee.

Phase Two

Teacher Education Outcomes consists of a collection of surveys at various points in a student's educational and professional experience. Specific surveys, including expectations and plans will be conducted at the beginning of each term, at the end of the student's program of study, during student teaching, and at one, five, and ten years after the student enters the teaching profession.

Phase Three

School Descriptors/Performance Data includes integration of the Common Core of Data and the Integrated Postsecondary Education Data System (IPEDS) from the National Center for Educational Statistics with other locally-developed qualitative indicators of school environment, such as wealth levels, crime rates, student diversity profiles, family environments, economic profiles, and community profiles.

Phase Four

Reporting, Analysis and Systems Support/Documentation phase will provide standard reports for each group of users, as well as dynamic (ad-hoc) reporting. Under the direction of the Research Division of SCHEV, the creation of restricted use licensing protocols and downloadable analysis files with the data altered/withheld for privacy protection also will be permitted.

VITAL is being designed to be a robust repository of research data. Once VITAL has been completed, the VDOE, SCHEV, teacher preparation programs in Virginia, and, with appropriate privacy safeguards, other investigators, will be able to conduct research that focuses on issues of teacher supply and teacher preparation quality.

Where Is It Now?

Implementation of VITAL began in the fall of 2006. The system is operated and managed by SCHEV.

Best Practices at the District Level

In addition to statewide efforts focused on higher education, P-12 school districts have developed partnerships and other initiatives to enhance teacher quality in the service of improving the learning outcomes of their students. There are a multitude of challenges to these efforts, including developing policies and procedures for sharing data, building the data infrastructures needed, and developing viable partnerships to manage and use data while ensuring the necessary privacy protections.

While not directly accountable for the quality of teacher education programs, PK-12 school districts have a significant stake in their outcomes. Indeed, the quality of teachers they hire will contribute significantly to their effectiveness. Thus their partnership with institutions of higher education—and particularly state colleges and universities serving a predominantly regionally-based population—is of critical importance. In addition, whether measuring the impact of teachers on student outcomes or their retention in the profession, school districts house much of the evidence needed to track teacher program quality, and can thus serve as a valuable resource for providing data to improve programs.

Despite the significant access to data that exists among school districts, numerous challenges pertain to its use in measuring teacher quality. First and foremost, is the development of infrastructures (or systems) linking pupil performance to their teachers.

Additionally, the identification of variables with significant influence, while ensuring that they have some connection to the State's standards and other policy priorities (e.g., No Child Left Behind), is critical. Finally, the creation of strong and viable partnerships among institutions of higher education and districts focused on valid and appropriate interpretations and use of the data and results, coupled with a strong and unbreakable

agreement to ensure confidentiality and to not report or share the outcomes of any individuals is needed.

Data Infrastructures

While student-level variables (e.g., based on state assessments) are reported from the state to districts and schools, many state systems do not link students to their teachers, thus leaving it to the schools, or districts, to determine their own approaches to making those connections. In Texas, for example, results on the Texas Assessment of Knowledge and Skills (TAKS) are reported by district, within district by school, and within school by grade level and classroom performance by competency. Yet, the state system does not include students' links to their teachers over time—which is required to measure growth.

Among Texas districts of differing sizes, however, exist a range of examples of the development of data infrastructures that incorporate state assessment results, as well as other district-identified outcomes related to students' success and achievement. Dallas Independent School District, for example, has in place a longitudinal data system linking students to their teachers on multiple outcomes, including the criterion-referenced TAKS and the norm-referenced Iowa Test of Basic Skills, which the district administers independently. At the other end of the State, the Canutillo Independent School District is well underway in developing a “data warehouse” housing 5-years of student- and teacher-level data reported on the TAKS, as well as the norm-referenced Stanford 10, and assessment measures for English Language Learners (ELLs) and students identified for special education and gifted/talented programs. The Canutillo “data warehouse,” referred to as Educare, also includes records of student discipline referrals and attendance, as well as teachers' professional development experiences.

Identification of Variables and Models

Identification of variables and models to incorporate in a district-level data system is most often informed by data that are available, but could also be driven by the questions that are asked, and by the perspectives from which they come. In addition, beyond considering outcome variables from an array of measures for measuring teacher effectiveness based on student achievement, consideration must be given to the designs and purposes of

assessment systems, and the ways in which they can influence the results that are produced.

Strong Partnerships Among PK-12 Districts and Institutions of Higher Education

Finally, strong and viable partnerships among institutions of higher education and districts focused on valid and appropriate interpretations and use of the data and results, coupled with a strong and unbreakable agreement to ensure confidentiality and to not report or share the outcomes of any individuals, are critical in engaging partnerships focused on measuring the effectiveness of teacher preparation based on pupil outcomes. In such partnerships, districts and institutions of higher education faculty and staff can contribute their unique perspectives and expertise in developing models for analyzing and interpreting results that should be mutually beneficial in improving the quality of teacher preparation.

University Case Study

Among the national initiatives currently in place to strengthen the preparation of teachers, and their sustainable impact on students, is the Teachers for a New Era (TNE) initiative, which was developed and is supported primarily by the Carnegie Corporation of New York. More specifically, the purpose of TNE is to strengthen the quality of teaching through renewing university-based teacher preparation, which is viewed by Carnegie as critical to the long-term development of high quality teachers.

Three design principles underpin this effort to reform teacher preparation programs:

- Assessing the needs of learners, training future teachers in approaches to assessment, and making decisions about program changes based on evidence.
- Creating strong clinical practice experiences for teacher candidates.
- Strengthening the collaboration of arts and sciences faculty with education faculty in the design and oversight of teacher preparation programs.

In 2002, California State University Northridge (CSUN) and three other institutions—Michigan State University, the University of Virginia, and Bank Street College of Education (N.Y.)—were independently chosen by a panel of experts after a national review of teacher education programs with the potential to become national models. Subsequently seven additional sites were added (Boston College (Mass.), Florida A&M University, Stanford University (Calif.), University of Connecticut, University of Texas at El Paso, University of Washington, and the University of Wisconsin-Milwaukee).

At CSUN, the Research Team on Evidence understood that the charge from TNE was to begin a research agenda examining the link between how to prepare teachers and the impact of that process on the learning and achievement of K-12 pupils to address the assessment principle. The team was mindful, however, of the complexity and enormity of this task.

To begin describing the complexity of potential links between teacher preparation and learning, and to help in the process of formulating research questions, the team developed a conceptual framework (see Appendix A) and identified the following research questions:

- How can teacher preparation at CSUN be qualitatively and quantitatively described and measured?
- How well do CSUN teacher graduates implement that preparation at the K-12 public schools?
- How is the implementation of practices learned at the university and their impact on pupil learning and achievement affected by contextual factors?
- What is the impact of CSUN Teacher graduates on K-12 pupil learning and achievement?

The conceptual framework also raises issues that are more specific to each of the above questions yet are critical because they point to contextual factors that are likely to affect the link between teacher preparation and pupil learning and achievement. The conceptual framework shows factors over which the team has some control (e.g., Teacher indicators within CSUN Formal University Preparation), as well as factors over which the research team has little to no control yet have the potential of significantly affecting the link between teacher preparation and pupil learning and achievement (e.g., Contextual Factors, Individual Pupil Characteristics).

CSUN teacher candidates' knowledge, skills, and dispositions with regard to teaching and learning are affected by factors within and outside of the university experience (e.g., the nature of each pathway and candidate demographic characteristics). Once graduated, teachers prepared at CSUN and elsewhere are also influenced by district policies, school policies, and professional development activities led by the district and professional

organizations. Similarly, K-12 pupils are also affected by the quality of their teachers (both CSUN and others), the characteristics of the pupils themselves (e.g., demographic factors), and factors other than the pupils themselves.

Pilot Study

After developing the conceptual framework the CSUN Evidence team conducted a quantitative pilot study with the goals of: (1) determining what data were available and accessible in relation to the variables listed in the Conceptual Framework above; (2) identifying data that needed to be gathered as well as the feasibility of accessing those data; (3) conducting preliminary analyses to determine whether there were quantitative data that distinguished teacher preparation pathways at CSUN; and (4) examining the feasibility of obtaining K-12 pupil data that could be linked to the preparation of teachers at CSUN. The process of creating a dataset for the pilot study revealed a need to develop a data warehouse to centralize access to data about the teacher preparation programs and teacher candidates as well as to standardize the kinds of data gathered about the teacher candidates. CSUN is developing the warehouse and as a result has begun to gather data more systematically and comprehensively on its teacher candidates.

Given the size and number of teacher preparation pathways offered at CSUN, the team needed to begin by determining which teacher preparation pathways to study and how to define those pathways in ways that could be meaningfully described and measured quantitatively and qualitatively.

Three pathways were selected for the pilot study because they represent the continuum of the pathways in relation to size, degree of coordination within the program and different relationships between the program and the K-12 context. Because of these features the team thought they could potentially offer a better contrast. A major challenge, however, was and continues to be determining how to qualitatively and/or quantitatively capture what defines and distinguishes each of these three pathways and candidate performance.

A database was developed for the pilot study that includes information on selection criteria (i.e., demographics, incoming grade point average and scores on the California Basic Skills Test), as well as performance criteria (i.e., grades on courses specific to the pathways as well as those related to literacy and math methods and content knowledge). In developing the database the team learned that it did not have access to a variety of data that would be important to include in this research. As a result of the pilot studies, the database has evolved into a data warehouse that ultimately will provide much more information on candidates' background, their progress while in the pathways, and their performance during the induction years (first two years as credentialed teachers). It is only through ongoing analysis of data that the team will be able to determine what kinds of teacher preparation data are linked to pupil learning and performance. In addition, as a result of a data-sharing partnership (described below) the team obtained data on teachers' inservice experience such as number of years teaching and additional degrees or credentials beyond the preliminary teaching credential.

To measure the impact of teacher preparation on pupil learning and achievement, the team needed to gain access to pupil data relating to pupil learning and achievement, pupil characteristics and school contextual variables. In California, it is difficult to obtain those types of data due to regulations and policies relating to the privacy of students and teachers.

A group of pupil learning and performance data were collected, such as standardized test scores and district-based assessment data, as well as data on pupil characteristics such as English language proficiency and parent education level and school context data such as indicators for socioeconomic levels.

The dataset created for the pilot study combines data on a cohort of teachers prepared at CSUN and data on their K-12 classes. The CSUN Evidence team was able to access K-12 pupil data because a partnership had been developed between the CSU Chancellor and the Los Angeles Unified School District to facilitate the sharing of data in a legal and ethical manner.

The pilot study prepared the groundwork for a larger longitudinal study in that it revealed the types of infrastructure needed at the university in order to systematically gather data on its candidates while in the university and after they have graduated. The pilot yielded a dataset that can now be used to explore potential differences between the teacher preparation pathways and their impact on pupil learning and achievement.

Longitudinal Study

The longitudinal study will use Hierarchical Linear Modeling and Value-Added Modeling to address the following:

- In what ways do CSUN Teacher Preparation programs impact K-12 pupil achievement, particularly in reading and math?
- Do pupils of teachers who graduated from different CSUN teacher preparation programs produce significantly different achievement patterns as measured by standardized norm-referenced and district-developed tests?
- Is there a relationship between teacher preparation factors (such as course grades and test scores) and pupil performance on these tests?
- Which set of variables have a greater impact on pupil test scores, those relating to teacher preparation programs, those relating to teacher inservice experience (number of years teaching, waivers for special education or emergency credentialing), or those relating to school characteristics (school characteristics index, proportion of pupils in school lunch program)?

The study will examine patterns within and across grade levels, comparing schools with similar school characteristics, and, to the extent possible, teachers with the same number of years teaching.

Additionally, CSUN researchers have designed a qualitative study that will examine to what extent the teaching practices of first and second year teachers reflect the philosophy and practices emphasized in the secondary math methods courses at CSUN and if not, why not. It is essential to measure the fidelity with which perspectives and practices learned in the university teacher preparation program are carried out by teachers in the public school setting if we want to draw a relationship between university teacher preparation and pupil outcomes. The study asks, to what degree

do recent CSUN secondary math credential-program graduates implement in their classrooms the teaching practices the programs aim to instill? Are these programs improving over the years in terms of this implementation?

Annual classroom observations and surveys of first- and/or second-year teachers with new CSUN credentials will be conducted. The observations will focus on five to seven practices central to the CSUN Single Subject Math program. These are math instructional practices that can be operationally defined, are easily observed, and can be quantified. The surveys will focus on teachers' perspectives about where they learned pedagogical content knowledge, and what factors influence their teaching practices. In addition classroom observations and interviews will be conducted on a subsample of this larger sample of secondary math teachers. The purpose of the case studies is to find evidence of the impact of teacher practices on pupils in a secondary math context by examining teacher-pupil interaction and/or pupil work, as well as in-depth interviews of teachers regarding their pedagogical content knowledge and practices in math.

The involvement of California State University Northridge in the Teachers for a New Era initiative has yielded changes to the infrastructure of the university that were necessary to meet the evolving research agenda. It has impacted the kinds of data collected on the teacher candidates (i.e., increasing the variety of data gathered on candidates' backgrounds prior to entering CSUN, fine tuning the kinds of data gathered about their teacher preparation experiences by pathway). A new vehicle, the data warehouse, has been created to facilitate the merging of data from multiple sources on an ongoing basis. A partnership has been nurtured with a local school district for the purpose of exchanging data to mutually support each other in examining the relationship among teacher preparation, implementation, and pupil learning and achievement. Finally, the research agenda itself is evolving and is being developed by faculty from education and the social sciences, as well as the partners in the school district and the California State University Chancellor's Office.

Conclusion

This is only the beginning of efforts to develop systems of accountability. Much work remains. But important steps have been undertaken, and some states—notably California, Louisiana, Ohio, Virginia and some others—are making great progress on statewide data systems that will be the key foundation for progress on teacher quality. Some institutions—most notably the Teachers for a New Era schools and the Christa McAuliffe award winners—also are making dramatic progress within their institutions.

AASCU intends to continue its work in this arena. The Christa McAuliffe Awards will continue to be revised and improved as data systems and emerging models suggest new approaches and standards. AASCU also will continue to disseminate new insights and successful models.

When the history of teacher preparation in the first twenty-five years of this new century is written, the narrative should report that state efforts to develop robust data systems were joined with institutional efforts to develop more accountable programs, and that the result was that the early years of the new century saw some states make substantial progress in creating evidence-based, high quality teacher preparation programs that became one of the key components in those states' efforts to develop a cadre of high quality teachers to create high performing public schools, contributing to greater economic success, democratic governance, and personal achievement.

Recommendations

Described in this monograph is the work of a national association, key states and districts, and an individual institution committed to improving public education and preparing high quality teachers. In order to build upon these efforts, the next steps described below need to occur:

What AASCU Will Do

- Design and develop a case study in a single state that will:
 - Encourage institutions to gather and use comparable data to assess their teacher education programs.
 - Identify the specific data challenges confronting preparation programs within the state.
 - Build a set of model practices for replication in other states.

What Presidents and Chancellors Should Do Outside the University

- Convene critical decision makers—state legislators, state education officials, university leaders—to build coherent policies to support accountability.
- Advocate for high quality data systems in states to support accountability efforts.

What Presidents and Chancellors Should Do Inside the University

- Frame the teacher quality discussion in the broader context of accountability and student learning.
- Support efforts to build high quality data systems within universities to track progress.
- Publicly recognize innovative efforts.

What Chief Academic Officers and Deans Should Do

- Create working groups that include representatives from education, arts and sciences, and institutional research and the community to:
 - Identify the data needed by various constituencies to provide evidence of quality and areas for improvement (e.g., regents/ boards of education, higher education agencies, legislators, local communities, and parents)
 - Work together with K-12 partners and state agencies to gain access to student data so that teacher preparation programs are able to use K-12 student learning as a component of their accountability systems

What Other Stakeholders Should Do

- Fund and support comprehensive, state or system wide approaches to developing evidence of effectiveness of teacher quality.

Appendix A: Detailed Examples

California

The California State University’s Center for Teacher Quality: Building Evidence Systems for Accountability and Improvement in Teacher Education

With 23 campuses and an annual enrollment of more than 400,000 students, California State University (CSU) is the largest public university system in the world. Central to its core mission is the preparation of the education workforce in California. Close to 60 percent of the teachers credentialed in California each year are prepared by the CSU. Chancellor Charles Reed and the CSU Board of Trustees have made high-quality teacher preparation one of the highest priorities of the system. Following a decade of unprecedented growth and reform in public K-18 education, the CSU Board of Trustees in 1998 embraced systemwide efforts to improve teacher preparation in a policy statement titled, *CSU’s Commitment to Prepare High Quality Teachers*.

Three years later the 21 CSU deans of education decided to find out how well their programs were progressing toward the trustees’ goals of productivity, excellence and equity in teacher preparation. In 2001 each CSU campus participated in the first Systemwide Evaluation of Teacher Education Programs in the university’s history. A central purpose of the evaluation was to provide information that the deans and other campus leaders could use in making improvements in teacher education programs. Rather than viewing the evaluation as a one-time event, the deans committed to an ongoing evaluation that would provide them with fresh information about the quality of their programs each year.

When the evaluation was first initiated, the CSU chancellor and deans of education addressed several conceptual questions related to the evaluation of teacher preparation. CSU’s leaders and evaluators asked:

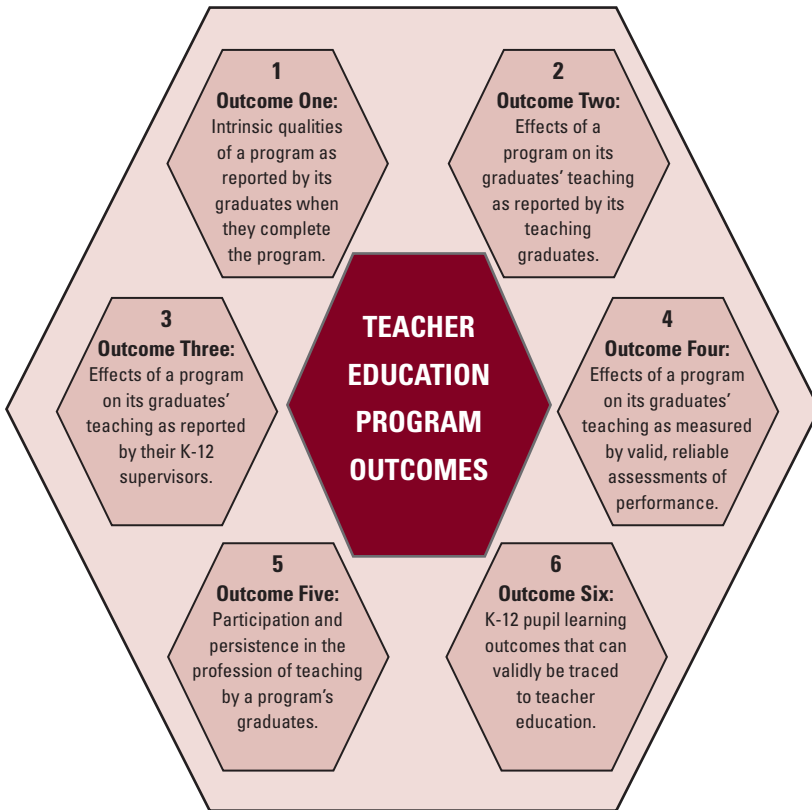
- If we anticipate that teacher preparation has multiple outcomes, how can we conceptualize our outcomes, view them comprehensively, sort

them into meaningful groupings, and see them as interconnected pieces of a quilt or mosaic so each one illuminates the values of teaching and the importance of teachers?

- Which outcomes can be feasibly measured from the start of a multi-year evaluation, and which ones will take longer to measure reliably and validly?

Growing out of these conceptual discussions was the CSU Mosaic of Teacher Preparation Outcomes (see Figure 1). In the mosaic, each tile represents a complex set of results that should be viewed as interconnected with each other. The teachers who emerge from formal preparation should be viewed organically; the results of preparation should be seen as interrelated aspects of its harvest. If we measure and assess these fruits of preparation in appropriate ways, the resulting evidence will contribute

Figure 1. CSU Mosaic of Teacher Preparation Outcomes



to a comprehensive, accurate understanding of our accomplishments as well as our areas of ongoing concern. The shape and structure of Figure 1 emphasize that teacher preparation has multiple outcomes that form an interwoven quilt in which the elements cohere if we conceptualize them thoughtfully and if we measure them in conjunction with each other. CSU believes that coherence in defining the outcomes of teacher preparation is likely to contribute over time to a coherence in assessing these outcomes, and to a coherence in governing and implementing teacher preparation, both of which will add to its effectiveness.

The CSU Systemwide Evaluation is based on six interrelated activities and outcomes of teacher preparation that, taken together, provide a rich and detailed picture of program quality and effectiveness:

- **Outcome One** focuses on the intrinsic qualities of each program as reported by graduates when they finish the program.
- **Outcome Two** is the effectiveness of a program in terms of the level of each graduate's preparation as reported by the graduates during their first few years of K-12 classroom teaching.
- **Outcome Three** is the effectiveness of a program as reported by the job-supervisors of CSU graduates during their first years of teaching.
- **Outcome Four** is the program's impact on teaching competence as reflected in an assessment that is a technically sound measure of teaching performance.
- **Outcome Five** examines the retention of CSU graduates in teaching.
- **Outcome Six** examines the effects of teacher preparation on the learning gains of K-12 pupils who are taught by CSU graduates.

These outcomes of teacher preparation are examined or are scheduled to be examined as part of the Systemwide Evaluation of Teacher Education. The CSU Center for Teacher Quality has fully implemented the surveys and the first retention study. Teacher performance assessment and K-12 student learning gains, along with the second retention study, will be incorporated into the systemwide evaluation beginning in 2007–2008.

Component One: The Exit Survey

As candidates complete their teacher preparation programs, they are invited to participate in an exit survey. The CSU Center for Teacher Quality (CTQ) survey contains a set of base questions, and campus administrators have the opportunity to add questions and access data in real time on a secure web-based survey site. More than 6,000 graduates from 22 campuses participated in the 2006 survey. Sixty-two percent of these graduates reported that they learned a lot from their credential program, and another 31 percent stated that they learned quite a bit that was important. Before they begin teaching, negative overall assessments are typically reported by fewer than 10 percent of CSU graduates.

Component Two: The Graduate Survey

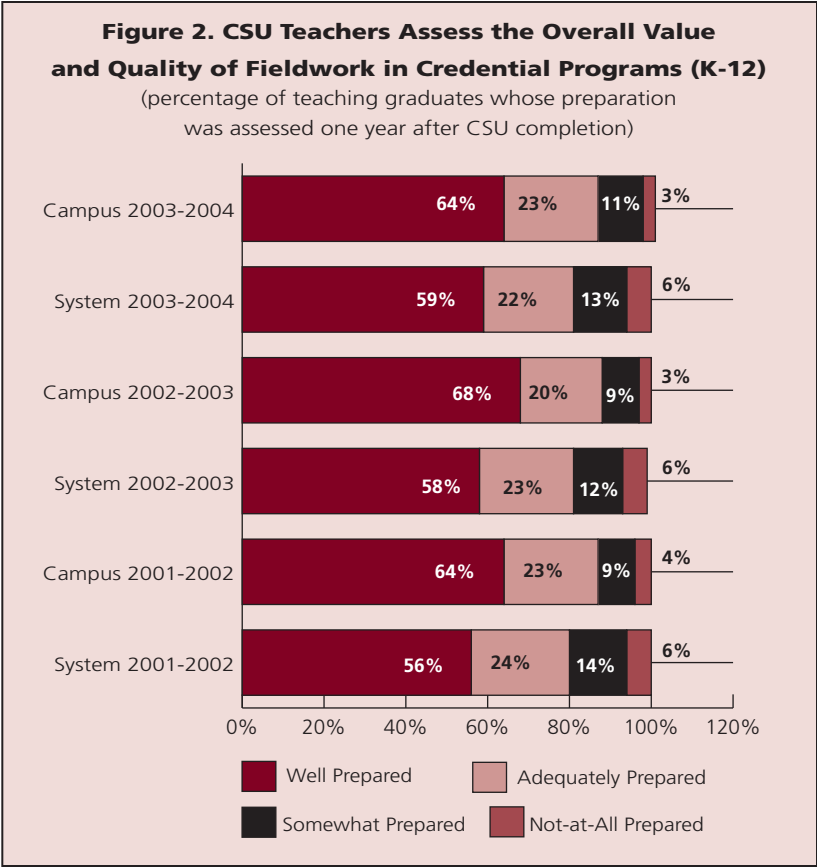
Captures the reflections and perceptions of CSU graduates on the quality and effectiveness of their preparation near the end of their first and third years of teaching. For the purpose of compiling reliable evidence about the effectiveness of all CSU credential programs, CTQ attempts to include all of the programs' graduates one and three years after they complete their preparation. Using electronic databases to locate very large numbers of recent CSU graduates, and due to high response rates, the findings of the evaluation accurately describe the preparation of each year's "class" or "cohort" of newly prepared teachers.

More than 12,000 graduates of CSU programs have participated in the graduate survey since it was first administered in 2001. CSU graduates are asked to evaluate the quality, value and effectiveness of their preparation to teach. The survey yields extensive evidence about subject-matter preparation, preparation to teach the subjects of the curriculum, preparation to effectively teach special needs students, English learners and other culturally diverse students, preparation in classroom management, preparation to assess student learning, and several other critical dimensions of effective practice. Each CSU campus receives graphs to compare their own effectiveness with that of the entire CSU system. (See Figure 2)

The responses of first-year teachers to a series of questions about the value of their fieldwork in CSU programs and the academic years when each cohort of new teachers finished their credential programs is summarized in Figure 2 and represents the responses from a particular campus (or the

entire system of campuses) to the same questions about fieldwork. Campus administrators also received similar graphs about several other domains of the teacher education curriculum (e.g., child development). What CSU learned from its graduates one year after they began teaching with CSU credentials in hand is illustrated in Figure 2.

Each campus receives a summary of teacher and supervisor responses to each question as well as composite results that combine responses to coherent sets of questions. Campuses find increasing value in disaggregated findings that focus on specific credentials, particular programs, and identified pathways in which first-year and third-year teachers were prepared. As the annual evaluation cycle unfolds, the deans of education adopt new survey questions, new composite summaries, and new patterns for disaggregating evaluation evidence, all for the purpose of making the



results useful in academic decisions about changes that are needed in teacher preparation.

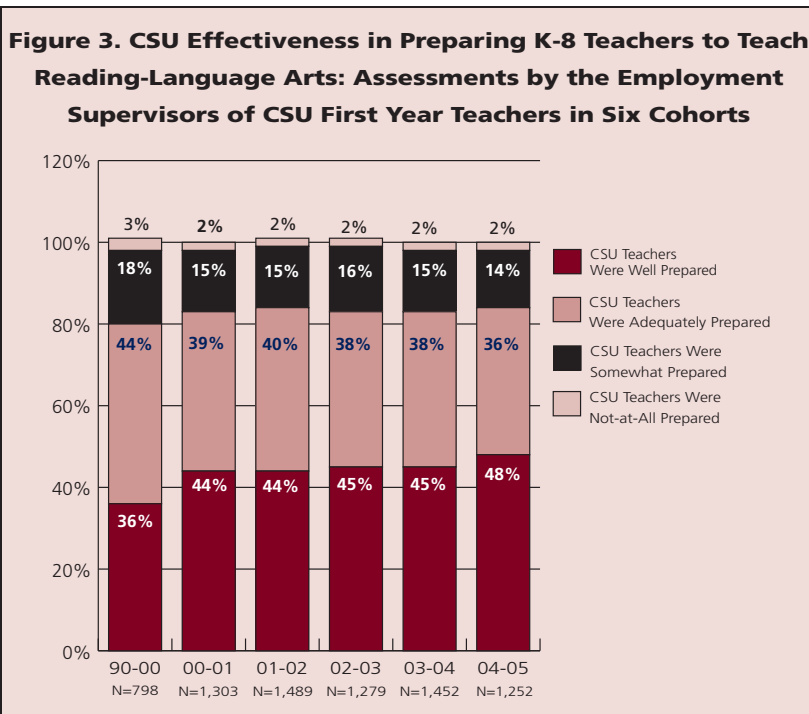
Component Three: The Employer Survey

CSU also invites the school-site supervisors (most of whom are principals) of teaching graduates to answer the evaluation questions. Unlike most follow-up studies of this type, the CSU Center for Teacher Quality provides each supervisor with the name of the first-year teacher who is guided and assisted by that supervisor and whose preparation is to be assessed by the supervisor. Supervisors can report the first-year teacher to be “well prepared,” “adequately prepared,” “somewhat prepared” or “not-at-all prepared” in each of the domains of teaching. A core set of questions has been on the employer survey for six years, enabling CSU to see trends over time. To date, close to 10,000 school administrators have participated in this survey. Supervisor responses to the same questions over a six-year period are summarized in Figure 3.

The CTQ is able to track the CSU System’s slow, gradual improvement in an important aspect of teacher preparation. The statistics in Figure 3 have a margin of error less than one percent because of the very large numbers of responding supervisors.

Component Four: Assessment of Teaching Performance

California’s requirements for earning a teaching credential have changed in recent years. Beginning in 2008–2009, each candidate for a teaching credential will have to pass a teaching performance assessment in order to be recommended for a teaching credential. As a result, CSU and other teacher preparation institutions in California are gearing up to implement assessments that are more uniform, valid and reliable than had been the practice previously. The law that established the teaching performance assessment as a credential requirement called for the state to develop a prototype assessment system based on state-adopted Teaching Performance Expectations (TPEs). The TPEs represent the body of knowledge and skill recognized by the state as necessary for all teachers to obtain prior to commencing teaching. California contracted with Educational Testing Services to develop the California Teaching Performance Assessment (CA TPA), which became available for use in 2003. The CA TPA requires candidates to demonstrate their teaching knowledge and skill in relation



to four complex pedagogical tasks. Candidate responses are assessed by institutional faculty and guest assessors who have been trained and certified to score the CA TPA validly and reliably. Institutions are required to embed an approved teaching performance assessment in their preparation programs and administer the assessment according to assessment quality standards adopted by the California Commission on Teacher Credentialing (CCTC). The CCTC will monitor the effective implementation of TPAs through its accreditation system beginning in 2008. Pertaining to the teaching performance of each candidate teacher, the CA TPA will yield four component scores and one overall score in addition to a pass-fail designation.

The law that established TPAs as a requirement for licensure also allowed institutions to develop their own systems of assessment, subject to approval by the CCTC. The Commission adopted assessment design standards to govern alternative assessments and requires institutions that design their own systems to adhere to the same standards and Teaching Performance Expectations. A consortium of more than twenty institutions, led by

Stanford University and the University of California, has developed an alternative system called the Performance Assessment for California Teachers (PACT). This system is currently under state review and must be approved by the CCTC prior to implementation as a viable alternative to the CA TPA. Though the PACT is structured and scored differently than the CA TPA, it incorporates many of the same kinds of pedagogical tasks and constructs. Candidate responses to the PACT are evaluated by institutional faculty and guest assessors who have been trained to score in a valid and reliable manner.

Performance assessments like the CA TPA and PACT are becoming a new source of evidence about teacher education's outcomes. The CSU Center for Teacher Quality is examining CA TPA data and intends to incorporate these data in the overall evaluation of quality and effectiveness as they become available.

Component Five: Participation and Persistence in the Profession of Teaching

Evidence strongly suggests that the presence of qualified and committed teachers is among the most important contributors to student learning. In recent years, however, many schools in California—particularly those with higher numbers of children who are poor and learning to speak English—have had difficulty attracting and keeping such teachers. To better meet this staffing challenge, organizations such as the Center for the Future of Teaching and Learning and the Public Policy Institute of California have urged education officials to place greater emphasis on the retention of qualified teachers. One of the factors that has prevented an effective response to this recommendation is a lack of understanding of the factors associated with teacher retention and attrition. Do teachers leave because they are not paid enough, because they are not adequately prepared, or because school principals do not provide sufficient support? Why, in a few high-poverty schools—where teacher turnover rates are typically high—do some of our best teachers stay?

The CSU has two studies in progress at this time focused on teacher persistence in the profession. The first is a large-scale analysis of retention and attrition patterns among California's K-12 public school teachers. The second is an analysis of state data on employment patterns among

graduates of CSU teacher preparation programs. The teacher retention study, titled *A Possible Dream: Retaining California Teachers So All Students Learn* (Futernick, 2007), collected survey data from 2,000 current and former teachers. “Leavers” and “stayers” identified specific factors about their compensation and working conditions that affected their employment decisions. As part of its ongoing evaluation of teacher preparation, the CSU Center for Teacher Quality was particularly interested in understanding the impact of credential program coursework and student teaching experiences on teachers’ decisions to remain in or leave the classroom. Eighty-seven percent of the “dissatisfied leavers” in the study indicated that their teacher preparation coursework did not affect their decision to leave. Eighty-eight percent indicated that their student teaching experience was not a factor. These two factors ranked 33rd and 34th out of 35 in the frequency with which leavers cited them as reasons for leaving the classroom. Among stayers, close to 58 percent indicated that their credential program coursework was a positive factor in their decision to remain in the profession.

The second teacher persistence study being conducted by the Center for Teacher Quality will focus on patterns of retention, transfer and attrition among the 73,000 graduates of CSU’s teacher preparation programs since 1999. In partnership with California’s Employment Development Department, the CSU analysis will show: (a) how many graduates became teachers; (b) how long they remained in teaching; and (c) how long they continued to teach in high-poverty, low-performing districts.

Component Six: Outcomes for K-12 Students

The final element of the CSU’s Systemwide Evaluation of Teacher Education focuses on the extent to which teacher preparation contributes to student learning gains in schools. This is the most difficult outcome of teacher preparation to evaluate. The CSU Center for Teacher Quality has formed partnerships with seven large school districts in California that are providing pupil data linked to data about teachers, schools, and CSU programs. Using a value-added approach, the evaluation will sort out the impact of: (a) different levels of preparation among teachers; (b) substantively different methods of learning to teach; and (c) the demographic qualities and socio-economic conditions of schools. CSU intends to identify campuses and programs that are most and least

effective in terms of K-12 student learning, and to find institutional and programmatic reasons for the different levels of effectiveness. Concurrently, the project will develop tools and procedures that yield valid, reliable evidence about multiple outcomes of teacher preparation, for use by other universities in California and throughout the nation. Particular questions under investigation include:

- Are gains in California student learning attributable to differences between fully prepared and under-prepared teachers, or between different levels of preparation among teachers?
- Are the effects of teacher preparation stronger or weaker than the effects of school characteristics such as collective student demographics and/or the socio-economic conditions of communities?
- Are the links between teacher preparation and student learning equally strong in reading-language arts, mathematics or science; or at different student ages, developmental stages or school levels?
- Are there institutional or organizational variations among schools and/or school districts that interact favorably with teacher preparation in promoting students' academic accomplishments?
- In the postsecondary preparation of teachers, are some institutions significantly more effective than others in contributing to K-12 student learning in three core curriculum subjects? Why or why not?
- In the preparation of prospective teachers, do programs with different types of instruction or with distinct sequences of coursework and fieldwork have different effects among K-12 students?
- When we look at multiple universities, are different accreditation standards or state policies that govern teacher preparation programs associated with distinct levels of learning by K-12 students?
- Do students learn reading-language arts, mathematics or science better after their teachers are prepared by postsecondary institutions or by their school districts?

State and National Context

The CSU System includes 23 campuses in a state where 97 institutions have been accredited by the state for educator preparation purposes. Approximately 16,000 new teachers are licensed annually in California, and

close to 60 percent of them complete their preparation in CSU-sponsored programs.

The accountability movement in California has been underway for more than a decade. It began with the adoption of academic and performance standards for K-12 students and the development of the California Standards Testing program to measure student progress in each subject at each grade level. These K-12 reforms have had a necessary and significant impact on teacher education in the state.

In California, a Governor-appointed State Board of Education and an elected Superintendent of Public Instruction govern K-12 education policy and programs. An independent professional standards board, the California Commission on Teacher Credentialing, governs teacher preparation and licensure. The CCTC began an overhaul of the credentialing system and standards for educator preparation in 1995. Bringing standards and assessments for educator preparation into alignment with standards and assessments for students has been the focus of reform in California's teacher education community for some number of years now.

In this dynamic statewide context, the CSU Systemwide Evaluation of Teacher Preparation represents the only large-scale process for generating valid, reliable evidence about teacher preparation. Focusing on hundreds of distinct programs at 23 large public universities, the evaluation provides uniform measures of program effectiveness and campus effectiveness in terms of teacher readiness to teach, teacher classroom performance, teacher participation and retention in teaching, and learning gains by K-12 students of CSU teachers. Over time, the CSU Chancellor, Trustees, academic officers and administrative managers expect the Systemwide Evaluation to become a dependable source of valuable evidence about multiple outcomes so the preparation of teachers can become a more powerful factor in making education effective for all of California's sons and daughters.

Louisiana

Louisiana's teacher quality initiative has had a tremendous impact upon improvements that have occurred in Louisiana in the areas of teacher certification, teacher preparation, and teacher support. Louisiana has created authentic partnerships between the Governor, Legislature, Board of Regents, Board of Elementary and Secondary Education, Louisiana Department of Education, universities, school districts, and communities that have supported the successful implementation of many new reforms. All of these stakeholders are now working collaboratively to address one common goal—the improvement of PK-12 student achievement in Louisiana.

Background

A Blue Ribbon Commission for Teacher Quality was developed by the Governor, Board of Elementary and Secondary Education, and Board of Regents in 1999 to identify strategies to effectively recruit, prepare, retain, and support teachers in Louisiana. The commission was composed of 31 individuals who represented State leaders (e.g., the Commissioner of Higher Education, the State Superintendent, the Chair of the House Education Committee, the Chair of the Senate Education Committee, Board of Regents members, and Board of Elementary and Secondary Education members, etc.), higher education representatives (e.g., system, university president, chief academic officer, College of Education deans, College of Arts/Science deans, faculty members, and pre-service teachers, etc.), K-12 representatives (e.g., superintendents, principals of the year, teachers of the year, personnel directors), business leaders, and parents. The commission met from September 1999 to May 2000 and created a document, *Blue Ribbon Commission on Teacher Quality Recommendations—Year One Report*, that was submitted to the Governor, Board of Regents, and Board of Elementary and Secondary Education on May 25, 2000. The report contained one overall goal of improved PK-12 student achievement as well as four major recommendations and 60 individual actions. Twenty recommendations from the report were used to develop a proposal for the Title II Teacher Quality Enhancement Grant Program. During August 2000, it was announced that Louisiana was awarded a grant in the amount of \$3.2 million to implement the grant activities. Funds from this grant

and matching state funds were used to successfully implement activities from 2000–2005 and create a systemic state teacher quality initiative to improve the quality of teachers in Louisiana.

Purpose of the Teacher Quality Initiative

The primary purpose of the teacher quality initiative was to more effectively recruit, prepare, and support teachers who will have a positive impact upon the achievement of PK-12 students. The four major objectives were:

- **Objective One**—Coordinate new and existing partnerships among state agencies, universities and districts to work together for improved teacher quality and student achievement.

Prior to 2000–2001, varying state boards and agencies had separate plans for education and different expectations. While the Board of Regents had the authority to approve the creation and implementation of new teacher preparation programs within public institutions, the Board of Elementary and Secondary Education functioned separately as it determined approval of public and private institutions for the certification of teachers. A critical need existed for coordination between state boards, state agencies, universities and districts.

- **Objective Two**—Improve recruitment of qualified and certified teachers, particularly in teacher shortage areas.

At the start of the teacher quality initiative, an increasing percentage (84.39 percent) of new teachers did not possess standard teaching certificates due to an inability to pass required Praxis examinations. School districts were unable to find certified teachers to fill vacant positions and found it difficult to place new teachers outside their areas of certification. A critical need was identified in recruiting qualified teachers in specific content areas (e.g., mathematics, biology, chemistry, physics, earth science, general science and special education).

- **Objective Three**—Prepare teachers who possess in-depth content knowledge and effective teaching skills.

The curriculum for undergraduate teacher preparation programs was based upon a set of courses required by the Department of Education for certification. Undergraduate teacher candidates were required to

complete a varying number of credit hours (20–55) in content-specific courses based upon the areas of certification. Content majors were not required, although a base structure existed for alternate certification programs. Individual universities had the flexibility to determine if teacher candidates possessed prerequisite knowledge to enter the programs. Course requirements for alternate certification programs ranged from 18 credit hours to 90 credit hours from institution to institution. A critical need existed to create a standards-based curriculum that would prepare quality teachers across all institutions.

- **Objective Four**—Create environments and conditions that support and retain highly effective pre-service teachers, new teachers, experienced teachers and principals.

Louisiana possessed a Teacher Assistance and Assessment Program for new teachers that provided them one full year of mentoring during their first year of teaching. However, all new teachers were assessed during the second half of their first year of teaching, which provided them limited time to demonstrate proficiency. Once new teachers met all requirements through the Louisiana Teacher Assistance and Assessment Program, they were granted lifetime licensure and not required to complete on-going professional development for relicensure. A critical need existed for teachers to receive on-going professional development and support after they completed their teacher preparation programs.

Strategies to Address the Objectives

- **Creation of PK-16+ Partnerships**—After viewing the positive impact of the Blue Ribbon Commission for Teacher Quality during 1999–2000 and 2000–2001, a decision was made to change the name of the commission to the Blue Ribbon Commission for Educational Excellence and have it monitor the implementation of the recommendations in the original commission report and make recommendations on a yearly basis to address new educational needs. In addition, PK-16+ councils were formed at all universities and chaired by either the campus head, chief academic officer, or district superintendent. The PK-16+ Councils addressed issues pertaining to teacher quality that impacted both higher education and PK-12 schools at the district/university levels. All universities also worked with local school districts to create a minimum of one professional development school that was initially performing

below the state average and possessed the desire to work with the universities. Last, Redesign for Educational Excellence Institutes were held several times a year to discuss issues that impacted all university-district partnerships in the state. Teams of six–eight individuals from each university/district partnership were brought together to attend the institutes and initially included the chief academic officers, College of Education deans, College of Arts/Sciences deans, district representatives, and university faculty. National and state experts who possessed expertise in areas of need spoke at the institutes. The institutes served as excellent opportunities for key leaders in the universities and districts to attain consistent information that impacted the reform activities.

- **Creation of New Policies by the Board of Elementary and Secondary Education**—To effectively address the teacher quality initiative, the Board of Elementary and Secondary Education developed new policies for the following areas. New policies were approved that changed the state’s certification structure from grades 1–8 and 7–12 to grades PK-3, grades 1–6, grades 4–8 (with two minors), and grades 6–12 (with a major and a minor). This was a significant change from a structure that required no majors or minors at the middle or secondary levels. A new alternate certification structure was also established for individuals with baccalaureate degrees outside of education who wished to become certified to teach. The new structure allowed individuals to enter one of three pathways to obtain a standard teaching certificate. Within all three pathways, individuals were required to pass PRAXIS tests in content specialty areas prior to entry into a program and complete a supervised internship while teaching full time or student teaching. Individuals were required to complete 21–36 credit hours of coursework that focuses upon essential knowledge and skills to effectively help children learn. Prescriptive plans were built into the curriculum to address individual weaknesses observed as teachers worked with students in schools. A new policy that requires all new teachers to undergo 150 hours of ongoing professional development over a five year time period to renew their initial teaching licenses was approved. In addition, all new teachers were provided two full years of mentoring and not formally assessed until the beginning of their second year of teaching in the Louisiana Assistance and Assessment Program. New Praxis tests were adopted by the state and higher Praxis scores were set for new teachers to become certified to teach.

- **Creation of New Policies and Teacher Preparation Expectations by the Board of Regents**—To address the new policies approved by the Board of Elementary and Secondary Education pertaining to certification, the Board of Regents approved new policies that pertained to the redesign of all teacher preparation programs and the implementation of a new Teacher Preparation Accountability System. This led toward all universities addressing the four levels of teacher preparation effectiveness discussed in this report. In addition, the Board of Regents approved a new Master Plan for Postsecondary Education that included items pertaining to teaching quality. This resulted in all university system presidents being required to report to the state legislature on an annual basis the progress being made by universities to improve the quality of teachers.

Louisiana’s Teacher Preparation Programs

All universities in Louisiana are now being required to address four levels of teacher preparation effectiveness. A brief description of each level and current results follows:

- **Level One: Effectiveness of Planning**—All public and private universities were required to redesign their teacher preparation programs to address the new certification requirements for teachers. Each university formed a PK-16+ Redesign Team composed of College of Education faculty, College of Arts/Sciences faculty, and PK-12 school faculty to redesign the curriculum. As a result of a move to a standards based curriculum, all PK-16+ Redesign Teams had to align their teacher preparation programs with PK-12 state/national content standards, PK-12 state/national teacher standards, PRAXIS expectations, and NCATE expectations. All universities hired PK-16+ Coordinators to oversee the redesign of the teacher preparation. The PK-16+ Coordinators reported to the chief academic officers at the universities and worked directly with the College of Education deans and the College of Arts/Science deans. They were also responsible for the PK-16+ Councils, PK-16+ Redesign Teams and Professional Development Schools. External evaluators were hired to evaluate all redesigned teacher preparation programs to ensure quality across campuses. Once campuses addressed all stipulations of the external evaluators, approvals of the programs were attained from the Board of Regents and Board

of Elementary and Secondary Education. One hundred percent of the public and private institutions in Louisiana redesigned their programs and attained approval of their new PK-3, 1-5, 4-8, and 6-12 programs by the deadline date of July 1, 2003.

- **Level Two: Effectiveness of Implementation**—All public and private universities were required to develop a comprehensive assessment system to examine the ongoing performance of their candidates while participating in the teacher preparation programs. All universities were also required to be accredited by the National Council for Accreditation of Teacher Education (NCATE). Both requirements served as vehicles to examine the effectiveness of the universities in implementing their programs. All universities are now using the Professional Accountability Support System (PASS-PORT) as a comprehensive system to assess their candidates. In addition, 100 percent of the public Teacher Preparation Programs in Louisiana have successfully addressed national standards for teacher preparation and are accredited by the National Council for Accreditation of Teacher Education (NCATE). All private universities have been accredited by NCATE or are pursuing accreditation.

- **Level Three: Effectiveness of Impact**—A new Teacher Preparation Accountability System that generated a Teacher Preparation Performance Score for each institution was implemented during April 2002. An Institutional Performance Index and a Quantity Index were calculated by the state to determine each Teacher Preparation Performance Score. Indicators for the Institutional Performance Index were passage rates of university program completers on the PRAXIS examinations and survey ratings of first year teachers pertaining to the effectiveness of universities in preparing new teachers to address the state's standards for teachers (e.g., Louisiana Components of Effective Teaching). Indicators for the Quantity Index included increases in total number of program completers and/or increases of teachers in teacher shortage areas (e.g., mathematics, science, special education, etc.). During 2004-2005, universities successfully addressed the indicators and were provided the following labels based upon their Teacher Preparation Performance Scores: Exemplary = 14 universities; High Performing = three universities; Satisfactory = one university; At-Risk (Corrective Action) = one university; and Low Performing (Corrective Action) = 0 universities.

This was an increase from only two universities being initially labeled as exemplary.

- **Level Four: Effectiveness of Growth in Student Learning**—A Value Added Teacher Preparation Program Model was developed during 2003–2004 by George Noell—a researcher at Louisiana State University and A&M College. The model examined the effectiveness of teacher preparation programs in preparing new teachers whose students demonstrate academic growth. The model predicts increases in academic achievement of students based on demographic variables and previous achievement, assesses actual increases in student achievement from one year to the next year, and identifies teacher preparation effectiveness values for each teacher preparation program based upon the increases in achievement of students taught by each university’s new teachers. The model was piloted during 2003–2004 using achievement data of students in grades 4–9 within 10 school districts. The pilot findings indicated that students being taught by new teachers from two institutions (Institution A and B) demonstrated less growth in English/language arts achievement than students being taught by experienced teachers. However, new teachers were generally similar to experienced teachers in mathematics for the graduates of three institutions examined. At a descriptive level, it was found that new teachers from one institution (Institution C) prepared students who demonstrated greater growth in mathematics achievement than students of experienced teachers.

The study was replicated in 2004–2005 using two years of data. Although there were some differences, the model was strikingly similar across years and school districts in Louisiana. At a descriptive level, it was determined that students of new teachers from one institution (Institution C) in the state again demonstrated greater growth in mathematics achievement than students of experienced teachers. In addition, new teachers from the same institution (Institution C) taught children who demonstrated similar achievement growth as students of experienced teachers in the area of English/Language Arts. During 2005–2006, the model is being piloted using achievement data from students in grades 4–9 in 68 school districts. In addition, researchers are investigating factors that may impact the teacher preparation

effectiveness values generated by the Value-Added Teacher Preparation Assessment Model as teachers are prepared in their teacher preparation programs and as they are supported during the first three years of teaching.

Outcomes

As a result of the authentic partnerships that have been created within the state and the successful implementation of strategies, tangible outcomes exist. The following improvements have been demonstrated on a statewide basis:

- The percentage of teachers in Louisiana with Standard Authorizations and Certifications to Teach increased from a low of 84.39 percent in 2001–2002 to a high of 93.79 percent in 2004–2005.
- The overall passage rate on the state teacher certification examinations (PRAXIS) increased from 89 percent for 1999–2000 program completers to 99 percent for 2003–2004 program completers.
- The overall number of program completers who graduated from public and private Teacher Preparation Programs meeting all state certification requirements increased from 2,237 in 2001–2002 to 2,640 in 2003–2004.
- The number of teacher preparation program completers failing to pass all PRAXIS examinations at the point of program completion decreased from 330 in 2000–2001 to 24 in 2003–2004.
- The overall mean score for first year teachers on a survey that examined satisfaction of program completers in being prepared by universities to address the state’s standards for teachers increased from 115.8 for 2001–2002 program completers to 117.05 for 2003–2004 program completers. A mean score of 107.0–116.9 is satisfactory.
- The number of minority program completers increased from 357 in 2001–2002 to 418 in 2003–2004.
- The number of program completers in mathematics increased from 28 in 1997–1998 to 119 in 2003–2004.
- The number of program completers in biology increased from two in 1997–1998 to 91 in 2003–2004.

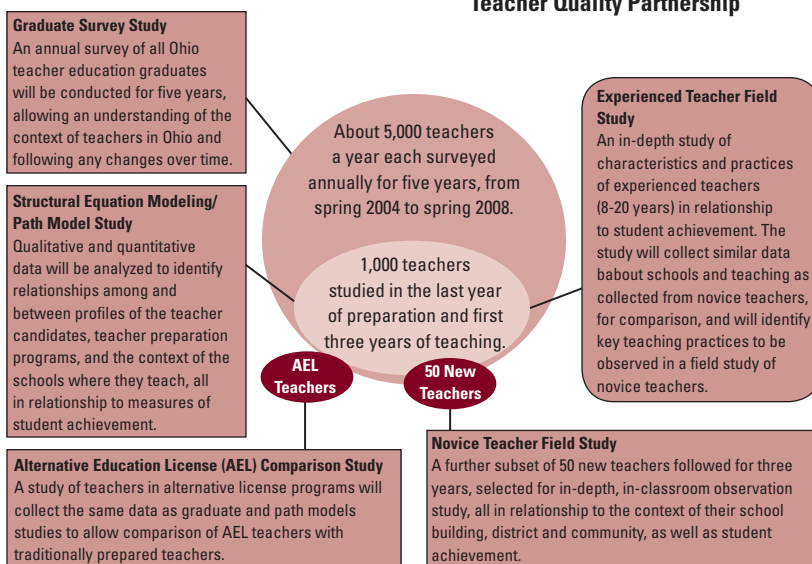
- The number of program completers in physics and chemistry increased from two in 1997–1998 to 33 in 2003–2004.
- The number of program completers in special education increased from 67 in 1997–1998 to 334 in 2003–2004.

State, university, and district leaders realize that all aspects of teacher quality have not yet been addressed; however, they are proud of the success that has already been demonstrated as PK-16+ partners in Louisiana have come together and worked systemically to address identified needs. As work continues in the future, it is anticipated that tangible evidence will exist to demonstrate the true impact of teacher preparation programs on the accomplishments of their new teachers and the students they teach.

Ohio

The Teacher Quality Partnership’s Assessment of the Impact of Teacher Education Consists of Interlocking Research Initiatives

Study Components



- **Component One: Teacher Education Graduate Study**—This is a five-year longitudinal study (2003–2008) that will follow students from the final year of preparation into their beginning years of teaching. All Ohio teacher preparation institutions will survey their student teachers using the TQP Preservice Survey. Graduates will complete the TQP Inservice Survey each year through 2008. Similarly during the same period, beginning teachers with Ohio’s Alternative Educator Licenses (AEL) will complete a modified version of the inservice survey, thus allowing for an analysis of the similarities and differences of these two groups.

- **Component Two: Experienced Teachers Study**—Three cohorts of experienced teachers (8–20 years) will participate in a qualitative study of the planning, teaching, assessment, and reflection strategies of teachers. Using multiple methods of interviews, observations, and artifact examination over one academic year per cohort, this study will document both what teachers do and how they developed their skills and abilities. Of particular interest are the behaviors of teachers who are able to facilitate high academic success in their students.

- **Component Three: Novice Teacher Study**—Sharing the protocol of the Experienced Teacher Study, one group of beginning teachers selected to represent all the types of Ohio teacher preparation programs will be followed for the first three years of their careers. Interviews, observations, and artifacts will contribute to an understanding of how novices approach their responsibilities, as compared to their more experienced colleagues. Similar to the experienced teacher study, this study will focus on those novice teachers whose students make more progress than would have been expected

- **Component Four: Large-Scale Longitudinal Study of Novice Teachers**—This is a longitudinal statistical analysis of the interrelationships among preservice, beginning teacher, and experienced teacher variables in addition to profiles of our higher education institutions and profiles of the districts where TQP teachers are employed. This component will allow analysis of the interrelationships among all these qualitative and quantitative data in relation to student achievement.

Virginia

Virginia Improves Teaching and Learning (VITAL) (formerly known as Teacher Education and Licensure [TEAL] System II)

With funding from the U.S. Department of Education, the Virginia Department of Education (VDOE), the State Council of Higher Education for Virginia (SCHEV), and the Virginia Association of Colleges for Teacher Education (VACTE) have embarked upon a collaborative effort to develop a comprehensive data system that will expand the capacity of Virginia's college and university teacher education programs. VITAL is a new longitudinal data system designed to provide key information to educators and policymakers who are responsible for preparation, licensure, employment, retention, and support of successful pre-K-12 teachers in the commonwealth. VITAL serves as a major vehicle for improving teacher education programs; accountability and accreditation processes; informing policy and funding decisions; and furthering understanding of teacher development and effectiveness.

A 15-member steering committee oversees and advises all phases of the project. Members of the committee include VACTE representatives from two- and four-year public and private institutions, representatives from private industry, SCHEV, VDOE, and the Virginia Community College System. Additionally, input regarding the project has been received from an ad hoc Task Force to Explore the Design for Phase II of Virginia's Comprehensive Data System (TEAL II Task Force) and the standing committee of college officials who share responsibility for advising VITAL personnel on research matters related to teacher education (the Research Committee),

VITAL is designed to include all candidates in teacher preparation programs in Virginia, including those enrolled in nontraditional or alternative routes, such as the Virginia Career Switcher Alternative Route to Licensure Program. All practicing teachers in the commonwealth also will be asked to participate in VITAL, providing important information about teacher development throughout their careers. Many school administrators will contribute to VITAL by evaluating outcomes of teacher preparation

and partnership programs and describing mentorship programs in their divisions.

Background

Virginia is a strong local control state with school divisions having the primary responsibility for public education and postsecondary institutions having primary responsibility for preparing teachers. The Constitution of Virginia and the Code of Virginia establish this responsibility. Student information systems operated by postsecondary institutions are historically decentralized with selection, design, maintenance, and control at the institutional level. The state must approve all programs for preparing new teachers. College and university data systems are either major vendor packages that have been customized extensively, or they are locally written. The lack of standardization characterizes not only institutional systems, but also those used by academic departments and schools. In addition, multiple coding structures are in place at all institutions and departments.

Approximately 1.2 million students attend, and over 93,000 teachers teach in, public schools in the Commonwealth of Virginia. The state's school system is composed of 132 operational public school divisions, with approximately 1,838 public schools. Its colleges and universities prepare more than 2,500 teachers each year in its traditional degree and post-baccalaureate programs and several hundred in alternative teacher education programs. Despite this production, teacher shortages exist in many subject areas and in many locales. At both the state and national levels, student attrition in teacher education programs and teacher turnover are major factors in explaining teacher shortages. The new VITAL system is intended to address the broad issue of adequacy in teacher production and teacher quality.

The Division of Teacher Education and Licensure of VDOE collects extensive data and prepares reports related to teacher preparation, licensure, employment, assignment and support. In July 2003, the VDOE converted its licensure system to an online system known as Teacher Education and Licensure (TEAL I). The TEAL I system handles standard transactions related to application for, and issuance of, new and renewal teaching licenses, and maintains data on the employment and teaching assignments of public school teachers in Virginia.

Minimally, the VITAL system will contain data that permit newly admitted applicants to teacher education programs in Virginia to be tracked longitudinally through completion of their teacher education programs, through required testing and application for teacher licensure in Virginia, and through employment in a Virginia public school. The system will offer software to survey on-line completers of all teacher education programs in Virginia and their public school employers regarding the quality of the teacher preparation they received. Finally, the system will provide data about college and university courses and degrees that completers take as part of their professional development activities.

The VITAL data system does not represent a modification or replacement for any portion of the system related to teacher licensure, employment and assignment that was developed under TEAL I. It is not designed to support licensure transactions of any kind, but rather to provide data related to teaching quality in Virginia.

The VITAL project will be conducted in four phases. It is anticipated that the four phases will eventually be connected with the following databases: SCHEV; Virginia Employment Commission; Virginia Department of Taxation; and TEAL I.

The VITAL Project Phases

- **Phase One: Teacher Pipeline Application**—A Web-based data entry and management tool that provides basic reports, includes students enrolled in all/any types of teacher education programs, and integrates with SCHEV's existing data warehouse. The initial data procedures of this part of VITAL have been constructed and tested, and have been favorably reviewed by the steering committee.

The application is designed to integrate seamlessly with SCHEV's existing data warehouse that already contains course enrollment and degree completion data, and to provide integration with data structures in TEAL. Personnel at Radford University, Radford, Virginia, in concert with HigherEd.org, Inc., serve as the contractor for this phase of the project.

The primary objective of Phase One is to deliver an application that will allow schools of education to provide unit record data (a record of each

individual student) of students identified as beginning in, or processing through, a formal program, whether traditional or alternative, leading to teacher licensure. Patterned after SCHEV's existing student-tracking system, the Teacher Pipeline Application (TPA) provides participating institutions multiple ways to enter student data (manually or through bulk upload) to track student outcomes and student progress through the enrolled program. Through direct connectivity to SCHEV's existing database, institutions would be able to identify students leaving their program/institution and enrolling elsewhere in the Commonwealth.

The TPA consists of two sets of records: the program entry record and the continuing student record. The first several columns of each record are identical to comply with SCHEV data standards and ensure adequate detail to identify students.

The basic goals of the TPA are to provide data back to SCHEV and VDOE regarding the numbers of students in the pipeline and their current academic progress and to provide the schools of education within the institutions of higher education (IHEs) a software solution for tracking their own students in a manner comparable to other IHEs with some ability to allow (and encourage) local customization. The TPA will support institutional efforts at National Council for Accreditation of Teacher Education (NCATE) and Teacher Education Accreditation Council (TEAC) accreditation and further program development and improvement.

- **Phase Two: Teacher Education Outcomes**—Consists of a collection of surveys at various points in a student's educational and professional experience. Specific surveys, including expectations and plans will be conducted at the beginning of each term, at the end of the student's program of study, during student teaching, and at one, five, and 10 years after the student enters the teaching profession.

Phase Two is driven primarily by institutional involvement in the development of surveys of teacher education program experiences, actual teaching and experiences, and exit surveys of professionals leaving teaching. The Teacher Education Outcomes data collection Phase Two is multi-dimensional in that it collects data based on the experiential outcomes of the student's program on an annual basis, merges these data with SCHEV's student degree completion data, and collects data on

students' summative evaluation of their program of study. These data pieces are then connected to TEAL I for licensure information and also to data extracts to SCHEV from Virginia's Employment Commission and Department of Taxation.

A major component of this phase is comprised of surveys of student/administrator/alumni outcomes. These surveys will be developed with the cooperation of the participating institutions and will be targeted at program completers one, five, and 10 years out. The responses to these surveys will provide much-needed insight, through consistent and comparable data, into program outcomes.

- **Phase Three: School Descriptors/Performance Data**—Includes integration of the Common Core of Data and the Integrated Postsecondary Education Data System (IPEDS) from the National Center for Educational Statistics with other locally-developed qualitative indicators of school environment, such as wealth levels, crime rates, student diversity profiles, family environments, economic profiles and community profiles.

Phase Three consists of developing the data and databases on student and school performance, as well as the basic descriptors about each school. Existing data will be used where possible. Surveys of the teaching/working environment in each school will be developed. This will consist of quantitative information about individual teacher preparation programs. Phase Three represents the most challenging component of the VITAL project. For example, the subjective data recommended by the work of the Center for Teaching Quality on such things as sense of teacher empowerment and autonomy, administrative leadership, parental involvement, and other environmental concerns will require creativity and much research to develop.

- **Phase Four: Reporting, Analysis and Systems Support/Documentation**—Will provide standard reports for each group of users, as well as dynamic (ad-hoc) reporting. Under the direction of the Research Division of SCHEV, the creation of restricted use licensing protocols and downloadable analysis files with the data altered/withheld for privacy protection also will be permitted.

Approval to initiate Phases Two, Three, and Four of the VITAL project were approved by SCHEV in February 2006 and are to be completed during spring 2007. These three phases share leadership across three IHEs as follows: The College of William and Mary, Radford University and James Madison University. Additionally, collaborations continue among the three universities, independent consultants, SCHEV, and HigherEd.org.

There are four working teams, each responsible for a different phase of the project. The teams are led by consultants with participation from IHE faculty, school division representatives, and personnel from VDOE. Teams will consist of 10 individuals distributed across the three teams. Team participants were offered a stipend of \$4,000.

In addition to the working teams, five regional groups led by the three deans on the VITAL Steering Committee will participate in the process. Timeframes and purposes of the regional meetings are as follows: (a) to share information about VITAL and discuss survey instruments currently in use within the five regional groups; (b) to collect participant response to the draft instruments; (c) to discuss data collected from the pilot study; and (d) to provide training and technical assistance to participants. Priority was given to the following planned surveys: a survey of graduates at one, three, five, and 10 years; employer surveys; and, a survey for students exiting education programs. A survey of “working conditions” will be conducted at a later time.

Throughout Phases One, Two and Three, it is anticipated that SCHEV will begin to receive requests for data from the system. These requests will help define what will become standard reports from the system. Initially, SCHEV, VDOE, and the VITAL Steering Committee will work to design the reports needed by each group. Finally, the ability to create datasets on demand by researchers (who have obtained an appropriate-use “license”) will be developed. These datasets will be minus individually identifying information but will allow longitudinal study of individuals and groups of teachers. Progress reports on VITAL activities shall be submitted to the assistant superintendent for teacher education and licensure at VDOE as prescribed in the subcontract.

Teachers for a New Era (TNE)

California State University Northridge (CSUN)

In 2002, California State University Northridge (CSUN) and three other institutions: Michigan State University, the University of Virginia and Bank Street College of Education (N.Y.) were independently chosen by a panel of experts after a national review of teacher education programs with the potential to become national models. Subsequently six additional sites were added (Florida A&M University, Stanford University (Calif.), University of Connecticut, University of Texas at El Paso, University of Washington, University of Wisconsin-Milwaukee). As explained in the Carnegie Prospectus (carnegie.org/sub/program/teachers_prospectus.html), three design principles underpin the effort to reform teacher preparation programs:

- Assessing the needs of learners, training future teachers in approaches to assessment, and making decisions about program changes based on evidence.
- Creating strong clinical practice experiences for teacher candidates.
- Strengthening the collaboration of arts and sciences faculty with education faculty in the design and oversight of teacher preparation programs.

To address the assessment principle the CSUN Research Team on Evidence understood that the charge from TNE was to begin a research agenda examining the link between how we prepare the teachers and the impact of that process on the learning and achievement of K-12 pupils. The team was mindful, however, of the complexity and enormity of this task. Addressing this overarching research question is a long-term enterprise requiring: (a) further clarification of the overarching research question and its supporting questions; (b) development of scientifically rigorous quantitative and qualitative approaches to address the research questions; (c) specification of what constitutes valid evidence that describes and measures pathway characteristics and teacher candidate learning and performance; (d) specification of what constitutes valid evidence that describes and measures whether and how teacher preparation is implemented in the field; (e) valid evidence that describes and measures the impact of CSUN teachers'

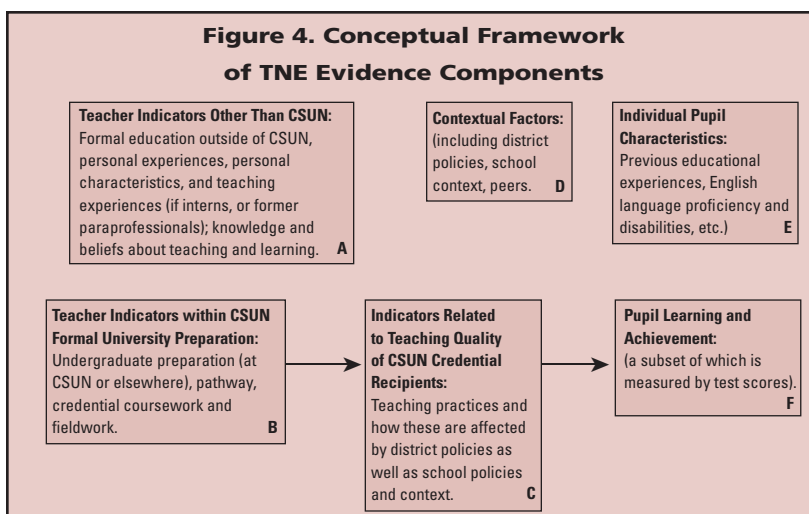
pedagogical content knowledge and practices (stemming from university preparation) upon pupil learning and achievement while accounting for contextual factors; and (f) formation of partnerships with local school districts that would allow us to link teacher candidate data to pupil learning and achievement data.

Conceptual Framework and Research Questions

To begin describing the complexity of potential links between teacher preparation and learning, and to help us in the process of formulating research questions, the team developed the conceptual framework.

- This conceptual framework shows that the overarching questions are:
 - How can teacher preparation at CSUN be qualitatively and quantitatively described and measured?
 - How well do CSUN teacher graduates implement that preparation at the K-12 public schools?
 - How is the implementation of practices learned at the university and their impact on pupil learning and achievement affected by contextual factors?
 - What is the impact of CSUN Teacher graduates on K-12 pupil learning and achievement?

The conceptual framework also raises issues that are more specific to each of the above questions yet are critical because they point to contextual factors that are likely to affect the link between teacher preparation and pupil learning and achievement. The conceptual framework also shows factors over which the team has some control (e.g., teacher indicators within CSUN Formal University Preparation), as well as factors over which the research team has little to no control yet have the potential of significantly affecting the link between teacher preparation and pupil learning and achievement (e.g., contextual factors, individual pupil characteristics). Figure 4 shows that CSUN teacher candidates' knowledge, skills and dispositions with regard to teaching and learning are affected by factors within and outside of the university experience (e.g., the nature of each pathway and candidate demographic characteristics). Once graduated, teachers prepared at CSUN and elsewhere are also influenced by district policies, school policies and professional development activities



led by the district and professional organizations. Similarly, K-12 pupils are also affected by the quality of their teachers (both CSUN and others), the characteristics of the pupils themselves (e.g., demographic factors), and factors other than the pupils themselves. While there is a wealth of studies that examine the relationships of individual pupil characteristics and contextual factors to pupil learning and achievement, as well as studies examining individual teacher characteristics and pupil learning, there are relatively few studies examining the potential link between teacher indicators stemming from the university experience and pupil learning or achievement. (See Zeichner, 2005, Chapter 12,).

Pilot Study

After developing the conceptual framework, the CSUN Evidence Team conducted a quantitative pilot study with the goals of: (a) determining what data were available and accessible in relation to the variables listed in the Conceptual Framework above; (b) identifying data that needed to be gathered as well as the feasibility of accessing those data; (c) conducting preliminary analyses to determine whether there were quantitative data that distinguished teacher preparation pathways at CSUN; and (d) examining the feasibility of obtaining K-12 pupil data that could be linked to the preparation of teachers at CSUN. The process of creating a dataset for the pilot study revealed a need to develop a data warehouse to centralize access to data about the teacher preparation programs and teacher candidates

as well as to standardize the kinds of data we gathered about the teacher candidates. CSUN is developing the warehouse and as a result has begun to gather data more systematically and comprehensively on its teacher candidates.

Measuring Pathway Characteristics and Teacher Candidate Learning and Performance

A major decision in the pilot study was to determine which pathway or pathways to target to examine for the pilot study and the longitudinal research, in addition to determining what data were available for the specified pathway and what data still needed to be collected. CSUN offers nine pathways toward a teaching credential. In 2004–2005 approximately 1,053 candidates were awarded the Multiple Subjects Credential and 826 were awarded the Single Subjects Credential. All but one of the programs is post-baccalaureate. The largest and oldest program has 800 or more candidates in the pipeline per year. Some of the smaller, newer programs (such as the undergraduate Freshman Blended program) may have approximately 20 candidates in the pipeline per year. Given the size and number of teacher preparation pathways offered at CSUN, the team needed to begin by determining which teacher preparation pathways to study and how to define those pathways in ways that could be meaningfully described and measured quantitatively and qualitatively.

Three pathways were selected for the pilot study because they represent the continuum of the pathways in relation to size, degree of coordination within the program and different relationships between the program and K-12 context. Because of these features the team thought they could potentially offer a better contrast. A major challenge, however, was and continues to be determining how to qualitatively and/or quantitatively capture what defines and distinguishes each of these three pathways and candidate performance.

A database was developed for the pilot study that includes some information on Indicators Other than CSUN (see Box A, Figure 4) that were part of the selection criteria (i.e. demographics, incoming grade point average and scores on the California Basic Skills Test), and Teacher Indicators within CSUN Formal University Preparation (see Box B, Figure 4) including performance criteria (i.e., grades on those specific to

the pathways as well as those related to literacy and math methods and content knowledge). In developing the database the team learned that it did not have access to a variety of data that would be important to include in this research (i.e., Teacher Indicators Other Than CSUN and Indicators of Teaching Performance once the candidates had graduated). As a result of the pilot studies, the database has evolved into a data warehouse that ultimately will provide much more information on candidates' background, their progress while in the pathways, and their performance during the induction years (first two years as credentialed teachers). It is only through ongoing analysis of data that the team will be able to determine what kinds of teacher preparation data are linked to pupil learning and performance. In addition, as a result of a data-sharing partnership (described below) the team obtained data on teachers' inservice experience (Box C, Figure 4) such as number of years teaching and additional degrees or credentials beyond the preliminary teaching credential.

Pupil Learning and Achievement

To measure the impact of teacher preparation on pupil learning and achievement, the team needed to gain access to pupil data relating to pupil learning and achievement (Box F, Figure 4), pupil characteristics (Box E, Figure 4) and School Contextual variables (Box D, Figure 4). In California, it is difficult to obtain those types of data due to regulations and policies relating to the privacy of students and teachers.

A group of pupil learning and performance data were collected (Box F, Figure 4) such as standardized test scores and district-based assessment data, as well as data on pupil characteristics such as English language proficiency and parent education level (Box E, Figure 4) and school context data such as indicators for socioeconomic levels (Box D, Figure 4).

The dataset created for the pilot study combines data on a cohort of teachers prepared at CSUN and data on their K-12 classes. The CSUN Evidence team was able to access K-12 pupil data because a partnership had been developed between the CSU Chancellor and the Los Angeles Unified School District to facilitate the sharing of data in a legal and ethical manner.

The pilot study prepared the groundwork for a larger longitudinal study in that it revealed the types of infrastructure needed at the university in order to systematically gather data on its candidates while in the university and after they have graduated. The pilot yielded a dataset that can now be used to explore potential differences between the teacher preparation pathways and their impact on pupil learning and achievement.

Longitudinal Study

A large-scale quantitative study can provide broad information about the relationships between the components illustrated in Figure 1. For example, we will examine K-12 pupil gain scores on standardized achievement tests and determine whether there is a relationship between those gain scores and specific teacher preparation factors. Both the presence and absence of a relationship among specific teacher preparation factors and indicators of pupil learning would have significant implications. If specific tests (or clusters of tests) bore no statistically significant relationship to pupil learning indicators, we would then need to examine the phenomenon further and ultimately determine whether to change or remove these requirements from the pathways. Those teacher indicators that did significantly relate to pupil learning would also need to be further explored and perhaps expanded. These types of analyses, however, require sophisticated statistical approaches such as Hierarchical Linear Modeling or some type of Value Added Modeling because of the number and nature of variables that would need to be taken into account to make fair and accurate comparisons (e.g., comparing teachers who are teaching the same grade level, in schools that are comparable with regard to levels of poverty, English proficiency levels, students with disabilities, etc.).

In a Rand Corporation review of research on the effects of teachers on pupil learning, McCaffrey, Lockwood, Koretz and Hamilton (2003) found a number of studies indicating that teachers differentially affect student growth and achievement and that effects are large and account for a significant proportion of the variability in growth. As a result, there have been spates of studies that attempt to capture this relationship using statistical models, primarily Value Added Models (VAM). An entire issue of the *Journal of Educational and Behavioral Statistics* (Spring 2004) was dedicated to value added assessment. The studies discussed by the Rand report and presented in the special issue focused on student-related factors

that contribute to achievement variability such as student background, socioeconomic status and demographic variables. Yet none of the studies addressed teacher background variables other than number of years teaching.

The CSUN Evidence Team intends to contribute to the growing research on the impact of teachers on pupil learning by focusing on potential teacher background variables that may affect that relationship. The team proposes that teacher preparation in the acquisition and application of knowledge, skills, and dispositions related to learning literacy and numeracy is likely to affect teaching practices, ultimately affecting their students' learning and achievement.

The longitudinal study will use Hierarchical Linear Modeling and Value Added Modeling to address the following:

- In what ways do CSU Northridge Teacher Preparation programs impact K-12 pupil achievement, particularly in reading and math?
- Do pupils of teachers who graduated from different CSUN teacher preparation programs produce significantly different achievement patterns as measured by standardized and district-developed tests?
- Is there a relationship between teacher preparation factors (such as course grades and test scores) and pupil performance on these tests?
- Which set of variables has a greater impact on pupil test scores, those relating to teacher preparation programs, those relating to teacher inservice experience (number of years teaching, waivers for special education or emergency credentialing), or those relating to school characteristics (school characteristics index, proportion of pupils in school lunch program)?

The study will examine patterns within and across grade levels, comparing schools with similar school characteristics, and, to the extent possible, teachers with the same number of years teaching.

However, quantitative methods alone would not be sufficient to explain the identified relationships (or lack of relationships among variables); qualitative research methods would also need to be used. Qualitative

studies of the classroom environment and teacher-student interaction, for example, provide data that are not easily quantifiable (i.e., whether CSUN teacher graduates implement practices learned in their university teacher preparation program). Following this reasoning we designed a qualitative study and, using lessons learned from that experience, have designed a study to examine this issue.

The study focuses on secondary math teachers and will examine to what extent the teaching practices of first- and second-year teachers reflect the philosophy and practices emphasized in the secondary math methods courses at CSUN and if not, why not. It is essential to measure the fidelity with which perspectives and practices learned in the university teacher preparation program are carried out by teachers in the public school setting if we want to draw a relationship between university teacher preparation and pupil outcomes. The study asks, to what degree do recent CSUN secondary math credential-program graduates implement in their classrooms the teaching practices the programs aim to instill? Are these programs improving over the years in terms of this implementation?

Annual classroom observations and surveys of first- and/or second-year teachers with new CSUN credentials will be conducted. The observations will focus on five to seven practices central to the CSUN Single Subject Math Program. These are math instructional practices that can be operationally defined, are easily observed, and can be quantified. The surveys will focus on teachers' perspectives about where they learned pedagogical content knowledge, and what factors influence their teaching practices. In addition classroom observations and interviews will be conducted on a subsample of this larger sample of secondary math teachers. The purpose of the case studies is to find evidence of the impact of teacher practices on pupils in a secondary math context by examining teacher-pupil interaction and/or pupil work, as well as in-depth interviews of teachers regarding their pedagogical content knowledge and practices in math.

The involvement of California State University Northridge in the Teachers for a New Era initiative has yielded changes to the infrastructure of the university that were necessary to meet the evolving research agenda. It has impacted the kinds of data we collect on the teacher candidates (i.e., increasing the variety of data we gather on candidates' backgrounds prior

to entering CSUN, fine tuning the kinds of data we gather about their teacher preparation experiences by pathway). A new vehicle, the data warehouse, has been created to facilitate the merging of data from multiple sources on an ongoing basis. A partnership has been nurtured with a local school district for the purpose of exchanging data to mutually support each other in examining the relationship between teacher preparation and implementation and pupil learning and achievement. Finally, the research agenda itself is evolving and is being developed by faculty from Education and the Social Sciences, as well as the partners in the school district and the California State University chancellor's office.

Appendix B: References

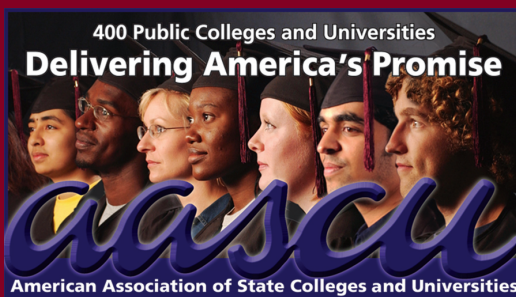
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